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Ars Veterinaria post medicinam secunda est.—*Vegetius.*

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Communications and Cases.

THE RELATION BETWEEN PATHOLOGY AND THERAPEUTICS,

By Professor Brown.

Two paths are open to the student of medical science: one leads to a knowledge of the nature of abnormal conditions, the other to an acquaintance with the means of their rectification. It is quite possible to pursue both courses with equal attention; but more commonly, the enthusiastic investigator devotes himself to the exhaustive exploration of one.

Pathology has found many competent exponents, therapeutics but few. Absolutely there is no comparison to be drawn between the results in each case, but the history of both furnishes material for thought. The science of disease, as it may be called, the study of the minute changes of function and structure which combine to constitute abnormality of either, the correct appreciation of the influence of various external agencies upon internal actions, the knowledge of the laws which regulate the development of organic bodies, has been steadily progressive through much confusion and doubt, by very slow and painful steps. Pathologists have advanced to a clear conception of the character of many, if not all, of the morbid changes to which the tissues of living beings are liable. There is very much yet to be learned, but the knowledge which has been acquired is, so far as it extends, definite in its nature. Complex formulæ are no longer necessary to express the phenomena of diseased action; the only possible variations from the normal state are concisely defined

by the words 'excess,' 'defect,' 'perversion.' Of this much the student may assure himself when setting to work assiduously to think out some, to him, obscure point in pathology.

Many facts are patent to his observation at once; the animal which is the subject of his solicitude is suffering; there is obviously want of ease—'disease:' the order which obtained a few hours ago is now disturbed; there is disorder in its stead. What is the significance to be attached to the several manifestations of disorder? If he is a wise student, and not a shallow empiric, or a slave to formularies, he will seek to resolve the difficuly by patient inquiry; if, instead, he is indifferent about the truth, he will smother his awakened curiosity by an effort, not always painless, and content himself with the saying, "The horse is out of health, give him a little medicine." In taking this last course, he does himself an almost irreparable wrong, certainly confers no benefit on his patient, and inflicts an insult upon the science he professes to expound.

The relation between pathology and therapeutics is positively established in the rational mind; the honest physician will not apply a remedy of the action of which he is ignorant, to a disease the nature of which he does not comprehend. It is well known to him, of all men, that his duty is to set in order what he finds to be deranged; but he is well aware that he must find out first in what the disorder consists, or his attempt to rectify may, who shall say how often the attempt does, lead to more hopeless perplexity.

The knowledge of therapeutics has not advanced to the same extent as the knowledge of the elements of disease; it is easier even now to decide upon the nature of the derangement, than to determine upon the best plan of reparation; but notwithstanding the subordinate position of the healing art, it is noticeable that whatever progress has been made, is in the direction of simplicity as opposed to complexity. The combinations of incompatibles which at one time were made with scrupulous exactness and often superstitious care, have all given place to simple mixtures; and as the formulæ have been rendered less elaborate, so the discrimination which regulates their employment has become more precise. As the knowledge of medicinal properties of drugs has increased, so has the caution which regulates their use; and it may be truly said, that those who know most of pathology, are the least anxious to interfere unwisely with the restorative power of the organism, and until they have ascertained its dominant direction, they are often content to remain passive. In many cases doubts may arise; then the pro-

minent duty is to watch until they are resolved. To the careful observer certain important indications will always be unequivocally apparent if they are sedulously sought, and in setting in order what is known to be wrong, he cannot fail to effect some good; while, on the contrary, blundering endeavours to correct what is only suspected to be at fault, are more likely to destroy than to cure. The student of veterinary medicine, for whom these remarks are more particularly designed, has the advantage of the busy practitioner, in that he has time at his disposal; and if he will only admit the correctness of the principle which is asserted, honestly determine to thoroughly investigate every case of disease that comes under his observation, and refrain from interference until he can say, This, at least is rightly done! he will look back in a few years with gratified surprise at his advance in medical knowledge; and, in the future, he will find a perpetually increasing interest in critical investigations of the phenomena of disease, and the means of combating them.

An improved and extended curriculum of education for the veterinary student has been long since insisted on; but this ultimate curriculum will extend throughout life, and during the whole course a man's master must be mainly himself.

OVARIAN TUMOUR IN A MARE.

By Messrs. Gowing & Son, Veterinary Surgeons, Camden Town.

On Tuesday, November 24th, we were requested to visit a bay cart mare, said to be suffering from colic. The animal was from 12 to 14 years of age, and had continued in good health, excepting a supposed attack of colic in August last, from which she perfectly recovered.

The following symptoms were observed on our visit. The mare was lying down on her off side, her breathing was accelerated, the pulse was 60 and feeble, the vascularity of the visible mucous membranes was increased, and there was slight movement, at intervals, of the legs, indicating pain; she would raise her head, and sometimes look at her off flank, and then resume her former position, and lie perfectly quiet. Her attendant stated that she had passed no dung

since Sunday, and at intervals she would sit upon her haunches with her fore legs advanced. Supposing there might be some impactment in the bowels, an opening draught was ordered, consisting of Ol. Lini ℥xx, Calomel ʒss, and as there was some indication of pain, Tinc. Opii ℥j was added. The dose of opium was a small one in consequence of the mare having had two colic draughts previously. An enema of soap and water, with Ol. Lini ℥x, was thrown up, and instructions were given to foment the belly with warm water by means of rugs. The mare was seen again in the evening, the symptoms were about the same. The injections were returned colourless; they were ordered to be repeated twice during the night, and mustard to be applied to her belly. A draught was left, consisting of Sp. Æther. Nit. and Tr. Opii, to be given should the pain become more acute. On Wednesday morning the animal was again visited; the pulse was more feeble, and the mare more exhausted; Sp. Æther. Nit. was ordered to be given in gruel every three or four hours, the former opening draught was repeated, with the addition of Sol .Aloes ℥iv, gruel, and warm water were allowed *ad libitum*. It was, however, apparent that the case was a hopeless one. On Thursday morning my assistant called early and was informed that the mare was dead. Upon making a *post-mortem* examination, the intestines were found to contain a considerable quantity of fluid fæces, except towards the rectum, where they were in a more solid condition. The most prominent object, however, was an enormous tumour, occupying a considerable part of the abdominal cavity, and pressing upon the posterior bowels. Upon examination, the growth was found to be an enlarged ovarium of the left side. The weight of the mass when removed was 29½ lbs., its circumference in one direction was 37 inches, and in the other 35¼ inches; from which it will be inferred it was nearly spherical in form.

No other cause of death was discovered, and we were induced to suspect that the pressure of the tumour had caused the retention of fæces, and ultimately led to the exhaustion of which the mare died.

Examination of the Tumour.—A section, which was made completely through the enlarged ovarium, at once revealed the existence of a cavity occupying the centre of the tumour, and containing a dark red fluid; the walls of the cavity were formed by the fibrous stroma of the ovary, which was hypertrophied and varied in thickness in different parts from two inches to less than an inch; the interior of the cavity was lined by a fibrous membrane which possessed no

epithelium; some portions of the internal surface were torn or broken away, and on other parts there were numerous projecting nodules of the size of a hazel nut, which, on being cut into, were found to contain a red fluid similar to that which filled the larger cavity; in every part of the stroma of the ovarium small cysts were met with, and many of them were becoming very thin in that part of the wall which projected into the large cyst.

The fluid in the larger cavity was found to be principally blood. Under the microscope the red discs were seen in abundance, and nearly fifty per cent. of them had assumed the stellate form; there were besides a few white corpuscles, some granular cells, epithelial cells from the peritoneum, and small masses of fibrin. The tumour was too much decomposed to permit of its being injected, and consequently it was impossible to determine the arrangement of the vessels or to ascertain from what source the blood contained in the cavity had emanated.

COMPOUND FRACTURE OF THE FEMUR.

By W. H. Bulmer, M.R.C.V.S., Dover.

The subject of my communication was a brown thoroughbred colt, 4 years old, which met with a fatal accident while being castrated, on the 7th inst. I had firmly secured my patient in the usual way for such an operation, and had removed one testicle from the scrotum: as soon as I made an incision in order to remove the second testicle, the colt struggled violently, when a distinct cracking noise was heard, resembling the sudden snap of a rope or a thick stick. My assistants, numbering 6, who helped me to secure the colt, noticed it, and we at once concluded that a rope had broken, but on examination we found such was not the case; on turning the colt on his side and liberating him, I noticed that he moved the uppermost hind leg in a peculiar manner, and when he attempted to rise he staggered and fell again; an examination of his hind legs led to the discovery of a fracture of the femur of the off hind leg. I at once acquainted the owner of the accident, and he requested me to have the animal destroyed. On making a *post-mortem* examination of the limb the bone was found broken in *eighteen pieces*. Considering this an unusual case I shall be glad if you will

find me a small space in your valuable columns for its publication; and shall read with pleasure any remarks you, Messrs. Editors, or your numerous readers may make upon it.

AMPUTATION OF PENIS.

By Fred. Thomas Welham, M.R.C.V.S., Stratford St. Mary, Suffolk.

On the 14th of April I received a message to attend a pony belonging to a client of mine, a Mrs. Heath, of Shelly, near Hadleigh, Suffolk, and was informed by the groom on my arrival, that from some unexplained cause the animal had for four months past been unable to stale properly and had not been seen to draw his yard.

I found upon examination what appeared to be to me a very large cancerous growth on the end of the penis, which had become firmly adherent to the inside of the sheath almost the whole way round, and so far blocked up the end of the urethra that the animal was unable to stale freely, consequently the urine was constantly dribbling from him.

I at once advised an operation, and the pony was sent to my stables for that purpose; the next day on casting, I found it necessary, before I could expose the penis, to divide the sheath for some 5 or 7 inches along the raphe, and with my scalpel separate the adhesion between it and the penis, which for 4 or 5 inches was diseased, presenting an enlarged fatty and ragged appearance.

I passed a short catheter up the urethra, which I secured by means of a ligature round the penis, I then removed the affected part just below the ligature, and closed the wound in the sheath with sutures.

The animal was placed in a comfortable loose box, an aperient was administered, and occasional doses of anodyne medicine were given; water with the chill off, and warm mashes were allowed for 2 or 3 days, after which the wounds in the sheath began to suppurate nicely.

On the seventh day, the ligature by which the catheter was suspended became detached, and the wounds were progressing favourably, I cleaned and dressed them every other day with a weak solution of sulphate of zinc, and on the 17th of May sent him home completely cured, and the animal since then has been able to stale freely, and instead of wasting, makes flesh, and is working well.

SUCCESSFUL CASE OF LITHOTOMY.

By the Same.

On the 19th of October, a cart-horse, the property of T. L. Ewen, Esq., of the Rookery, Dedham, Essex, was sent to my infirmary about 6.30 a.m., supposed to be griped. I found the patient rolling about in great pain, sweating profusely; pulse 70, full and bounding; he was continually looking round at his flanks, with frequent straining and attempts to stale.

I explored the rectum and found the bladder exceedingly full and very tense, but from its distended condition could detect no calculus; I then passed the catheter and discovered that something was impacted so firmly in the neck of the bladder, that I was unable to move it.

I determined to operate at once, and for that purpose applied the twitch and drew the near hind leg forward with a sideline which I secured round the shoulder; I passed the catheter up the urethra, a groom steadying it for me and holding the tail on one side. I then made an incision some three and a half inches long with a very sharp scalpel, cutting down through the perineum close on the left side of the raphe, on to the catheter, and with a bistoury enlarging the opening into the urethra; and by manipulating with a pair of forceps succeeded in extricating the calculus with very little difficulty, thus allowing the urine to escape freely through the opening.

After washing the bladder out with tepid water I brought the lips of the wound in apposition with sutures and thoroughly closed it by several applications of collodion until a thick layer was formed. I then poured some collodion on a piece of wadding, about five inches long and two wide, and laid it on the wound over the coating of collodion; this adhered so firmly for fourteen days, that no fluid could escape through the wound, at the expiration of which time it became detached. I removed the sutures and found, to my gratification, that the wound was completely cicatrized.

On the 26th of October I sent him home and he has been at work ever since. No medicine was administered "as the removal of the calculus afforded entire relief" till the third day, when, as his urine was rather thick, I gave hydrochloric acid in his water for several days in succession.

I was fortunate to avoid the arteries of the bulb, &c., and do not suppose that a wineglass of blood was lost during the operation.

DEATH OF SEVERAL ANIMALS FROM EATING ACORNS.

By Edwin Taylor, M.R.C.V.S., Bury St. Edmunds.

Seeing an account of several cases of poisoning by acorns in the *Veterinarian* for this month, I wish to add to them the record of several cases that have occurred in my practice. On October 14th I was requested to see fifteen young bullocks about eighteen months old, the property of the Mayoress of Bristol, which were reported to be ill, and also two others that were then lying dead. The symptoms were great prostration of strength, dull and dejected appearance, ears cold and depressed, staring coat, pulse very feeble, and total loss of appetite. They were reported to have been ill two or three days; diarrhœa existed in all of them; the two that were dead had died during the previous night.

They had all been in a large park which abounded with oak trees, and had been seen to eat acorns, therefore these were at once conjectured to be the cause of death by those in attendance.

There was also in most of the bullocks a yellowish discharge from the eyes and nostrils, which might have led to the supposition that the disease was cattle plague, had it occurred some time previously. In one or two there was a slight abrasion of the buccal membrane.

The *post-mortem* appearances were these: the lungs slightly congested, the heart covered with spots of ecchymosis, the rumen and all the other stomachs were more or less inflamed on their mucous coats, particularly the omasum, in which was floating several large clots of coagulated blood. The intestines throughout were also very much inflamed, approaching to gangrene in places. In another bullock which afterwards died there was a large coagulum of blood on the outside of the rumen, firmly attached to the peritoneal coat, weighing between six and seven pounds. In another the mesentery was covered as thickly as possible with spots of ecchymosis.

In all eleven animals died, and the *post-mortem* appearances were much the same in all. The treatment adopted was the exhibition of powerful stimulants and tonics combined

with opium three times a day, with a plentiful supply of thick gruel, old beer and brandy. Those that died remained ill between three and five days. Food of every kind that could be thought of was offered to them, but in too many cases it was of no avail; those that survived and lived out the disease gradually recovered their appetites, but were brought down nearly to skeletons.

On October 26th, at 12.30 p.m., I was sent for in great haste a distance of five miles to see a yearling colt of Mr. Mallow's, of Beyton, which was reported to be very ill. On my arrival I found the colt lying down almost unconscious, and unable to rise without assistance; the man said the colt was well, to all appearance, and feeding at 7 a.m., and when he saw him again at 10 he seemed very full of pain, and was rolling about. I found the pulse very weak, scarcely perceptible, the membranes of the eyes and nostrils were highly injected—hurried respiration, body tympanitic and painful when touched. I gave the colt a draught composed of Ammonia Carb., Tinct. Opii and Spt. Æther. Nit. in some beer, but the animal was so weak that it fell down immediately afterwards, and in about half an hour death put an end to its suffering. There were three other colts which had been with it, all turned out in some pastures in which were several oaks, and the man said he had seen them eating acorns.

This case occurring during the time I was in attendance upon the bullocks, from the man's statement induced me to think that death was caused by the same means. Upon making a *post-mortem* there were some husks of acorns with other food in the stomach, the mucous coat of which was intensely inflamed, and covered with spots. The intestines through their whole course were in a state of gangrene, and on the external coat of the colon were innumerable spots of ecchymosis. I have no doubt that death was caused in this case by acorns, as the *post-mortem* appearances were so similar to the others, and thinking the fact might prove interesting, I have ventured to add it to the history of the other cases.

TETANUS IN A FOUR-YEAR OLD HEIFER.

By Ed. Creswell, M.R.C.V.S., Yeovil.

On the morning of the 26th of October I was requested to attend a four-year old in-calf heifer of the Devon breed,

which the man informed me had been mawbound from the previous Friday, the 23rd. On my arrival I found the patient apparently in acute pain, the back was arched and the tail held straight out and quivering; on taking the pulse I found it was very little altered from a normal condition either in charaeter or number. On endeavouring to open the animal's mouth I at onee discovered the true malady which my patient was suffering under. I informed the owner at once, and stated the probability of the result being unfavorable, when, to my surprise, the man in attendance said he had endeavoured two or three times to force the poor brute's mouth open with a stiek, but with an unsatisfactory result.

Treatment.—As the jaws were quite closed I asked my client for a wine bottle and administered at once the following :—

℞ Mag. Sulph. lb. iss, Aquæ tepid. Oij, and an enema of tepid soap and water, ordering that the patient be not in any way disturbed until next visit. I saw my patient again in the evening and gave her the following :—℞ Spt. Æth. Nit. ℥ij, Ol. Tereb. ℥j, Ol. Lini Oj; another enema of soap and water was thrown up. I then left her for the night, ordering that she should be kept perfeetly quiet.

27th. I visited my patient this morning and found the symptoms unabated and the jaws still closed. I administered a stimulating draught as well as the animal could suck it down; this was followed up by an enema of the following :—℞ Aeid. Hydrocyanic. ʒj, Aquæ tepid Cj; after staying with my patient half an hour without any visible change I again left, saying I would see her again at night. I found, upon again visiting her, a great amount of tympany present. I at once administered the following :—℞ Spt. Ammon. Arom. ℥ij, Gruel Oiss, whieh was taken with difficulty. The same quantity of hydroeyanic aeid in enema as in the morning. I stayed about an hour and a half, and finding the animal not relieved by the draught, I had reeourse to paracentesis abdominis, by whieh my patient was immediately relieved, and as the symptoms of tympany did not again appear I left her for the night. The same treatment, viz., stimulants and the hydroeyanic aeid injections twice daily was eontinued until the 30th, when my client told me he considered the ease hopeless and would not go to any further expense. Thinking it a very interesting and rare ease I wished him to allow me to continue with it, which I did for two days in the same manner as before, when the bowels beeame quite relaxed, and the animal was able to suck up a little wet bran. The medicine and enemas were gradually discontinued, and the animal was enabled to eat freely; the

stiffness of the tail and limbs continued for more than three weeks before it passed off, which it did all at once. As tetanus is, to my observation, very rare in the bovine species, perhaps the same may apply to my professional brethren, and therefore renders this case more interesting. It was clearly a case of idiopathic tetanus, there being no sign whatever of any lesion externally.

MR. WALLEY IN REPLY TO MR. HUNTING.

As my name has been brought forward in a letter in your last issue, I deem it my duty to answer the said letter (in some part), and with your permission will do so.

I had thought that my endeavour to throw light on the matter of veterinary education had been ignored by my professional brethren, but to my relief I find such is not the case, through the kindness of Mr. Hunting of Mayfair; before alluding to that portion of his letter referring more particularly to myself, I will speak of the subject about which we are all so interested, viz. education; and I hope Mr. Hunting will allow that one has as much right to an opinion as another. One word about the apprenticeship system. I am afraid Mr. Hunting has been brought up under one of the Bluebeards whose portraits he so clearly delineates, hence his horror of the apprenticeship system; if I am wrong in this supposition, then I fail to see his qualification for committing to writing such an unfair and ungenerous description of pupil and master. That there are masters whose only idea in taking a pupil is to save themselves drudgery and toil, and to obtain the fees, I grant; but there are not so many as he would lead us to suppose; and as to the pupil being made to give draughts, make up physic, &c., I would ask, of what use is he in a sick stable or cow-shed, where he has dangerous cases under treatment, if he cannot do these better than the groom or cowherd? I imagine he would cut a sorry figure if he could not administer a draught, or give a ball.

Mr. Hunting also speaks of the overbearing character of the practical student at college. "Those who in glass houses live, should not, you know, throw stones." So far from the practical student being the first to parade his knowledge *pro bono publico*, it is the theoretical or mushroom-grown student who plumes himself upon the extent of his acquirements. I

would put it to any practical student, past or present, whether those who have never seen practice are not the most overbearing and patronising in their manner at college as a rule? I do not hesitate to say, that those students who have been pupils are not only the best workers in the dissecting-room and laboratory, but in class too,—and this I can prove by facts worth more than a thousand theories or suppositions,—and they take more interest in the lectures, inasmuch as they can compare what they hear with what they have seen; they ever take the most useful notes, and knowing practice, they have more time to study the more abstruse subjects relative to their profession. That there are lazy and bad practical, as well as lazy and bad theoretical students, I admit; but in these cases the preceptor cannot be allowed to go scot free from blame, and I can agree with Mr. Hunting, that the practitioner who takes pupils from base and sordid motives is unworthy the name of an honourable man.

It is the neglect of moral training that makes a bad pupil,—giving him no other motives but the lowest to guide him; and Mr. Hunting will find, if he looks, that I have strongly descanted upon this point in my paper. If that gentleman can show the governors and directors of our College how to obtain funds to establish two courses of lectures, one for the student before seeing practice, and the other for the student after having seen practice, he will confer a great benefit upon us all.

In reference to my paper read before the Liverpool Association, Mr. Hunting says I commence by saying that the one grand question is, What profit am I to gain from this thing? He is in error in two ways: in the first place, I do not commence by such a proposition, as it occurs some thirty-eight lines down, in your published report of my paper, after one or two other propositions or questions; and in the second place, he rides rough-shod over the few words (unless he is provided from other sources) immediately preceding that proposition; and he adds, "this opinion would have been better in disguise." Wherefore? My words or deeds are not yet so dark, I hope, that they should require the flimsy veil of disguise to hide them, neither am *I* afraid that they should see the light; but rather it was that they should be seen and sifted that I wrote them. My remarks relative to the improper use of education were simply to show how even that boon may be diverted to bad purposes,—not to terrify, or be a bugbear to any one.

Lastly, my "splendid programme" is rendered absolutely useless by Mr. Hunting's sweeping assertion, that it is utterly

"impracticable." I certainly would very much like that gentleman to show me how and why it is so? One portion of it (granted) may be rather difficult for him to do in London, viz. to direct his pupil to employ his leisure time in walking into the fields to watch the habits of animals in a state of nature. I not only deny his assertion, but unhesitatingly say that there is not one impracticable point about the programme to the student with ordinary education and mental capacity, and to the master with common abilities, and a desire for his pupil's welfare.

As Mr. H. truly implies, I am in favour, not only of an "educational test," but of a moral and practical education.

In conclusion, Mr. Hunting has taken the President's closing speech in quite a different way from that which was intended by that gentleman.

MUTUAL VETERINARY BENEVOLENT SOCIETY.

The President of the National Veterinary Benevolent and Mutual Defence Society (Mr. Peter Taylor) has intimated his intention of contributing the sum of Ten Pounds towards the Benevolent Fund, provided nine other gentlemen will do the same, thus adopting one of the many excellent suggestions made by Mr. Field, the President of the Royal College of Veterinary Surgeons, at the meeting at Leeds. Let us hope that for so good a cause not only nine but ninety-nine will be found able, ready and willing to contribute a like amount.

I may state here that the next meeting of this Society will be held in London, of which due notice will be given.

George Morgan, *Hon. Sec.*

Liverpool, December 16th, 1868.

Pathological Contributions.

SPLENIC APOPLEXY.

Since the publication of our last number we have received information of the appearance of this fatal disease in several and widely separated parts of the country. In every outbreak the disease has proved very fatal, and in many it appears to have been connected with the remarkably mild and humid state of the weather, which has led to the cattle being kept in the pastures far beyond the ordinary period. The pathology of splenic apoplexy is not well understood, nor the operation of the proximate causes which give origin to the malady. The immediate pathological change seems to consist of a fermentative action being induced in the blood, which is supposed by some pathologists to depend upon the existence of *bacteria* in the circulating fluid. The term splenic apoplexy is likely to induce a belief that the malady essentially consists of a morbid condition of the spleen, and that death is due to a suspension of the function of this organ. On the contrary, the engorged state of the vessels of the spleen would appear to have little influence in causing the death of the animal, and to be merely the effect of a changed state of the blood. Death seems rather to depend on cerebral impairment. Curative measures are for the most part unavailing, but future attacks in a herd may sometimes be prevented by the daily use of antiseptics, particularly the hyposulphite of soda.

DEATH OF LAMBS FROM FILARIÆ BRONCHIALIS.

Great losses are being sustained by many farmers from the wide diffusion of the *filaria bronchialis*. Contrary to what ordinarily occurs, many of the animals give no evidence of bronchial disease, by a quick breathing, cough, prostration of strength, wasting, &c., lasting for several weeks, but die after about two or three days' illness from active congestion of the lungs. It is more than probable that the humid state of the weather has much to do with the modification of the pathological changes. Such animals in addition to a general congestion of the lungs, present a nodulated condition of

these organs here and there. These enlargements, which are sometimes as large as a hazel-nut, contrast greatly with the rest of the lung tissue when cut into, being of a grey colour, condensed and very firm. A microscopic examination of the smallest portion of moisture squeezed or scraped from them shows the existence of an enormous quantity of ova and embryonic filariæ.

DEATH OF ANIMALS FROM EATING ACORNS.

Mr. Cresswell, M.R.C.V.S., writes that, "Seeing an account in your valuable journal of several animals having died from eating acorns, I venture to make a few remarks upon these cases, which I hope may not be out of place. All the animals that have come under my notice were young stock and young sheep, of both sexes. In no instance was the animal more than twelve months old. The leading symptoms were akin to those described by your several correspondents. The first three animals I treated with purgatives and stimulants, but they proved of no avail. The *post-mortem* examination showed that mortification, or a death of structure, had taken place in several parts of the alimentary canal, and that masses of half-masticated acorns were present in the stomachs. The other organs, with the exception of the liver, which was enlarged and mostly pale in colour, were apparently healthy.

"Finding that my treatment proved unsuccessful, I had recourse to the exhibition of Tinct. Opii, Spt. Æther, Nit. and Tinct. Gent. Co., thrice daily, in linseed gruel. This proved beneficial, the result being that I only lost one more animal."

TUBERCULOUS DEPOSITS IN THE ABDOMEN OF A HORSE.

Mr. W. Fenner, M.R.C.V.S., Clare, Suffolk, has forwarded to the College an interesting specimen of tuberculous depositions within the abdomen of a horse, weighing upon the whole upwards of thirty pounds. He writes that the tumours varied in size from that of a pea to a cricket ball, and that many of the larger ones were attached to the intestines, stomach, liver, and diaphragm. Their existence was associated with ascites, from six to eight pailfuls of serous

fluid being present in the cavity. The animal gave evidence of disease only for about two months, up to which time he appeared to be healthy, and in good condition. Wasting and emaciation then set in, and were accompanied by a gradually increasing size of the abdomen. There being no hope of cure the owner had the animal destroyed.

PREVENTION OF IMPORTATION OF CATTLE INTO THE CAPE OF GOOD HOPE.

From the information which has reached this country, it appears that in consequence of the existence of the cattle plague, and other infectious diseases among the cattle of Europe, "the Governor and Commander-in-Chief of Her Majesty's colony of the Cape of Good Hope has issued a proclamation, bearing date September 2nd, 1868, preventing the landing of any horned cattle at any port or place in the colony from any ship, vessel, or boat, coming from any place or places beyond the colony, or otherwise to introduce any horned cattle into the colony."

Facts and Observations.

A Blow to the Fungus Theory of Disease.—In a short communication to the *Centralblatt*, Drs. Bergmann and Schmiedeberg describe a crystalline substance, to which they have applied the name "sulphate of sepsin," obtained from putrefying materials, and which they believe represents the proper poison of organic substances undergoing putrefaction. It is obtained by diffusion through parchment, precipitation with corrosive sublimate from an alkaline solution, removal of the mercury by silver, of silver by sulphuretted hydrogen, evaporation, and purification of the residue. Large, well-defined, acicular needles are thus obtained, which are deliquescent in the air, and, exposed to heat, melt and carbonize. They possess a powerfully poisonous action. A solution containing scarcely more than one-hundredth of a gramme was injected into the veins of two dogs. Vomiting was immediately induced, and after a short time diarrhœa, which in the course of an hour became

bloody. After nine hours the animals were killed, and on examination their stomachs and large intestines were found ecchymosed and the small intestine congested. Frogs could be killed in the same manner.

ONTARIO VETERINARY SCHOOL, IN CONNECTION WITH THE BOARD OF AGRICULTURE, TORONTO, ONT.—*Professors:* Andrew Smith, V.S. Edin.—Anatomy and Diseases of Farm Animals. J. Thorburn, M.D. Edin.—Veterinary Materia Medica. James Bovell, M.D., L.R.C.P. Eng.—Animal Physiology. Geo. Buckland, Professor of Agriculture, University College—The History, Breeding and Management of the Domesticated Animals. A. Smith, V.S., and Assistant —Clinical Instruction.

In addition to the above, elementary instruction in chemistry and physiology will be given to first year's students.

Students intending to prepare themselves for the practice of the veterinary art, as a profession, are required to attend at least two sessions, and pass the examinations. The diploma will be granted at the final examination, certifying that the holder thereof is competent to practise his profession.

Students are required to spend the summer months in the practice of their profession, under some duly qualified practitioner.

In addition to the above, provision is made to meet the wants of young men intended for, or already engaged in Canadian farming, by a course of familiar instruction in the science and practice of agriculture. In this department Professor Buckland will be assisted by several of his colleagues,—the professors of chemistry, geology, natural history and meteorology, in University College. This course is free only to strictly agricultural students, and will continue about six weeks.

The session for second and third years' students commences November 11th, 1868. The class for first year's veterinary students, and agricultural students, will commence January 6th, 1869.

For fees and other particulars relative to the veterinary class, apply to Mr. Smith, veterinary surgeon, Temperance Street, Toronto.

Particulars relating to the agricultural class may be obtained by addressing Professor Buckland, University College.

H. C. THOMSON,
Secretary of the Board of Agriculture, Ont.

EARTH CONSERVANCY AT DOVER CASTLE.—Extensive additions have lately been made to the outer fortifications of

Dover Castle, and, pending the completion of the necessary drainage works, earth conservancy has been introduced. A series of simple wooden boxes have been constructed with a shoot and hopper, which delivers its earth as soon as the person rises from the seat. When first introduced, it was found necessary to enter into a contract with a neighbouring farmer to bring in dry earth and remove the refuse. Upon the termination of that contract, the offer was made that he should do the work for nothing, the officer in charge having observed the splendid crops which had been obtained from the application of the manure. This offer was embraced, and the solid refuse of the fort (which contains over two hundred men), and a considerable proportion of the urine also, are removed by means of dried earth, without any cost to the government. It would appear that the refuse soil and weeds are collected by the farmer and burned. The mass is then passed through a sieve and conveyed to a covered part of the fort. The hoppers are filled daily, and the refuse is removed at regular intervals. One of the seats is situated in a close corridor behind casemates, in immediate proximity to the officers' apartments, and there is absolutely no smell. Those for the men are temporarily placed in a very confined situation, and we have every reason to believe that their action has been equally successful. It may be of interest to know that the seats, boxes, and hoppers were made by the soldiers at a cost of four shillings each.—*Lancet,* Oct. 31, 1868.

Thymic Acid as a Disinfectant.—M. Bouilhon communicates some observations on a substance which may be employed as a disinfectant, and possessing the recommendation of an agreeable smell resembling that of thyme. It is, indeed, extracted from essence of thyme, and is called thymic acid. It enjoys the valuable property of combining with skin and animal tissues, thus rendering them incapable of putrefaction. In a concentrated state it has an acrid and caustic taste, but, when much diluted, it produces on the tongue the agreeable sensation caused by peppermint. M. Bouilhon has found by experiment that it may be substituted for phenic acid and creosote in every case in which they are used as therapeutic agents.—*Standard.*

Instrument for Measuring the Velocity of Projectiles.—As a proof of the remarkable accuracy now attained in the manufacture of philosophical instruments, a chronograph, invented by Captain Noble, R.A., for measuring the velocity of projectiles within the bore of a gun, and lately used by the Ordnance Select Committee, registers the hundred-thousandth of a second.—*Ibid.*

THE VETERINARIAN, JANUARY 1, 1869.

Ne quid falsi dicere audeat, ne quid veri non audeat.—CICERO.

THE SMITHFIELD CLUB CATTLE SHOW—REMOVAL OF CATTLE FROM THE METROPOLIS.

By virtue of a special Order of Council the clauses which affect the movement of cattle from the metropolis were suspended in favour of the animals exhibited at the late fat cattle show in the Agricultural Hall; and at this distance of time it is tolerably safe to volunteer the statement that no injury has resulted from the passage of some hundred and twenty cattle across the prescribed boundary. It is necessary to allude to these circumstances, in order to explain the conditions under which the concession was made, and the precautions which were taken to prevent untoward consequences, because there is a gradually growing conviction in the minds of persons interested in the cattle trade, that the removal of a certain number of cattle from London into the country was an experiment of a preparatory character, intended, if successful, to pave the way for a total abolition of all restrictions upon the metropolitan cattle traffic. Without pretending to foresee what proceedings may hereafter be taken in respect of the movement of cattle in this country, we do not hesitate to assert that the special arrangements which were carried out at the Smithfield show had nothing to do with the general question of removal of restrictions which at present confine cattle in the metropolis to a limited area. Indeed, the stringent regulations which were made the conditions of removal of cattle over the boundary line, in themselves sufficiently indicate that London is still estimated as an infected place. Cattle which had been fed in the metropolis were not allowed admittance to the show, all the animals which were admitted were examined on their entrance to the Hall, and after being kept there during the week of the show, were again

examined before the certificate which authorised their removal from the metropolis was signed. The vans in which they were brought from the several railway stations were disinfected before being used; and again cleansed and disinfected previous to their being required for the conveyance of the cattle either out of the metropolitan area, or to any railway station within the area. With such precautions, carried out as they were under proper supervision, no danger was to be apprehended. All such enforced measures of precaution, however, are opposed to that feeling of independence which is becoming so very characteristic of the people of the period; and hence restrictions are not submitted to, and instructions are not complied with in a spirit of superabundant alacrity, nor without a reasonable amount of grumbling. These trifling drawbacks do not seriously impair the efficacy of the means employed, and the results are seen in the improved health of stock all over the country. Nothing can be more instructive than to compare the sanitary condition of cattle at the shows that have taken place since the cattle plague restrictions have been in force, with that which used to be commonly noticed wherever a large number of animals were collected together. Mouth and foot disease was reckoned to be one of the contingencies, and outbreaks of pleuro-pneumonia were by no means uncommon. Now, although both these affections prevail in many parts in the country, one of them extensively in the metropolis, not a single case of either disease has been detected during the last two or three exhibitions of the Smithfield Club; and, it may be remarked, that the health of the stock at the Birmingham shows has been equally satisfactory. Much of this immunity is due, we are convinced, to the knowledge which farmers has acquired in the last year or two of the immense importance of a rigid adherence to hygienic rules. The cattle plague taught stock owners the precise significance of isolation as a means of combating contagious maladies.

The advantages of the "stamping out system" in dealing with such affections as pleuro-pneumonia, sheep pox, and cattle plague, are now so universally admitted, that we may fairly set aside any apprehension of a serious spread of these

diseases in the future, unless long continuance of security should lead ultimately to indifference and laxity.

Routine and method are not in accordance with our national instincts; on the contrary, we feel rather disposed on all convenient occasions to set rules at defiance; but the benefits which are the direct consequences of a strict obedience to the laws of health are so manifest, that it is not difficult to understand the change which has come over the agricultural mind, and which prompts those who three years since violently opposed the imposing of prohibitions upon the movement of stock, to tolerate and even suggest the idea of permanent legislation in reference to the cattle trade, English and foreign. It cannot be doubted, notwithstanding, that the state of the law in relation to cattle within the metropolis, is entirely unsatisfactory to producers of home-bred stock, and also to purchasers. There is nothing to be gained by the attempt to disguise or underrate the fact, that animals will command a better price when their movement is unrestricted, than when they can only be driven within a confined space. Many exhibitors found the advantage of the change which was made in respect of the cattle in the Agricultural Hall, and the salesmen, instead of having to wait to the last in their endeavours to dispose of the animals committed to their charge, found no difficulty in getting rid of them quickly, and at remunerative prices; the extent of competition may be judged from the fact that nearly one-half of the cattle exhibited were sold to butchers residing at a distance from the metropolis. On the other side, it must not be forgotten that London as a cattle market will always occupy an exceptional position as the great focus to which animals from all parts, in various states of disease, will converge, and, if permitted, afterwards radiate, to the great injury of healthy stock. But irrespective of cattle plague and foreign cattle, the prevention of the removal of cattle out of the metropolitan district should be maintained on sanitary grounds; and there is great reason to fear that breeders of stock would hereafter regret the obtaining of the concession which they now so anxiously seek. The whole question of cattle traffic is being agitated, and it may be expected that a measure embodying the views of the agricultural community will be introduced to the

notice of Parliament at no distant date. It is impossible to predict what course the legislature may take, but it is to be hoped that no circumstances will arise to cause the removal of a very important safeguard to the stock of the country.

Reviews.

Quid sit pulchrum, quid turpe, quid utile, quid non.—Hor.

A Manual of Elementary Chemistry, Theoretical and Practical. By George Fownes, F.R.S., late Professor of Practical Chemistry in University College, London. Tenth Edition. London: John Churchill & Sons.

After long and anxious waiting on the part of many teachers and students of chemistry, the tenth edition of this most popular chemical manual has at length appeared under the joint editorship of Dr. Bence Jones and Mr. Henry Watts. For very many years Fownes' manual was the text-book at probably every medical, veterinary, and other school throughout the kingdom, in which chemistry was taught; but it has recently fallen into desuetude, owing to the arrangement of the matter, as well as the notation and nomenclature adopted not being in accordance with the theoretical views held by the majority of both English and foreign chemists of the present day.

In the edition just published, and to which we are now directing attention, these objections have been in great measure removed, so that we may expect ere long to see the work regain its original character, notwithstanding the recent publication of 'Lessons,' 'Manuals, 'Outlines,' 'Rudiments,' &c., by many other able authors.

The high reputation of the original work was due to the great talent displayed by Professor Fownes in the arrangement and condensation of the matter which he selected, with

the view of meeting the requirements of beginners in the study of chemistry. Since the author's death the size of the book has increased with every new edition, and, although this may be regarded as unavoidable when the vast strides which chemistry has made during the last few years is taken into consideration, it is, nevertheless, to be regretted, in some respects, that such augmentation should be considered necessary.

While praising the book, as we can most highly and most conscientiously, and we do not hesitate to pronounce it, in its new garb, to be the best hand-book for students requiring a more extended knowledge of facts than can be derived from such a work as Dr. Roscoe's admirable 'Lessons in Chemistry,' we cannot help expressing our regret that in the present unsettled state of chemical nomenclature and notation, a greater adhesion has not been given to the system of unitary, and, where needs be, of typical formulæ. Until the majority of chemists have agreed upon some one systematic mode of naming and formulating bodies, we think it better to adopt, as uniformly as possible, the unitary method of notation, and, with certain exceptions and modifications, the old system of nomenclature, imperfect though it be.

We are at a loss to understand why in classifying the elements Kekulé's doctrine of atomicity or quantivalence has not been applied to the non-metallic as well as to the metallic elements, especially as we find a most lucid explanation of this popular doctrine given at page 251.

It seems to us that the value of the tenth edition of Fownes, as an introduction to philosophic chemistry, is lessened by this want, as well as by some other deficiencies in uniformity of arrangement and order of treatment.

But the main characteristic of Fownes, and that which constitutes its chief value, is that facts and descriptions of substances are not treated as being of secondary importance to theories; the contrary is nearer the truth, and the requirements of the student are thereby considered of more importance than the display of the author's knowledge of, and love for, the higher branches of his science. There are too many chemical talkers and possessors of book-knowledge at the present day, and too few workers in the laboratory. Any one

who will carefully study Fownes may possess, in greater or less degree, the qualities of his guide, the knowledge of many facts, and a sound acquaintance with principles.

Lessons in Elementary Botany. By DANIEL OLIVER, F.R.S., F.L.S., &c. London and Cambridge: Macmillan & Co. 1868.

ALTHOUGH botany is a branch of natural science which has not yet been introduced into the curricula of the English school of veterinary medicine, we have reason to know that its importance to the veterinarian is fully understood, and that the absence of such knowledge is often deplored, especially by those members of our profession whose duties are carried on in the country.

It is not at all times an easy matter to show to the student of human medicine the advantages to be derived from botanical studies, whereas it can be readily demonstrated to the student of the veterinary art that a thoroughly practical acquaintance with at least the flora of Great Britain and Ireland may often enable him, by a careful and systematic examination of the plants in a locality, to discover the cause of sudden and unusual outbreaks of disease.

Professor Oliver, by the arrangement of his matter, by the familiar and easily obtained illustrations he has selected, and by the exceedingly clear and pleasing style of explanation he has adopted, has transformed a "dry" and difficult subject into one which is most attractive. We feel certain that any person of even very moderate attainments could with a fair amount of application, and the assistance of 'Oliver's Lessons in Elementary Botany,' very shortly acquire such a knowledge of the structure and physiology of common plants as would be of material benefit to him, whether the study of botanical science be regarded as a means of training the mind to make minute observations and to form correct conclusions, or

as a subject to be turned to practical account in the pursuit of the medical or any other profession in which an acquaintance with botany is a necessity or a desideratum.

Extracts from British and Foreign Journals.

CATTLE DEFENCE ASSOCIATION.

At a meeting of the Cattle Defence Association on Thursday, Mr. John Clayden, the chairman, in opening the proceedings, alluded to the past exertions of the Association, which are fully detailed in the Society's report, read by Mr. Waller, the secretary. The following resolutions were unanimously adopted:—"1. That with a view to prevent the recurrence of cattle plague and other contagious diseases, it is desirable that statutory enactments should be substituted for Orders in Council. 2. That this meeting is of opinion that the ensuing session should not be allowed to pass without effective legislation upon the subject of the foreign cattle trade, and that immediate steps should be taken by the Home Cattle Defence Association to effect that object. 3. That the members of the Association be requested to bring their influence to bear upon their local representatives, and those of other constituencies, and to obtain financial support in aid of this important object." The first of these resolutions was moved by Mr. M'Combie, M.P., who remarked that he heartily concurred in it, and that the subject was one in which he took a deep interest. Mr. Pell, M.P., in moving the second resolution, observed that for a length of time he had taken an active part in promoting the object the Association has in view. The resolution was seconded by Mr. Jackson, of Tattenham Hall, Cheshire, who said he and some of his neighbours had been among the heaviest sufferers from cattle plague. Mr. C. S. Read, M.P., in moving the third resolution, urged the necessity of obtaining parliamentary support for a comprehensive measure in reference to the foreign cattle landed at the various ports of the kingdom,

and for improving the means of transit through the country of home cattle.—*The Gardener's Chronicle and Agricultural Gazette.*

LIVE WEIGHT OF FAT CATTLE.

The publication of the live weights of the animals exhibited is so interesting a feature in this year's Show at the Agricultural Hall, that, now it is done, we can only wonder how it has happened that the Smithfield Club had not adopted the same thing before. Had this record been kept for twenty or thirty years, how much more interesting would be the present returns. As it is, they throw a clear and useful light on the decisions of the judges so far as the practical value of weight in the cross-breeds, and of true character, apart from weight, in the pure-breeds, is concerned. Among the beasts there are some noteworthy differences. The 1st prize young Devon weighed 1314 lb.; the 2nd, 1388 lb.; and No. 2 upon the catalogue, 1495 lb.; the lightest in the class weighing 1109 lb. These animals do not exceed 2 years and 6 months of age. The next class weighed—1st, 1721 lb.; and 2nd, 1562 lb. And the oxen above 3 years and 3 months, 1st, 1912 lb.; 2nd, 1934 lb. The first is 3 years and 10 months old; 2nd, 3 years and 11 months; while the Commended beast weighed 2106 lb. at the age of 3 years and 7 months, or 3 months younger than the winner of 1st prize, and 4 months younger than the 2nd prize. The heifers exhibited similar differences. The cows, which of course have arrived at the age of maturity, weighed, the 1st, 1548 lb.; the 2nd, 1608 lb.; and the remaining three of this class, 1230 lb., 1360 lb., and 1432 lb. Mr. Heath's great Hereford ox weighs 2536 lb.; the 2nd prize, 2211 lb.; the 3rd, 2186 lb.; and the highest in this class, 2044 lb. The 2nd prize Hereford heifer here and at Birmingham, and which we last week said was too small of frame to merit a high honour when put to the test of the scale, only weighed, although fed to the fulness of an egg, 1560 lb. against 1960 lb. and 1742 lb. for the 1st prize and another respectively. The older Shorthorn steers, under 3 years 3 months, ranged between 2201 lb. for the 1st prize, and 1672 lb. for the lightest in this class; the 2nd weighing 2145 lb., and 3rd, 2030 lb. The Shorthorn oxen over 3 years and 3 months are but little, if any, heavier on the whole than the class below them. Some of these tests produce appa-

rently odd results. The 1st prize ox weighed 2002 lb. at 3 years and 4 months; the 2nd, 1956 lb. at 3 years and 6 months; the 3rd, 1948 lb. at 3 years and 5 months, while the Highly Commended ox weighed 2301 lb. at 4 years and 8 months. The heaviest ox, Mr. Overman's, is only Commended, his weight being 2526 lb. at 3 years and 10 months, the one next to him in weight being the cross-bred-looking ox which was 1st at Birmingham. His weight at 3 years and 11 months is 2469 lb. His Royal Highness the Prince of Wales' ox, at 3 years 10 months, was Commended, and weighed 2202 lb. The Shorthorn cows were of various weights: the 1st prize, at 4 years 11 months, weighed 1959 lb.: the 2nd, at 6 years and 3 months, 2250 lb.; the 3rd, at 5 years and 2 weeks, 2091 lb. The pair of Aberdeen Scots weighed, 1st, 2635 lb., at 4 years and 7 months; and the 2nd, Mr. M'Combie's, at 4 years and 8 months, 2402 lb. In the Cross-breds there is the heaviest ox in the Hall; this is the 1st in Class 33, his weight being 2660 lb., at the age of 3 years and 10 months. The 2nd here weighs 2572 lb., at 4 years and 9 months. The lightest animal in this class weighed 1960 lb., a Highland and Shorthorn, aged 3 years 8 months.—*The Gardener's Chronicle and Agricultural Gazette.*

THE NEW CATTLE DISEASE.

I READ with great interest your leader upon what appears to be, in some parts of the country, a new cattle disease. Unfortunately it is one which, in this neighbourhood, is too well known, especially when acorns and chestnuts have been so abundant as they are this year. As a rule, care is taken hereabouts to prevent the cattle eating too many of them by having the trees shaken and the acorns picked up, but this year a large quantity of unripe acorns were blown down by a gale of wind about five weeks ago, and the cattle having fed greedily upon them much sickness and some deaths have been the result. The symptoms as described by you are exactly as we found them, and as regards the change of pasture it proved quite a failure in our case, for five of the cattle sickened after being eight days in a field where the acorns had been picked up. The seat of the disease, as we have found it, is in the manyplies. Upon examination after death it is found to be packed with acorn hulls. I have seen a

compressed matter taken out from between the folds or leaves, something like very thin oilcake, and almost as dry. With it the coats of the stomach will peel off, from inflammation. Unless a passage can be forced through this stomach all hope of saving the animal is gone. In some cases a thin fluid will pass (emitting a most nauseous smell), sometimes streaks of clotted blood mingled with it, but that is a bad sign. I would rather see the excrement pass in small round balls, as then we are sure that the medicine is acting properly. I will, as briefly as possible, give our mode of treatment, which has proved as effective as it is simple in seven cases out of eight. They were cattle rising three years old which suffered with us, but some of our neighbours' yearlings and stirks suffered most. We first gave one pound of Epsom salts, with about an ounce of castor oil, in a quart of warm water (the oil was to supple the coats of the stomach). If the bowels were not opened in twelve hours, one pint of linseed oil was given, and repeated every twelve hours till they were. From a quart to three pints of thin oatmeal gruel with a piece of hog's lard about the size of a large walnut was [then?) given about every four hours, the lard being a fine thing to penetrate the leaves of the manyplies. A fresh turf turned upside down was put before each beast for them to lick, which they will often do when they will not look at food, but after having licked they will be induced sometimes to pick a bit of cabbage or vetches, which should be ready at hand. It may be that their mouths are too sore, which was the case with one of ours. We then put some succulent food into its mouth, as far on the back teeth as possible, which it seemed grateful for. The gruel was made thicker after the stomach became cleared of its poisonous contents, and sweetened with sugar, and the linseed oil continued every morning till the cattle were out of danger. Much depends upon good nursing in these cases. We allowed them to drink as much linseed tea or warm water as they liked, carefully avoiding dry food, till rumination returned.—*John Watts, Whitfield, Berkeley ; 'Gardeners' Chronicle and Agricultural Gazette.'*

SCOTCH VETERINARY COLLEGE.

VETERINARY COLLEGE, GLASGOW;
Nov. 30*th*, 1868.

SIR,—In your issue of 26th inst., and under the columns headed "Retiring Address by the Lord Provost," I observed his lordship was reported to have stated, "the students taught in the Scotch veterinary schools, of which the late Mr. Dick's college is one, need still to submit themselves for diplomas to a Board of Examinators deputed by the Royal Veterinary College of England—this seems an injustice which ought not much longer to continue."

As an interested party, and the only other one having a veterinary school in Scotland besides the one in Edinburgh, would you kindly allow me space for a few remarks on this subject. I may premise that I was in opposition to the measures adopted by the lord provost and magistrates of Edinburgh for creating by charter a licensing college for Scotland. I have to take exception to his lordship's statement that there is such a licensing institution in existence as "The Royal Veterinary College of England," and as a matter of fact there is no such institution; and it is impossible, therefore, for Scotch students "having to submit themselves *for diplomas* to a board of examinators deputed by the Royal Veterinary College of England."

The Licensing College for Great Britain and Ireland in veterinary degrees is "The Royal College of Veterinary Surgeons"—an institution chartered by government, and managed solely by the members of the veterinary profession. This College is not constituted, neither is it managed, by the members of the veterinary profession in England, but by the members of that profession in England, Scotland, and Ireland. In proof of this assertion, I may state that, in the years 1862-63, the late Professor Dick was one of its six vice-presidents; and, at the present time, Professor Williams, principal of the Edinburgh Veterinary College, and myself, held a similar official connection. I regret that his lordship did not point out wherein the injustice he complained of consisted. The grounds upon which the opposition offered by myself and others proceeded were, *inter alia*, that the obtaining the charter for Scotland would split the profession into two or three antagonistic sections; that another Licensing

College was not required, and to establish one would be an injustice, seeing that three-fourths of the members of the profession were anxious that matters should remain as they were; that it was a national benefit that there should be only one Licensing College for the United Kingdom; and that the students educated at all the teaching colleges should be examined and licensed under one uniform system applicable to all the teaching schools together. It is quite necessary that this chartered College should have offices or headquarters somewhere, and London, for many reasons, has been selected for that purpose in preference to Edinburgh or Dublin; but because its offices are in Red Lion Square, London, that *does not make* "The Royal College of Veterinary Surgeons" an *English institution, nor the board* it appoints to examine students in Scotland *an English board;* and, in point of fact, the examinators, with two exceptions, are Scotchmen, and some of them reside in Edinburgh and Glasgow.

I give his lordship and the corporation credit for having done all they possibly could to obtain a veterinary charter for Scotland; and while I cannot sympathise with them in their endeavours, I can feel the full force of his lordship's remarks, that their exertions "have proved unfortunately abortive." But supposing that they had been successful, it may be as well for the trustees of the Edinburgh Veterinary College to understand that the students educated at the Glasgow Veterinary College will continue, as hitherto, to be examined and licensed by the Royal College of Veterinary Surgeons; and this arrangement will not in the slightest degree be affected by the obtaining of a Veterinary Charter for Scotland.

I am, &c.

JAMES M'CALL, M.R.C.V.S.,

Principal of the Glasgow Veterinary College.

To the Editor of the 'Scotsman.'

Analysis of Continental Journals.

By W. Ernes, M.R.C.V.S., London.

Il Medico Veterinario. Giornale Teorico-practico della Reale Scuola di Medicina Veterinaria. Di Torino.

ON THE TYPHUS CARBON WHICH PREVAILED AMONGST THE HORSES OF THE LANCERS STATIONED AT PALERMO, IN THE MONTH OF OCTOBER, 1867.

By Nicola Chicoli.

This disease, which is of a highly contagious character, of an acute type, and mostly fatal in its results, threatened the destruction of all the horses which were collected together in the stables used by the cavalry regiments. On the 5th of October the detachment arrived; on the 10th, in the morning, two horses died, after a few hours of illness; and in the afternoon of the same day two more died in the same way. In the night from the 10th to the 11th four more died, and one in the morning.

The cry was that the horses were poisoned, not only, the author regrets to state, amongst the vulgar, but even amongst those in high authority, to such a degree that the ingesta and fæces, &c., of the dead animals were collected and sent to the hospital to be analysed, so as to detect the noxious matter.

The horses were, meanwhile, removed a short distance into the country, where, on the day after the 12th three more died, and three others the day after.

On the 13th, a mixed commission was appointed by the authorities, consisting of two officers, the surgeon, and the veterinary surgeon of the regiment, with the chemist of the hospital. The commission met the same day at the place where the horses had been removed to, and where the carcases of the last three and some other animals which had been attacked by the malady still were.

The investigation was begun by an examination of the latter; they all presented the diagnostic characters of entero-carbon typhus. The blood also, on being examined, had the well-known character of carbon. Curative and prophylactic measures were adopted, and two of the three remaining horses recovered completely, and in the course of time performed their usual service.

Owing to the serious nature of this outbreak, and from the experience gained in three similar attacks which happened in 1854, 1857, and 1859, in Palermo, every precaution was taken by the veterinary surgeon of the regiment, to prevent the malady from attacking the other horses, in which case the losses would doubtless have been very severe. In November the regiment was removed to the Continent, leaving a detachment in Palermo.

The author was charged with the veterinary medical care of the detachment which was lodged in the Victoria barracks, about 1 kilometer from the Tower. Here 130 horses were placed in a double stable which, though principally exposed to the north, had all the hygienic requirements, viz. high ceilings, ample space, windows both to the north and south, proper pavement, &c. Everything seemed to indicate a perfect state of health among the horses, when, on the 28th of December, in the morning, one of the animals of the 6th squadron died after a few hours' illness. The symptoms and the *post-mortem* examination showed unmistakable characters of the entero-typhus form of carbon. A report having been made, orders were given for the horses to be quartered out in the neighbouring villages, so as to remove them from the focus of the contagion; at the same time hydrochloric acid was ordered to be put into the drinking water. But before they could be removed another horse of the same squadron became affected and died in a few hours. The order finally was not for all the horses to be removed, as had been recommended by the author, but only for three troops of the 6th squadron to be taken away. On the 2nd of January a mare became affected and died; the order was now to remove all the horses, and on the 3rd they were all sent away, and the stable left for disinfection. Experience from the various attacks of the same epizootic had shown the advantage of a change of air, and the removing of the animals from the morbid influence while means were adopted to combat the disease.

In 1854 the results were manifest, for while about 50 horses had fallen a sacrifice, they had hardly been removed from the locality when the deaths ceased. The same was the case in 1857, when the disease prevailed amongst the horses and mules of the mounted battery; it was suddenly stopped by changing the locality. In the present outbreak the result was precisely the same; the change had hardly been effected before the epizootic ceased amongst the horses of the lancers.

The epizootic was, however, not limited to the horses of the cavalry. It spread to those of the town, amongst which it progressed, so that more than 30 cases occurred

from the 2nd of January to the date of the author's report. These all terminated fatally. In the pasture of Monte Pelligrino 15 cases, followed by death, were observed amongst 150 horses.

Symptoms.—These do not present different stages, on account of the short duration of the malady. The first sign is loss of appetite; the animal is oppressed and comatose; the extremities and the surface of the body become cold, the respiration accelerated, the pulse small, intermittent, and increased to about 56 per minute; the mucous membranes are infiltrated and of a dirty white or yellow colour, the alvine evacuations are normal, and the urine scanty. On placing the hand on the left flank unusual movement is perceived, as if the peristaltic motions were accelerated. As the disease progresses the state of coma increases, the extremities become icy cold; the pulse is imperceptible, and the paleness and dryness of the mucous membranes are more marked. The respiration also is more accelerated and entirely thoracic. The movement of the intestines are now convulsive, and on placing the hand on the right hypochondriac the hepatic circulation can be distinctly felt, and is quite different from the rhythm of the heart. The patient evinces colicky pains, making attempts to lie down, and looking sometimes at the right and sometimes at the left flank. The urine is now completely suppressed, the respiration suffocating, the pulse indistinct; the ice-coldness of the body, the convulsive movements, the increasing spasmodic contractions, the continual getting up and lying down, the increasing debility, the animal being hardly able to stand, are the precursors of speedy death.

The blood drawn from the vein at different stages of the malady presents the following characters:

1st. At the invasion it flows freely, but at a later period with great difficulty, depending on a gradual loss of the serum.

2nd. The colour at the commencement is of a reddish-violet, which becomes more marked as the disease progresses, and in proportion to the quantity of serum it contains, and the increase of the carbonic acid.

3rd. The consistence is treacly, which increases with the progress of the malady.

4th. Exposed to the air at the divers hours of the progress of the malady, it was found during the first period to be of a vermilion-red colour, showing that it was still capable of oxidation; this, however, becomes gradually less with the onward progress of the malady, and is completely lost at the near approach of death. The opening and shutting of the mouth, which is a characteristic symptom in animals struck with this

epizootic, appears to be an effort to take in more oxygen than can be received through the nostrils, and seems to indicate a loss of oxygen in the elements of the blood.

5th. The blood, though not undergoing the natural coagulation, nevertheless separates into serum and clot; the former of a turbid and whitish-yellow colour, and much reduced in quantity. This diminution goes on increasing as death approaches.

6th. The buffy coat is not present, but soon after the invasion of the malady the surface of the clot is depressed, and on it bubbles of carbonic acid gas are found.

7th. Finally, the blood soon passes into decomposition when left exposed to external influences, which tendency increases with the progress of the malady.

The chemical alteration of the blood will be hereafter more carefully examined, in order to discover the true nature of the malady.

Necroscopia.—The external appearance of the carcase is as follows:—Mucous membranes pale yellow, and the eyes limpid; skin dry, adhering to the subjacent tissue, abdomen distended, rigor mortis not so marked as in ordinary cases of death, or it is at least slower and more incomplete. On section, the adipose tissue is found to be much diminished, the small vessels empty, and only a few drops of blood in the large trunks. The aponeurosis is of a whitish-purple colour; the muscles throughout are of a dark violet colour, flaccid, and softened, showing signs of decomposition having set in before life was extinct, and which probably accounts for the absence of the rigor mortis. Abdomen—on opening this cavity, instead of finding an accumulation of gas, as the external appearance of the carcase had indicated, there was found a quantity of yellow serum. The large intestines were infiltrated with yellow serum, black spots were seen on their peritoneal surface, caused by extravasated blood; these appearances denoted gangrene. Incising the thickened coat of the intestines, the serum was found to have acquired the consistence of jelly. The surface of the cæcum was also infiltrated with a yellow coloured serum; hyperæmic spots were also seen, but its coat was not so thickened as those of the other large intestines. The mesentery presented the same yellow colour, and was much injected; principally near to the mesenteric glands. The mesenteric glands were hypertrophied externally, some were of a dark purple colour, and others marbled; on incising them they presented the same colour internally; their substance was hard and resisting to the knife. The rest of the abdominal viscera presented the same morbid

appearances. The mouth, pharynx, and œsophagus showed no appreciable alterations, except in the mucous membrane, which was of a pale, tending to a yellow, colour. Out of 25 *post-mortem* examinations, in only one were found some slight erosions in the œsophagus. The stomach was empty, its surface injected, and of a dark colour, principally in the pyloric division; the small intestines, when laid open, showed the mucous membrane softened and of a dark red colour, covered with darker spots and erosions, with some ulcers of the follicles, which were generally obstructed.

The chyme was normal; a few drops of blood were found in it, the result of capillary exudation. The large intestines presented a similar internal appearance to the small. The spleen was of normal size and colour, only the substance somewhat softened. The liver normal in size and colour, but softened; the portal and hepatic veins contained but little blood. The thorax contained no effusion or alteration of the serous membrane. The lungs presented congestion either of the right or left, according to the position of the carcase. On incising the congested part the blood was observed to be diffused in the substance and of highly violet colour; the pulmonary vein contained but little blood; the artery was empty; the larynx and trachea contained a great quantity of bloody mucus; the mucous membrane was slightly congested. The heart was flaccid; its ventricles empty. The brain in some cases was found normal, in others the ventricles contained yellow serum.

Annales Vétérinaires Bruxelles, January and February, 1868.

NOTE ON THE POISONING OF HORSES BY TOBACCO.

By A. Walravens, Government Veterinary Surgeon at Enghien.

Mr. Walravens was informed by M. Balincks, a farmer and brickmaker, that about a fortnight ago, when on a journey, he found one of his horses very dull, and not being able to get him along, he was obliged to stop at an inn. When the horse was taken out and put into the stable he lay down without showing any sign of pain, but remained in a dreamy state for six hours, and died without the slightest struggle. A week previously another horse had died in the same way, after twenty-four hours of illness, and now his third and last horse was affected in the same manner as the others. It

was being treated by the same veterinary surgeon, who declared the other animal had died without his being able to determine the nature of the malady. The owner also stated that as soon as this horse was dead he would inform Mr. Walravens of it, that he might make the *post-mortem* examination.* Mr. W. did not wait for the death of the animal, but went immediately to see it. He found a six years old mare lying on her belly, with the head bent on the chest, the nose resting on the ground. She took no notice of surrounding objects; the ears were drooping; the coat staring; surface of the body cold; respiration slow, but regular; eyes closed, the head raised with difficulty to examine the mouth; lips injected and pendulous. A quantity of slimy mucus escaped from the mouth; the membrane was pale and cold; the pulse was full, but soft. With great difficulty she was made to get up; her standing was unsteady, and her walk tottering. She rested the nose on the manger and soon lay down again; the appetite and thirst were gone. The animal was evidently affected with narcotism. The case terminated in death on the same day. The next day the author made the autopsy. He found the carcase lying on its left side; the subcutaneous veins were injected with thick black blood. On examining the abdominal organs the stomach was found to contain only a little slimy fluid, exhaling a slight tobacco-like odour; no alteration was observed in the mucous membrane of the left portion, while that of the right was strongly injected. In the small intestines the membrane was striped with a dark brownish-red colour. The large intestines were less injected. The other abdominal viscera were in their normal state. The lungs and heart were gorged with black and thick blood. After the autopsy was finished, the oats, hay and straw, and beans on which the horses had been fed were examined, but nothing was discovered to account for the malady. On entering the house Mr. W. inquired whether anything else had been given to the horses, when he was informed that they had had some balls of flax (balles de lin) mixed with the oats. Immediately a basketful of these balls was sent for, Mr. W. was struck with the tobacco odour they exhaled, and on plunging the hand to the bottom of the basket a leaf of the tobacco plant was drawn out. It was then stated that the balls came from the blacksmith of the place, and that he kept them in the granary where he also dried his tobacco.

A month after, another farmer came to state that he had lost his best horse. That in the morning he had noticed the

* In all such cases Government Veterinary Surgeons are to be informed. If not, a penalty is inflicted on the owner.

horse did not feed, and was dull; and being aware that he would not meet me in the morning, he had delayed coming until the evening; meanwhile the horse had died. He also stated that he had on the same farm a foal six months old, which seemed to be affected in the same way. On examining the foal M. Walravens found the same morbid phenomena as in the mare of M. Balincks. Strong coffee was ordered, with infusion of aromatic plants. Twelve hours after the foal was also dead.

Two days after this event the same farmer came and told Mr. W. that his third and last horse was affected in the same way as the others had been. On visiting the stables an old mare was seen presenting similar symptoms, but more intense than in the preceding cases. Eight hours after the visit she died. No *post-mortem* examination was made. An inspection of the aliments on which the horses had been fed showed that the oats had a strong odour, and on Mr. W. asking the reason of this he received an answer that tobacco was dried in the same granary. On inspecting the granary such a strong smell of tobacco was present that Mr. W. could hardly respire; the roof and walls were hung with tobacco leaves to dry.

There can be no doubt that the death of these six horses was caused by the tobacco.

CHRONIC OVARIAN AFFECTION AMONGST PIGS.

By M. Bivort, Veterinary Surgeon.

In the month of April the author was requested to examine a boar belonging to the burgomaster, which was supposed to be affected with a venereal malady which had been communicated to the sows, of which 20 had already died. He found the boar, in fact, ill, but it was from exhaustion, the sows—from the information of the swineherd—being always in a condition of æstuum. On examination the sows appeared in good health; they fed as usual, but those that were with pig aborted, generally after about four weeks' gestation. This species of nymphomania appeared interesting, as it is nowhere recorded by veterinary authors. Having examined the aliments on which the animals were fed, and finding nothing obnoxious, it was supposed to be an affection of the genital organs, caused by some obnoxious root or plants in the pasturage, on which there was no water. The advice

was to have all the sows spayed, and change the pasture ground. About a fortnight after Mr. Bivort met the castrator, who was going to spay a sow; he examined the animal, which appeared in good health. The mucous membrane of the vagina, however, was redder than in the normal state. After the operation the ovaries were found to be much injected; part of the vesicles of De Graaf were of the size of a pea, filled with yellow pus, while others were less in size, and contained a white fluid somewhat turbid. The castrator said that according to his (the author's) advice, he had castrated a great many of the sows, and that in all he had found the ovaries, to a greater or less extent, in a state of suppuration and enlargement, and that his father had told him that he had met with the same appearance in the ovaries of the sows on the same farm, and that throughout the year the same fallow ground had served for pasture for the animals as then.

We may therefore suppose that the plants which grow on this ground, when laid fallow, caused this ovarian malady in the pigs. The disease is calculated to cause great loss to the cultivators of the district.

From a communication it appears that about the same time the malady prevailed in another commune.—*Bull. de la Soc. des Sc. Méd. du Grand Duché de Luxembourg.*

THE LANCASHIRE VETERINARY MEDICAL ASSOCIATION.

The above Association held its twenty-fourth meeting at the Trevelyan Hotel, Manchester, on the 2nd of September, 1868.

Thomas Taylor, Esq., President, in the chair.

There were present Messrs. J. Lawson, Cartwright, Brown, Greaves, J. Greaves, Haycock, Brooks, W. J. Challinor, Owles (6th Dragoons), Howel, and Nottage.

Letters of apology were read from Messrs. Peter Taylor, James Taylor, Morgan, and A. Lawson.

After the minutes of the last meeting were read, Mr. A. Bland, of Oldham, was proposed as a member by *T. Taylor*, and seconded by *W. J. Challinor.*

It was proposed by *Thos. Greaves*, and seconded by — *Cartwright*, that the annual meeting be held at the Trevelyan Hotel; and that after the President's inaugural address, and the dinner, or conversazione, instead of the usual toasts proposed on such occasions, various members shall record some short interesting exceptional

case, by which means we shall be not only entertained, but profited. —Carried unanimously.

W. J. Challinor was then called upon by the President to read his paper upon the "Disease of the Skin," which elicited a very animated and interesting discussion, in which Messrs. Cartwright, Brooks, Howel, Lawson, Haycock, Greaves, Thos. Greaves, Owles, the President, and in fact every member, took a part.

A vote of thanks to the essayist, for his able paper, was carried by acclamation. The meeting then separated.

ALFRED CHALLINOR, *Hon. Sec.*

ON THE SKIN AND ITS DISEASES.

The skin is the exterior investment of the body, which it serves to cover and protect. It is continuous at the orifices of the internal cavities, with the lining mucous membrane. It is essentially formed of two layers, the derma and epidermis, or cutis and cuticle. The derma or cutis is chiefly composed of areolar tissue, elastic tissue, and smooth muscular fibre, together with blood vessels, lymphatic vessels, and nerves. The areolar tissue exists in its most characteristic form in the deeper stratum of the derma, which is consequently dense, white, and coarse, while the superficial stratum is fine in texture, reddish in colour, soft, raised in minute papillæ, supplied with numerous vessels and nerves. This arrangement of structure has given rise to the division of the true skin into two layers, the superficial, or papillary layer, and the deep stratum, or corium.

The epidermis, cuticle, or scarfskin, is a product of the vessels of the derma, which it serves to envelop and defend. That surface of the epidermis which is exposed to the atmosphere and its influences, and exterior sources of injury, is hard and horny in texture, while that which lies in contact with the papillary layer of the derma is soft, and composed of newly-formed cells; hence this membrane, like the derma, offers two strata for our observation, the outermost stratum, commonly spoken of as the epidermis, and the innermost stratum, or rete mucosum. The latter was considered by Malpighi as a distinct membrane.

Besides the derma and epidermis, the skin includes certain important secreting organs, and certain appendages which call for separate notice. The secreting organs are the sudoriparous and sebiparous glands, and the appendages in our subjects, the horn, hair, hoof, and nails.

The derma varies considerably in thickness in different parts of the body, being thickest where most exposed; on protected parts, as inside the limbs, it is comparatively thin; on the eyelids, penis, and scrotum, it is peculiarly delicate. The thickness of the corium varies according to the breed of the animal; the finer the breed the thinner the corium.

The areolar tissue of the derma is constructed of fibres of two kinds, viz. of minute cylindrical fibres, which are identical in their

nature with the delicate wavy fibres of common areolar or cellular substance, and of fibres of elastic tissue, presenting their characteristically curved ends, and branching and anastomosing distribution. In the superficial strata of the corium the white fibres are collected into small fasciculi, and form an intricate interlacement, which supports the papillæ, and constitutes a nidus for the capillary rete of vessels and terminal plexus of nerves. In the middle strata, the fasciculi are larger, and flattened, and the areolar network coarse; while in the deep layer the fasciculi are broader, and the areolar spaces wider. These spaces are occupied by small masses of adipose tissue, while the fasciculi are continuous with the subcutaneous cellular membrane. The yellow elastic fibres are solitary in their arrangement; they are abundant in the superficial layers of the corium, but rare and scantily met with in the deeper strata. The areolæ left by the interlacement of the fasciculi of the areolar fibrous tissue are the channels by which branches of vessels and nerves find a safe passage to the papillary layer, wherein and in the superficial strata of the corium; they are principally distributed. The smooth or unstriped muscular fibre of the derma is distributed more abundantly in the deep stratum of the corium within the spaces, which give passage to the hair follicles, and especially in the areola of the nipple, and the dartos of the scrotum. Dr. Lister says there is one of these muscles to each hair follicle, and this on the sloping side of the follicle, a position which is best adapted for erecting and protuding the hairs, an example of which may be seen in the dog or cat, when vexed.

In the areola of the mammæ the bundles of smooth muscular tissue have a circular arrangement.

The papillary layer of the derma is raised into small prominences or prolongations, which are termed papillæ. The general form of these papillæ is cylindrical and conical, but some are club-shaped and slightly flattened, and others spring from a short trunk in a tuft of two to four and five, and are termed compound; the other being simple papillæ.

Upon the general surface of the body the papillæ are short, and exceedingly minute, but in other situations, as the palmar surface of the hands and fingers of man, they are long, of comparatively large size, and numerous.

In structure the papillæ are composed of homogeneous nucleated and fibrillated areolar tissue, bounded by a structureless limitary membrane, and containing either a capillary loop (vascular papilla) or a nerve fibre (nervous papilla). Modern researches have shown that the papillæ of the skin are properly divisible into vascular and nervous; that in the vascular papillæ a nerve is rarely found, while in the nervous papillæ a capillary loop is equally absent.

The arteries of the derma, which enter its structure through the areolar of the under surface of the corium, speedily divide into innumerable intermediate vessels, which form a capillary plexus in the texture of the superficial stratum of the derma and its papillary layer.

To see the capillary plexus of the papillæ it consequently becomes necessary to examine the injected skin by means of a vertical section; but if the horizontal rete is to be observed, no section is needed. After a certain extent, of course, the intermediate vessels unite to form the veins, by which the blood circulated in the skin returns to the system.

The lymphatic vessels probably form in the superficial stratum of the derma a plexus, the meshes of which are interwoven with those of the capillary and nervous plexi.

The nerves of the derma, after entering the areola of the deeper part of the corium, divide into minute fasciculi, which form a terminal plexus in its upper stratum. This terminal plexus corresponds with the vascular rete, and from it are given off the nerve-fibres which enter the papillæ and terminate in the axile corpuscles. As already stated, nerve-fibres are chiefly found in the non-vascular nervous papillæ, and are constantly associated with the axile corpuscle, the corpusculum tactus.

The nerves of the derma, previous to reaching the base of the corium, and while yet imbedded in the subcutaneous areolar tissue, are remarkable for the presence on their smaller twigs of minute, oval-shaped, glistening bodies, called Paccinian corpuscles, which, according to Mr. Huxley, are analogous to the axile corpuscles, and are nothing more than thickened processes of the neurilemma of the nerve; they are found in the greatest numbers in the most sensitive parts of the skin, and notably in parts where a special tact is resident; we are therefore led to the conclusion that they perform an important part in the sense of touch, therefore we find them in the greatest numbers in the fingers and feet of man and the lips of animals; and as the long hairs on the lips of animals rise from these bodies, they act as feelers.

The epidermis, or cuticle, is a membrane of defence, spread out upon the surface of the derma. It presents a difference of density according as it is viewed from its outer or inner surfaces; the outer or free surface being dense and horny, the inner or attached being soft, and composed of cells. Moreover, the epidermis is laminated in its structure, and the laminæ present a progressively increasing density as they advance from the inner to the outer surface. For as the external surface is constantly subjected to destruction by attrition and chemical action, so the membrane is continually reproduced on its internal surface, new layers being successively formed upon the derma to take the place of the old.

The various colours of skin to be seen in different animals is due to the presence of pigment-granules in the cells of the epidermis. The sudoriparous glands are situated in the middle and deeper stratum of the corium, and also in the subcutaneous cellular tissue; they are small, round, or oblong bodies, of a reddish-yellow colour, and composed of the convolutions of a minute tube, which commences by a cæcal extremity, and after quitting the gland mounts to the surface of the epidermis and

becomes its efferent duct. The efferent duct ascends through the derma and epidermis to terminate by a funnel-shaped and oblique aperture or pore upon the surface of the body. These glands are found nearly all over the body in animals with much hair; they are connected with the hair-follicles, sometimes three or four to one follicle, but where there is little hair they come to the surface independently. Erasmus Wilson calculates that there are about twenty-eight miles of perspiratory tube, if each tube were added to its fellow on the surface of the human body, therefore pointing out to us the importance of cleanliness to such a system.

The sebiparous glands are the special producing organs of the sebaceous or fatty secretion of the skin; they are distributed almost universally over the surface of the body. The largest of these glands are those of the eyelids, called the meibomian glands. The purpose of sebiparous glands being to supply the surface of the skin with an oily secretion, they are found abundantly in situations where such a secretion is chiefly required.

I will next proceed to describe the hair, an appendage of the skin.

Hairs are horny filaments appertaining to the structure of the skin, and are distributed nearly all over the surface of the body. They are usually divided into short, long, and downy. Hairs spring from a follicle or hair-sac.

Growth of hair is accomplished by the successive formation of new cells in the superficial portion of the papilla of the hair-follicle, and these cells are gradually moved onwards and converted into the fibrous tissue of the hair, while new cells are produced to take their place. All animals cast their hair at certain seasons of the year. This is analogous to the shedding of the epidermis of the Reptilia. The colour of the hair depends upon the amount and colour of the pigment it contains, and not in the amount contained in the skin. It is said to be present in the fibrous portion of the hair. The strength also dwells in this fibrous part, for hairs deficient in this structure are remarkable for their brittleness. I shall next proceed to the physiology of the skin.

Physiology of the Skin.

Wilson says that in a physiological point of view the skin is an organ of sensation, absorption, and secretion. In the former capacity it supplies us with knowledge, affords us gratification, and warns us of the presence of injurious or destructive agents. By means of the second it is enabled to appropriate the fluids contained in the surrounding medium, and perform the office of a respiratory organ. And by means of the third it provides for its own softness and pliancy, regulates the influence of temperature, both external and internal, and acts as an important depurating organ of the blood. As an organ of sensation it endows us with the function of touch, of determinating the qualities of objects by their properties of resistance, of extent, and variety of surface. It enables us to distinguish between hard and soft, smooth or rough, hot or cold.

And the education of this sense, effected by concentration of attention and increased powers of appreciation and adaptation, enables the blind to read with their fingers, to trace the most minute variation of form or surface, and even to detect the mysterious tactile differences of colours.

The sensibility of the skin varies in different parts of the body. Thus, it is the greatest on the tips of the fingers, and least in the middle of the limbs. This is practically illustrated by taking hot water, and immersing the finger of one hand and the centre of the other hand. The single finger will suffer no inconvenience from the heat, while to the other hand it may be insupportable. For the same reason the hand is better adapted than the finger to test the temperature of a bath before the immersion of the body, and even then it may be found that a heat which is pleasant to the hand may be intolerable to the entire skin.

The sensibility of the skin is subject to considerable modification under the influence of disease. The natural sensibility may be heightened, or it may be diminished, or, again, it may be altered. These changes obviously depend on some modification of the nervous system, the nature of which is, for the present, at least, beyond our grasp.

The more common morbid sensations of the skin, in addition to heat and cold, are itching, tingling, smarting, pricking, shooting, creeping, tickling, burning, scalding, &c., and it is to be remarked that these sensations are more acute in certain situations than in others, and that they are simple modifications of common sensation, and have no connexion with the special tactile function of the skin.

By means of its absorbing power the skin is enabled to act as a respiratory organ. The process of absorption in the skin is effected by an active endosmosis. This function of the skin is calculated to enact an important part in the health of the animal, in relation to the purity or the impurity of the atmosphere in which it moves.

I have known cases where animals have been destroyed from the incautious use of mercurial ointment, which has become absorbed into the system, and produced a fatal effect.

The softness and pliancy of the skin are, in a great measure, dependent on the secretion of the sebaceous substance which is poured out on every part of the surface of the body.

The function of the skin as a regulator of the temperature of the body and as a purifier of the blood is effected by means of a peculiar secretion—the perspiration. When this secretion is eliminated in the form of an imperceptible vapour it is termed insensible, and when condensed or poured out in a fluid state sensible, perspiration. The insensible perspiration is partly derived from the sudoriparous and sebiparous glands, and partly from the natural evaporation taking place from the epidermis.

The quantity of perspiration is altered by a variety of circumstances which affect the body physically, or through the agency of the nervous system. Of the former kind are the temperature, current and hygometric condition of the atmosphere, and stimulation

of the skin; of the latter, excited or depressed nervous powers. When the temperature of the atmosphere is unusually elevated, and the air dry, perspiration takes place with so much activity as to preserve the heat of the body at its natural standard. If, instead of being still, the atmosphere pass over the surface of the body in a current, the quantity of perspiration is still further increased, and the cooling influence is more felt. But if, with the same temperature, the atmosphere be loaded with moisture, perspiration is prevented, and the heat of the body becomes intense.

The influence of stimulation in the promotion of perspiration is shown in the effects of exercise, warm bath, diaphoretics, &c.

Instances of the influence of the nervous system are shown in fear, anxiety, and syncope.

The perspiratory function possesses its highest amount of activity during digestion, while immediately after taking food it is at its minimum.

The secretion of the perspiration is also modified by the greater or less activity of the other secretions, particularly of the lungs and kidneys, the functions of these organs being frequently vicarious with the skin, and *vice versâ*. Thus, during the summer and in warm climates the perspiratory secretion is augmented, while the exhalations from the lungs and kidneys are diminished. In cold weather and in northern climes the reverse is the case.

On quitting a warm room, especially after indulging in stimulants, for the cold air, a sudden check is given to the perspiration, while the kidneys are suddenly and actively called into exercise.

Having gone thus far with the formation of the skin and its functions, I will now point out some of its diseases, particularly those that come most under our notice as veterinary surgeons. First, I will take those arising from accident, as incision, abrasion, and contusion. These, as a rule, are simple and easily managed. In incision, by bringing the divided parts in apposition, and using sutures, together with cleanliness and the application of ordinary wound tincture, we shall soon have the parts restored, as a rule.

In abrasion there is often a greater surface injured, and principally from lateral force and scrubbing, if I may be allowed the term. The treatment should be fomentation and the application of arnica lotion, which, as a rule, soon leads to resolution.

In contusion, when arising from a heavy blow or from persistent or undue pressure upon a part, we sometimes get death of a portion of the skin, as in sitfast. The treatment that I have found most successful is relieving the pressure from the part, cleanliness, and the application of a gentle stimulant round the edges, between the dead and living portions of the skin, to set up a healthy action. In common contusion I find fomentation and the use of Linimentum Saponis, or one of Ol. Sambuci and Ol. Terebinth with Ol. Origani, to answer very well.

I will now proceed to point out some of the affections of the skin occurring in our practice, and arising from other causes, commencing with—

Grease.

This disorder is seen principally in the horse tribe, and most frequently in the hind legs. This arises, I am inclined to think, from their being a long way from the centre of circulation, and being exposed to exciting causes, as being left wet and dirty, standing in dung, and exposed to draughts. It is an inflammation, in the first place, of the sebaceous follicles, bringing about an increased and altered secretion. It is most frequently seen in gummy-legged cart-horses. The better bred an animal is, the less his liability to this affection. There are cases that are brought on by direct exposure to cold, as taking out an animal newly clipped on a wet day in winter, and allowing it to stand for a length of time. There are some animals predisposed to this disorder, and it will be brought on in their case by feeding on new soft corn and by their not having a sufficiency of exercise, and in some from living on too stimulating food, as a large and frequent supply of beans.

Symptoms.—The heels become swollen; the animal walks with difficulty, evinces pain on pressure; the hair is erect; after he is made to move he walks better. We soon have a discharge of an oleaginous fœtid matter; we next get fungoid growths, very red and painful on pressure. We do not get much discharge from these growths, but from between them. They are called grapes, from their similarity in appearance to that fruit.

With reference to cure, we must pay attention to cause. In the simple form we must get rid of the inflammation through the constitution, also using local means. If traceable to plethora, bleed and give a dose of physic, followed up by diuretics and alteratives; if arising from the opposite cause, give diuretics and tonics. The local treatment should be poultices in the inflammatory stage, followed by applications of astringents, as alum, zinc, &c. In chronic cases we have to resort to more severe measures—the use of the knife, cautery, and the applications of escharotics. I use a saturated solution of sulphate of copper, and find it to answer well. I have heard of the disease being treated by blister with success, but, never having tried it, I cannot speak with confidence.

I will now treat of cracked heel. This is said to be the true chilblain of the horse, occurring in the autumn and winter. You will find the animal stiff in moving, and the heel sore on pressure; in a very short time you will find a crack, and in a few days you will have a slough come away. In the treatment of this affection care should be taken not to commence the use of astringents too early; if we do we shall have a greater amount of imflammation set up, and, instead of our patient getting better, he will be a great deal worse. Apply poultices, digestives, and moderate stimulants, to keep the granulations down and cause the part to heal.

Cracked Heel

occurs either in winter or summer, and is as often seen in well-bred as in badly-bred animals. Race-horses are often the subject of it, produced from high feeding and galloping on hard ground. The

treatment is a poultice at first, and then dust a little gum acacia, powdered fine and mixed with ordinary flour. Carbonate of lead is used.

We have a diseased state of the skin seen at the posterior part of the knee, termed mallender; and when in front of the bend of the hock, sallender. Neither lame or do much harm, but sometimes, when neglected, they degenerate into foul, ichorous, discharging sores, a little more than troublesome and always unsightly. Treatment of these should be cleanliness, and the application of subacetate of lead and Ung. Hydrargyri. I will now speak of—

Warts, or Ferruca.

A wart is a state of hypertrophy of the papillæ of the derma, with an increased production of epidermis. We find that young animals are more frequently the subject of this affection than old ones. They assume different forms on different parts of the body. We generally find them round when situated near the eyelids, broad and scaly underneath the abdomen, and pointed on the teats of the cow. A wart cannot be propagated. There is no doubt that they suddenly disappear, both in man and animals. The encysted ones are the most difficult to contend with, and are most frequently seen in the horse and young cattle. They are imbedded in the subcutaneous areolar tissue, principally on the inside of the thighs, along the abdomen, and about the prepuce. The best and only treatment I can recommend is the free use of the knife, or the application of an ointment composed of sulphur and sulphuric acid. Pedunculated warts may be got rid of by ligature. There is a disease somewhat akin to warts met with in our patients, viz.—

Ecthyosis, or Crown Scab.

In this disease we have the production of horny matter on the skin, giving it the appearance of the fish-scales. It is seen in the heels and on the coronets. We find the scabs to be horny spines, being an altered form of epidermis; the colour is influenced by the colour of the skin. It arises from hypertrophy of the papillated surface of the derma. In man it is hereditary, but I have no proof of such being the fact in the lower animals. These horny spines are frequently thrown off, leaving a roughened surface underneath. It is more frequently seen in coarse-bred animals. There is no one affection, the cure of which puzzles the veterinary surgeon more than this, according to Professor Simonds; but, for my own part, I cannot speak positively, not having had much experience in this particular malady. He says the foundation of cure lies in removing the horny spines, not forcibly, but gradually softening them by a mixture of sulphuret of potassium ℥iss and Sapo Mollis 1lb. Apply the mixture and allow it to remain on two days, and then wash well; when the scales are removed use croton oil ℥j to olive oil ℥j. The origin is difficult to discover, but the disease is thought to arise from dirt and neglect. There is a form of skin disease called—

Pruritus,

Best seen in the general form in the dog amongst our patients. It

is mainly referable to gastric or pulmonary disease; old animals are generally affected with it. It is not contagious, and is occasionally seen in the cow at a certain period of utero-gestation, around the eyes and labia. In the dog it is sometimes caused by hæmorrhoids, when it is called pruritus ani. If depending on these, give injections of turpentine. In cows it is said to depend on a general fulness or plethora of the system, causing a congestion of blood in the parts. Treatment—bleed, and give aperients. In horses it is seen in the legs, arising from accumulation of hair and scurf, being the result of neglect and bad grooming. Give the horse a gentle dose of physic, followed by alteratives and cleanliness, and you will effect a cure. We will now turn to—

Urticaria,

commonly called stinge. This is oftener seen in the cow, I think, than in the horse. It is thought to be brought on by the animal eating some noxious matter. It appears in the shape of irregularly formed tumours over the body of the horse; and in the cow we find great swelling round the eyes, lips, anus, and labia; it comes on quickly and passes off, as a rule, with proper treatment, in a few hours. As far as the skin itself is concerned, it is only a congestion of the blood-vessels. I find bleeding and the administration of a bold purgative, followed up by a stimulant, particularly in the bovine race, to answer well. I will now proceed to another disease, called—

Pityriasis,

said to be produced by the presence of lice. It is accompanied by a desquamation of cuticle in branny scales, this being one of the leading features, associated with a great amount of itching. It is often found in thin-skinned animals in low condition. It may be regarded as inflammatory in its character; it is seen in the head, neck, shoulders, and tail—very often in the tail. If of long standing we have thickening of the skin and loss of its pliability. Animals so affected evince great pleasure on being scratched, and occasionally rub themselves to such an extent as to produce abrasion, which gives off a nasty ichorous matter. The hair does not readily come off in this affection, but becomes brittle and broken. The skin of the neck and root of tail will corrugate, and so remain. Treatment—give a dose of physic, or an oil draught with turpentine, for in young animals there are often worms present, follow up by alteratives and tonics; wash the skin with soap and water with the addition of potass or soda, afterwards sponging the body over with a saturated solution of sulphuret of potassium; and if you do not make a cure, apply an ointment of sulphate of potass and sulphur in combination with lard. Some people use arsenic, ℥ss to the gallon of water. We will now turn to an affection which, in my opinion, is one of the most important as affecting our patients, I mean—

Mange.

Being in conversation with Professor Spooner one day, on skin diseases, he said, "Tumble them all in a bag, and they principally turn out mange." Of late years I have seen very little of it, in comparison with what I saw in my early veterinary experience. Then there were whole studs affected, from the introduction of a single animal suffering from the disease. All our domestic animals are liable to it, as well as those not domesticated; but I believe it is not propagated from one species to another, as the acarus, which is the cause, if taken from one animal, will not live and breed on an animal of another species; for example, you may have horses affected, and dogs in the same building will not contract the disorder, and *vice versâ*. The best way to detect the presence of acari is to scrape some of the dandriff on to a piece of white paper; let it be still, and in a short time you will see the small animals creeping about. The first symptoms are staring hair and an oozing of yellow albuminous fluid, and redness of the skin in animals of a light colour; we cannot see this in dark coloured animals very well. We have true inflammation brought on by the continued savage attacks of these mischievous parasites. As soon as inflammation is set up they move on to another part of the skin, thus spreading over the principal portion of the body. The parts that are inflamed form scabs. The principal portion of the skin being affected, there is a tendency to thickening of the corium as a result, the skin thus losing its pliability. Whatever application we use for its cure, we should allow it to remain on for some days, so that the ova, as they come to life, may come under its influence. In the treatment we must pay attention to the state of the constitution, and a great deal will be done by attention to food. In summer natural and artificial grasses; in winter carrots, good corn, &c. Internally give aperients, followed by alteratives and tonics. The local applications are various, most veterinarians having a recipe of their own. I use oil of tar, sulphur, hydrochloric acid, turpentine and oil, in cases of long standing; when not of long duration, bichloride of mercury, muriate of ammonia and water, are found to answer well. Care should be taken, when a case is found out, to separate the patient from the other animals, not even using the same brushes, buckets, or harness. In sheep this disease is called—

Scabies Ovis.

Some kinds of sheep are more susceptible to it than others, as those with long coarse wool. The causes are anything that will bring them into an unhealthy state, the system then being ready to receive infection more easily. Imported sheep are often the subject of this disorder. An animal affected will fall away in condition, and the wool soon falls off. There is a yellowish-brown secretion seen, and then a scab is formed, of a dirty white appearance, with purulent matter underneath. The sheep will often nibble at the affected parts, or scratch with the feet, which not unfrequently causes excoriation. The back, loins, and sides, are principally affected. The

best means of cure is dipping in an arsenical solution. Mr. Morton recommends an arsenite of potash, made up as follows:

Arsenic, ½ lb.
Carb. Potass., ½ lb.
Water, 12 gallons.

Care should be taken in dipping not to allow the animal to go overhead.

We find dogs also affected with this disorder, in two or three forms. We have what is termed foul mange, constitutional in its nature, being truly a disease of the blood, and requiring a complete change before it can become eradicated.

It is doubtful whether this form is contagious, but it certainly is hereditary. A short time ago I had a bitch of the St. Bernard's breed under my care, suffering from this complaint. She got well, being in pup at the time. I watched for results. The pups did well until about two months old, when the disease made its appearance in them, and they all died, one after the other. The bitch still remains apparently healthy.

The treatment of this disorder must commence by the administration of an aperient, followed up by doses of Liq. Arsenicalis, in the proportion of one drop to each four pounds' weight of the animal, three times a day. Keep on a vegetable diet, and dress the skin with sulphur ointment. The other form of the disease, depending on the presence of a parasite, is principally seen in animals that have been badly cared for. It is highly contagious, as in other animals. The treatment should be an ointment composed of iodide of mercury 2½ drachms, lard 2 ounces, used every other day, with proper attention as to food and cleanliness. There is another form of this affection, said to arise from a vegetable parasite, but, not having had any experience of it, I cannot speak much about it. There is yet another form of this affection seen in dogs, viz.—red mange.

Here we have a disease said not to depend on the presence of a parasite, but on an affection of the hair-bulbs, causing a change in the colouring matter of the hair. For instance, if the animal be a white one, the hair will appear of a pale brick-dust colour, almost as if the dog had been sprinkled over with this material. House-kept and highly fed animals are most frequently the subject of this disorder. The disease first shows itself at the elbows and inside the arms, then on the front and inside the thighs, next on the buttocks, and finally on the back, which is only attacked when the disease has existed for some months. The general health does not seem to suffer much, nor yet is the disease thought to be contagious. The treatment consists in lowering the diet, administration of aperients, following these up by the addition of green vegetables in the food, at the same time dressing daily with an ointment of iodide of mercury 1½ drachms, turpentine ½ oz., mixed with 1½ oz. of lard.

Dogs are troubled a good deal with inflammatory action of the skin from the presence of fleas, lice, and ticks, which may be got rid of by washing well with carbonate of soda and soft soap. Ticks

are very tenacious of life, and will almost be pulled in halves before they will lose their hold. I will now just mention a disease affecting the ear of the dog, termed—

Otorrhœa.

It is originally an inflammation of the sebiparous glands of the ear, followed by ulceration and fungoid growth. It is most frequently seen in long-eared dogs, particularly of the spaniel tribe. The causes are obscure, but the principal one is general fulness of the system, causing an augmented and altered secretion. Symptoms.—The animal will carry his head on one side, with the affected ear lowermost; continuous scratching of the same ear. On examination you will find a reddish-brown fluid at the bottom of the ear; at the upper part it will be dry, with a hard scab on. The smell is fœtid. The skin is ulcerated, and if of long standing there will be fungoid growths. The treatment much depends on the duration of the malady. In mild cases syringe with tepid water, containing carbonate of soda. Dry well, and then dress with Liniment. Plumbi Acetatis, warm. If the case is of longer standing, and you have much ulceration or fungoid growths, you must excise them, and use caustic and astringents. It is always wise to confine the ear, to prevent the animal flopping it about. This is best done by means of a cap. There is a disease of the skin that is not much seen in our patients, with the exception of the dog. I allude to—

Erysipelas.

This disease is said to be contagious in man, but is not so in the dog. There are some parts of the body more liable to it than others, such as the eyelids, sides of the face, near joints, and most commonly the scrotum. There is redness, pain, &c.; in fact, a violent inflammation of the structure of the skin, which soon produces vesicles, containing bloody serum. All kinds of dogs are liable to it, but more particularly setters and spaniels. It is difficult to say what it depends on. Plethora, we may say, is the proximate cause. It is not so dangerous in our patients as in the human subject, as there is not the same amount of inflamuation, nor does it go to the same extent.

In treating this disorder we must bleed, and give an emetic, composed of 2 grains of Antim. Tart. and 1 of calomel, followed by an aperient—nothing better than the castor oil mixture—then alteratives. If the case goes on well, proceed to tonics, such as gentian, ginger, or calumba. Dress the parts affected with a decoction of poppyheads, or chamomile flowers, and, to prevent the dog licking, apply flour or powdered gum acacia. If much swollen, you may scarify, and smear over with carbonate of zinc, unguent, or the ordinary Liniment plumbi. In the chronic form, where it has not the same tendency to spread, you may apply astringents, as alum, &c. I shall now pass on to another disease, quite different from the one I have been speaking of, viz.—

Favus, or Ringworm.

This is an altered state of the epidermis, very common in all

domesticated animals, but the sheep is the least liable to it. It is oftener seen in young animals than old ones, but still age does not grant immunity altogether. It is seen in horses in good as well as bad condition. It commences with a little spot, and goes on spreading outwardly, until, if not checked, a great amount of surface becomes affected. It is said to be contagious, but Erasmus Wilson, who is an authority, holds the reverse to be the case. It is said to be caused by a parasitic vegetable, the diseased part has the appearance of a honeycomb.

Treatment.—I use as remedies hydrochloric acid, turpentine, and oil. Mr. Gowing recommends one part of hellebore to eight of lard. Constitutionally, give aperients, followed by tonics. There are a great many other diseases in which the skin of animals is affected, many of them—as eczema, epizootica, small-pox—which in themselves are quite sufficient to furnish matter for an essay, but I am afraid you will think I have taken up too much of your valuable time. I hope, however, that you will bear with my shortcomings as the subject I have had to deal with is one to which I never paid any special attention, and, not being now in full practice as I was some years ago, have not the same opportunities of observing diseases which many of you have; still, when requested to write an essay on this subject, I did not like to refuse, feeling that it is the duty of one and all to render assistance, not only in the advancement of science, but in refreshing the memory with what has already been learnt, but, through lapse of time and want of being brought into use, has slipped from us.

WEST OF ENGLAND VETERINARY MEDICAL ASSOCIATION.

The regular general meeting of this Association was holden at the Royal Hotel, College Green, Bristol, on Wednesday, November 25th. The following members being present:—Messrs. T. D. Gregory (Bideford), President, W. Raddall (Launceston), T. Greaves (Manchester), T. D. Broad (Bath), Jas. Broad and B. Jermyn (Bristol), T. Aubrey (Salisbury), T. D. Barford (Southampton), D. E. James (Haverfordwest), Isaac James (Corsham), T. Barrell (Keynsham), and J. A. Collings (Exeter), Hon. Sec.

There were also present Messrs. J. C. Broad (London), Josiah Goodwin (Sec. Bath & W. E. Society), T. Wallen (Theale), and J. Dobson (Bristol General Hospital).

The President opened the proceedings with a short address, complimenting those present on their upholding so good a cause, and speaking hopefully for the future success of the Association. He spoke in feeling terms on the decease of one of its members, Mr. J. E. Cornelius, of Torquay, since the last meeting, and also suggested the desirability of presenting a letter of condolence to to Mrs. Cornelius, as a mark of esteem and regard in which the deceased was held by those of the society who had been acquainted with him.

The minutes of the previous meeting having been read and confirmed, Mr. T. Aubrey, of Salisbury, was unanimously appointed a Vice-President in place of Mr. Cornelius (dsceased); Messrs. Warne Raddall and James Broad were elected Auditors for the ensuing year; Messrs. Spooner, of Southampton, J. C. Broad, of London, and J. Goodwin, of Bath, were unanimously elected Honorary Associates of the society.

It was resolved that the aforesaid letter of condolence be forwarded.

Letters of apology for non-attendance were received from Professor Spooner, Messrs. Samson, Wheatley, Gregory, Bryer, Vincent, Bond, Wadlaw, Blunson, Cade, Ford, and Dr. Budd, of Clifton.

Communications complimentary to the essayist and the Association generally were read from many other influential members of the profession.

Mr. T. D. Broad then proceeded with his Essay on—

THE NATURE AND TREATMENT OF LAMINITIS.

Laminitis is a disease which appears to very imperfectly understood by the profession generally. I have examined all or nearly all published writings upon the subject, and believe that there is not another disease upon which there is such a diversity of opinions, in proof of which I refer to a speech made at a discussion on laminitis at a meeting of the Liverpool Veterinary Medical Association, in February, 1865, by Mr. P. Taylor, who stated that he considered it a slur on the veterinary profession that a disease of such importance as the one under discussion should not have been thoroughly investigated, and brought under some uniform rules of treatment before this time. We were now, he said, in the middle of the nineteenth century, and each person seemed to have his own ideas of its nature, and each upheld his own mode of treatment, but he hoped that better days had dawned for the profession, and that each and every member of these associations would exert himself to find out the true nature of this and other formidable diseases, by which means alone we could have them more under control, and apply ourselves to their treatment with a greater certainty of success. After such remarks as these I am induced to lay before the profession my views on the subject, with the mode of treatment which I have practised with uniform success for the last ten years, during which time I have not lost a case. The result of the treatment of laminitis, I look upon as being more satisfactory than that of any other serious disease with which I am acquainted. If treated early, in the majority of cases the horse will be able to resume work in from three to ten days, without any observable alteration of the structure of the feet. When reading the various articles in the *Veterinarian*, I was astonished to find such singular notions entertained by eminent members of our profession in reference to the nature of the disease. Mr. Dyer wrote in the May number of the *Veterinarian* of 1866 a sarcastic criticism on an article, by Gervase Markham, whose work was published (11th edition) in 1675, as

Markham's *Masterpiece*. I only noticed the review a few days since, or such a *Masterpiece* should not have remained so long sullied, for it is quite evident, from my own experience, that Gervase Markham's treatment (although some part of it was very absurd) must have been very successful.

Had Mr. Dyer given the essential part of it a fair practical trial, instead of theorising upon it, those few words, "lots of walking exercise," ironically placed in italics, would have been so placed to be understood in their literal sense. Again, he states, "It is at once the most absurd and cruel mode of treatment that could be devised, and were I to know of his practice being carried out by any member of our profession I should turn common informer immediately." Mr. Dyer has now an opportunity of carrying out his threat, or offering an apology for having so wrongfully sullied the name of an author who ought to be handed down to posterity as worthy of the greatest respect. I also found that two other veterinary surgeons had alluded to exercise as being beneficial. The first is a gentleman who, in a discussion on a paper read by the late Mr. John Percivall, on inflammation in the feet of horses, at a meeting of the London Veterinary Medical Society, November 12th, 1828, stated that in cases of laminitis he kept the horses continually moving to prevent congestion. This opinion, however, found no supporter. The next case is that of the late Mr. J. Castley, V.S. 12th Lancers, in the *Veterinarian* for 1830, page 199, when referring to the number of horses suffering from laminitis after three weeks' voyage in the expedition to Corunna, he states that, "strange to say, many of them, even those that were severely affected, appeared to get better every day during the march; some few acute cases, indeed, and especially when the hind feet were attacked as well as the fore ones, we were obliged to leave behind. But we managed to assemble at Lugo and Villafranca about 400 horses belonging to the brigade; of these at least one half had been left behind for this one complaint." The above are the only allusions I can find in veterinary literature to the system of treatment as practised by the late Gervase Markham, 200 years ago, although I never noticed either of the opinions until after I commenced writing this article. In the *Veterinarian* of 1864, page 696, there is an article by Professor Williams, of the Edinburgh Veterinary College, in reply to a letter of Mr. Thomas Greaves, on laminitis. In that article Professor Williams has more clearly defined the nature of laminitis than I have seen in any other work. The disease may be conveniently studied under three heads, viz. the acute, sub-acute, and chronic. It is not necessary that the latter should be the effects of either of the former. It is quite unnecessary that I should occupy your time by relating symptoms, as you are all well acquainted with them. The causes of the different forms of laminitis are various, such as concussion from hard work, especially on paved streets, bad shoeing, long railway journeys or sea voyages, remaining a long time in a stall or small loose box without exercise. I have lately had two acute cases in the same stable under treatment at the same time,

the result of feeding principally on straw. I have also known it on many occasions to be the effect of eating an inordinate quantity of corn (wheat especially). I may also here observe that I have understood from a friend who has been some years in the State of Illinois, in America, that the disease is there very common as a result of injudicious feeding upon maize. It is also the effect of metastasis. Over-exertion used to be much oftener a cause than it is at the present day. Horses are now much better prepared or conditioned for work, and are less frequently called upon to do very fast and long road journeys. About two years since I was called a distance of sixteen miles to see a case of acute laminitis in all four feet of a five-year-old hack mare, not fat, which had been running in a field for some time with a number of cows suffering from the foot-and-mouth disease, which induced me to examine the mouth of the mare, when I found that her tongue and gums had the same appearance as the cows' mouths, but not to the same extent. The mare recovered, but not without some alteration of the structure of the feet, as the treatment which I prescribed was not fully carried out, the owner being from home, the case was neglected. That is the only case arising from that cause which ever came under my notice, although I have heard Professor Varnell and others state that they have seen such cases. Since 1839, when the epidemic disease of the mouth and feet of cattle was imported, laminitis has been very common in the cow, sheep, and pig. I have seen unshod colts very lame from it after travelling long distances on the roads. Cattle also suffer from the same cause. I have also had several cases shortly after foaling, but in every case the mare was very fat. The ordinary cause of laminitis in the horse is plethora and the want of exercise, quite independent of size, whether a small pony or a heavy dray-horse. It is a question of fat and idleness. If any particular-shaped feet are more predisposed to it than others, it is the flat-soled, weak-crusted, and the narrow upright feet (donkey shaped). I have many times known it to occur to fat horses which have been at grass for months without having been haltered. During the time I have been engaged writing this article, I have been called to two cases of subacute laminitis in the fore feet; one in a carriage horse, sixteen hands high, with strong upright feet, which had been taken up from grass, fat, and placed in a stable for six days without exercise, when the disease began to show itself. After a fortnight's treatment it was quite free from lameness or altered structure of the feet, and fit to resume its ordinary work. The other case was that of a thirteen hands pony, very fat, and with rather flat feet, which had also been taken from grass about a fortnight, and had been very quietly driven in a small phaeton two hours per day for the last three days, when the disease made its appearance. After a week's treatment the pony was fit to resume its work, free from lameness or altered structure of the feet. I may here remark that my assistant, Mr. J. V. Blake, V.S., tells me that some time since he had a case similar to the last named, and from what he had read in the *Veterinarian* he was induced to put on the hobbles and cast

the horse on a thick bed of straw, to give the poor animal relief, by taking off the pressure from his feet in standing. He soon found that theory to be a delusion, for the hoofs began to slough, notwithstanding poulticing, &c. &c., and the horse was obliged to be destroyed.

Before entering upon the pathology of the disease under consideration, it may not be out of place to give a short synopsis of inflammation.

Hyperæmia.—The arrangement occurring best to my mind to give a general idea of inflammation is as follows:

1st. Hyperæmia with a *diminished motion* of blood in the part.
2nd. Hyperæmia with *increased motion* of blood in the part.
3rd. Hyperæmia with motion partly increased and partly diminished.

The 1st of these states we will call *Congestion;* the 2nd, *Determination of blood;* the 3rd, *Inflammation.*

The two principal causes producing *congestion* are—1st, obstruction of various kinds to the return of blood through the veins, mechanical or otherwise; the 2nd, a relaxed and toneless state of the capillaries and small veins, and this may be produced either by *local passive plethora*, as seen in a varicose vein, or atony occurring secondarily in consequence of previous inflammation.

I am under the impression that the 1st state (that of hyperæmia), with diminished motion of blood in vessels, is the all-important one to explain the rationale of laminitis. Yet I wish to point out that *local hyperæmia*, which we purpose laying much stress on in laminitis, differs somewhat from *local plethora*. Local hyperæmia also differs from general hyperæmia or plethora. Local hyperæmia is not exactly local plethora; it simply implies that too much blood is accumulated in the vessels of the part, without in any way influencing the general nature of the blood throughout the system.

Congestion plays an important part in inducing pathological changes; it occasions serious structural alterations, and runs into inflammation. Congestion is always a passive and mechanical condition, hence the term active congestion should not be employed. Indeed, what has been described as "active congestion" is in reality a variety of the inflammatory process. Congestion is a true hyperæmia; in it we find, not only that the blood is greatly increased in quantity, but that it circulates languidly through the part, and is of a darker colour than natural. The arteries are, at most, of their normal size, perhaps even contracted; the veins and capillaries are greatly distended by the slowly moving fluid. When the circulation in the congested part becomes completely arrested stagnation is said to have occurred.

Determination.—Increased vascular action lies at the bottom of most reparative processes, few important actions taking place without it. No process by which the separation of dead parts is effected, or by which the repair of wounds or ulcers is carried out, can occur without an increased activity of the vessels of the parts concerned. Every tissue is susceptible of it, and the veterinary

surgeon often excites it intentionally, as one of the most efficient of his therapeutic means; hence an acquaintance with the elements, and the details of the process, with its nature, symptoms, causes, results, and terminations, is of the first moment.

Increased vascular action is of two distinct kinds—1st, *Determination;* 2nd, *Inflammation.* These two conditions, though in practice most commonly found more or less conjoined, require to be studied separately.

In determination the blood is increased in quantity, has a bright arterial colour, and circulates through the parts with great rapidity. This condition, which is often called "increased action," consequently resembles congestion in the blood being in excess, but differs from it in every other respect.

Determination of blood is a vital process, often of a very transitory character, and frequently occurs as a normal action in those conditions of the system in which, for temporary purposes, an increased afflux of blood is called for by particular organs. The enlargement of the udder before lactation, and the turgosity of the erectile tissues, afford familiar illustrations of this act.

The veterinary surgeon often employs determination of blood for therapeutic purposes. Under these circumstances, therefore, it cannot be considered a disease.

When determination of blood is of a chronic or continued character, it may lead to such changes in the appearance, structure, and functions of a part, as materially to modify its nutritive and secretory activity, and then it becomes truly a disease. Under these circumstances the part is often said to be in a state of "chronic irritation."

Inflammation.—The study of the inflammatory process is one of the most complex and difficult on which the veterinary surgeon can enter; but the labour required to master its details is well bestowed, inasmuch as an acquaintance with its nature, symptoms, and progress, gives an insight into a greater part of the science of surgery. The management of inflammation, as it affects different tissues and organs, and thus constitutes distinct diseases, comprises a great part of the duties of a veterinary surgeon.

Pathologically.—With the general inflammatory process we have altered healthy conditions, viz.—

1st. An irregular and over-supply of blood.

2nd. An altered state of blood in its composition.

3rd. An uncertain amount of influence of nerve force.

4th. An altered state of the part from perverted nutrition.

The *supply*, therefore, is increased. The vessels are dilated and elongated, those previously invisible coming into view from distension with red corpuscles, producing stasis.

The *state* of the blood is altered, the fibrin is increased, so is the water, sometimes the white corpuscles, the red discs being diminished and running into "*rouleaux.*"

The nervous force is abnormal, but how this is changed we know not, no more than we can explain how it operates in ordinary nutrition; and lastly, the—

Healthy condition of the part itself is altered, the change being one more or less of degeneration, from impaired nutrition, succeeded by the effusion of inflammatory products into the elemental structures and intervening interstices.

PHENOMENA.—In congestion the quantity of blood is increased, but the rate of its motion is lessened. In determination we have everything augmented; there is an increased size of the vessels, and an increased quantity of blood within them, circulating through them with increased velocity. In inflammation we have a combination of these conditions; we have an increased size of the vessels, an increase in the quantity and rapidity of the motion of the blood, but conjoined with this we have a tendency to its arrest, to its stagnation at points. In studying the phenomena of inflammation in the web of the frog's foot under the microscope, we observe that the first change on the application of a stimulus, is the momentary contraction followed by dilatation of the artery; the flow of blood through it and the capillaries is at first accelerated; retardation from congestion then ensues; and, lastly, stagnation at points.

At these centres of commencing stagnation it will be seen that the blood appears to ebb and flow, oscillating to and fro, and then stopping at last; the immediate stagnation taking place in those capillaries which are not in the direct line of passage from an artery into a vein, and the arrest taking place by the red corpuscles coalescing by mutual adhesion into masses, which, after being carried bodily up and down more and more slowly, at last appear to block up the vessel, partly by overcrowding and distending it, and partly by becoming adherent to its walls, this adhesion usually commencing at the angle of union between two capillaries. Around the stagnant part the vessels are crowded by an aggregation of the red corpuscles, which appear to be more closely packed in consequence of the draining away of the liquor sanguinis. The blood does not enter the part of the vessel in which stagnation has taken place, but passes off by a collateral branch (Wharton Jones).

At this part, also, where the circulation is retarded, the white corpuscles may be seen to be increased in quantity, and appear to be adherent to the wall of the vessel, along which they are either stationary, or, at most, roll but languidly. Around the whole of this area, in the centre of which there is stagnation, with retardation of the blood, there is that increased rush of an increased quantity of blood characteristic of determination.

The researches of Mr. Lister on the pigmentary system of the frog's web have shown that in inflammation the tissues of the part—which he regards as the primary seat of the affection—are in a state of diminished functional activity; indeed, that the tissues of an inflamed part approximate to the condition of dead matter, "or, in other words, have suffered a diminution of power to discharge the offices peculiar to them as components of the healthy animal frame."

These are the general phenomena presented by an inflamed part,

when studied under the microscope. In order to become acquainted with the elements of this process, we must analyse the condition of the vessels and the blood, for which purpose I refer those who desire to know more on the subject to the works of Paget, Lister, Wharton Jones, and others.

In laminitis arising from fat and idleness, which is the common cause, there must be this state analogous to passive hyperæmia, and under the microscope you would find the capillaries tortuous, varicose like the following sketch, jamming up the circulation at or nearest the coats with blood-discs, the current proceeding through the centre onward, comparative stasis occurring at the circumference. The fibrine and solid constituents of blood are also materially increased by over-feeding and insufficient exercise, and hence another cause of stagnation.

The *loss of tone* would, in my mind, be thus caused—by the perpendicular position of the animal and over-feeding, producing increased specific gravity of blood, thus inducing or tending to induce stasis.

In the case of horses thus affected the vessels quickly acquire their original tonicity and proper dimensions as soon as the strain, arising from determination of blood, is diminished by EXERCISE; convalescence is then speedy, and restoration of the part complete.

I am informed by a medical friend (Mr. Freeman) that the same morbid states might be produced in the human nail as in the horse's hoof, viz. stasis, exudation of an inflammatory character, and death of the part, by precisely the same means as they are produced in the horse—that is, the keeping of the arms and hands hanging down for a considerable period without muscular movement would, in a modified degree, produce laminitis, or something akin to it, ending in the destruction of the nail; and this would be caused precisely by the same pathological process as that in the hoof of the horse. When the human nail begins to die, it dies rapidly, and this only when the root is concerned; nails sometimes recover themselves, when a fair half of the nail is found healthy at the beginning of treatment. If you tie a string, or make pressure in any way, upon the root, which nourishes and produces the nail, as well in the human body as in the horse, excessive pain is a consequence, nutrition of the developed nail fails, and, if the pressure is continued, it drops off; and so in the same way, if there is no pressure, the total absence of that necessary muscular movement of exercise, in the horse, producing the same result, viz. indirect blood stasis, terminating in laminitis.

PATHOLOGY.—In general plethora every part is preternaturally full of blood, and the blood itself is full of the elements of nutrition. General plethora, therefore, implies, in one sense, local plethora of every organ and tissue; the tissues, in virtue of their nutritive power, exercise an influence on the movements of the blood; in active hyperæmia their attractive force is increased, and it is in part through the failure of this nutritive power that congestion takes place, also the altered condition of the blood itself, which, semi-

stagnating in the capillaries and veins, becomes more venous than it should, and otherwise unfit for the healthy nutrition of the tissues. It also causes a vital depression of the part, and a great tendency to sloughing. If, under these circumstances, the horse does not get exercise, the feet do not then get their natural stimulus from the pressure of motion, and, as the veins of the feet have no valves, exercise is essentially necessary to keep them in health, to enable them to return the blood up the leg; for by remaining in one position the vessels become loaded, and the course of the blood in them is languid and sluggish, without any previously increased velocity of the blood in the arteries; the capillaries appear to lose, in a great degree, their natural tonicity; they easily dilate under the pressure of the blood, which, being thus retarded, accumulates, and is unable to overcome the obstacle of gravity; the consequence is passive congestion, which may be so slight as only to interfere with the action of the animal, causing him to go more or less fumbling, wooden, or as though he had lost his action; and such a state may exist for months, if improperly treated, even without becoming more active; it may lead to inflammation or seedy foot, by lessening the nutritive secretory function of the sensitive lamina, which in health not only supplies the horny lamina with nutriment, but a portion transudes into the wall in front of the lamina, so that, when the supply is interfered with, the fibres of the horn in front of the lamina become dry, and separate from the horny lamina constituting the disease. Should the congestion alter only slightly from its passive character, and continue, hypertrophy of the lamina will be produced, in consequence of persistent dilatation of the vessels of the part; exudation will also take place between the sensitive and horny lamina, producing more or less a sunken sole; but this process may be going on for months without producing positive lameness.

Chronic passive congestion of the lamina of the fore feet may be so slight as only to alter the action of the animal or produce a slight amount of lameness; and were it not for the ordinary sign of wearing away of the points of the heels of the shoes, it may be sometimes difficult to give an immediate opinion as to the exact seat and nature of the lameness. Passive congestion frequently runs on in a few days to active congestion, with stagnation of the blood, to such an extent that the vital powers become suspended, and sloughing of the hoof is the consequence, and this may take place without there being any appearance of exudation; such cases are more often the result of over-exertion. Laminitis arising from other causes does not usually take on the active form so quickly, and is consequently more prone to take on the exudative process, which is an altered and diseased action set up in the ordinary secretory tissues, terminating in a subacute or chronic form, with sunken soles or pumiced feet; or the exuded lymph may become changed into pus (which is one of nature's modes of relieving herself from inflammation), the horny soles become softened and destroyed at the toe, exposing the coffin-bone to view. Subacute laminitis

with sunken soles or pumiced feet, may exist for months to such an extent that the animal would not walk a half a mile in an hour without being whipped, yet such cases rarely proceed to sloughing; but under the treatment recommended in this paper the animal will be able to resume ordinary work and trot, free from lameness, in a few days. I have known on many occasions, after severe exertion, the congested vessels to become ruptured, and bleeding at the coronet ensue.

Treatment.—That which I have for several years practised has been attended with invariable success; whether the case be acute, subacute, or chronic, the feet strong and upright, or flat, providing that separation has not actually commenced, or the soles dropped or sunken, before I was called to see it; even in the latter case the treatment will remove the lameness, and render the horse serviceable in a very short time; it will also assist nature in restoring the normal structure.

My first step in the shape of treatment, whether the horse be up or down, is to get tacked on two extremely stout, wide-webbed, and long-bar shoes, made from iron about twice the ordinary thickness that this particular horse's shoes are made from; make them gradually thin from behind the quarters, so that the heel part of the shoes are wide and thin as possible, and fitted rocker fashion, to allow the weight of the horse to be on that part; put them on with leather soles, using only sufficient nails to ensure their staying on for two or three days, by which time the greater part of the pain will have passed away, so that more nails can then be put in if necessary. If the case is not a severe one, plain shoes, made after the same fashion, with leathers, will do, although I prefer the bar shoes. If the heels of the feet are very strong and high, lower them; if not, don't cut or pare the feet in any other way. I also give at once an ordinary dose of physic; and as soon as I can possibly get the shoes on, I compel the animal to walk on soft ground, if convenient; if not, on the road, or round his box for a short time, until a little of the soreness passes off. If the animal is so lame that he cannot be made to move without a person following with a whip, I order that to be done, knowing that, however much he may require it at first (cruel as it may seem), he will not want it more than two or three days, as the lameness decreases rapidly. In severe acute cases, if the exercise appear to distress the animal very much, continue it only about twenty minutes or half an hour at first, allowing an interval of from one to two hours before repeating it, after which it may be gradually increased, as the more he takes the sooner will the lameness be removed. Repeat the physic every third or fourth day (depending in a measure on the effects of the previous dose, although I never saw any ill effects from the repeated physicing in such cases), until the lameness is removed and the horse fit to work; do not then, from mistaken kindness, allow the animal to be turned to grass or into a loose box for a month's idleness, but order him to be worked or exercised daily, otherwise there will be a liability to a recurrence, as it takes some con-

siderable time for the vessels to recover their tonicity; it will also be necessary to continue for some time, in a modified form, the same principle of shoeing. Whenever I have a case near home I endeavour to get it to my own stables, otherwise there is a danger of the instructions not being fully carried out. To this treatment I should have recourse, even if I knew that the horse had done a hundred-mile journey the day before. In cases arising from metastasis it is necessary to be careful as regards the physicing. Before acquiring my present mode of treatment I had tried general and local bleeding, frog setons, hot and cold fomentations, hot and cold foot-bath, with and without the use of slings; I have also kept the animal down with the hobbles on, and used poultices of various sorts, with a variety of other modes of treatment, without any satisfactory result. Under my present system the only question is of being called in before any great alteration of structure has taken place. I have had several cases recover where separation had proceeded so far as to allow my finger to be passed in at the coronet for a considerable space, yet sloughing of the whole hoof did not take place, and the feet ultimately became sufficiently sound to enable the horses to work free from lameness.

Two years since, I was called to two neglected cases, one a fat, heavy waggon-horse, the other a fly-horse; in both fore feet of the waggon-horse the toe of the coffin-bone could be seen and felt; after a very short course of treatment the horse was put to work in a waggon drawing wheat and flour on the road, where he has continued to work constantly up to this day free from lameness; and as I have had the horse brought here to-day for your inspection, you will have an opportunity of seeing his feet, which are gradually recovering their natural shape. In the case of the fly-horse I could also see and feel the coffin-bone in one foot; that case also recovered, and the horse has been doing regular fly work up to the present date. A horse may have the soles of his foot somewhat sunken, yet by attention and good shoeing they may in time quite recover their natural shape. In bad cases of seedy foot it is often necessary to take off nearly the whole of the wall; in such cases it is very common to find the sole dropped or sunken, yet after the new hoof has grown down, the foot-bone has regained its natural position. I have for many years past noticed that feet under good management regain their natural shape in other cases besides seedy disease, although it is a generally received opinion that when soles are once dropped they must ever remain so.

At the conclusion of the essay a spirited discussion took place.

Mr. J. C. Broad made some lengthy remarks on the very undecided pathology of the disease, but he thought, as the treatment advocated by his brother was hitherto untried, that the arguments would be chiefly directed to that portion of the essay.

Mr. Warne Raddall, in commenting upon the remedial measures to be adopted, said that he could but differ from the essayist as to the practicability of such treatment as that recommended, in all

types of the disease; those cases quoted by Mr. Broad, resulting, as they were alleged, from plethora and inaction, would probably come under the category of the subacute class; in such as these the frequent slow walking exercise could easily be adopted, and might reasonably be followed by beneficial results. But as far as his experience had shown him, such mild cases as these were the exception, not the rule; the majority of those which had fallen under his notice were of the acute and most severe form, occurring after long and arduous journeys on the road. In treating these he had always pursued the most active depletive measures, and whenever summoned within reasonable time from the first appearance of the attack such treatment thoroughly carried out had with him been followed with a very fair amount of success; so much so that not unfrequently perfect systemic convalescence was re-established within a period of forty-eight hours. He, therefore, on the faith of his own experience, argued that such remedial measures, resulting as they did so favorably, were based on sound principles, and were entirely antagonistic to the disease in question. Speaking of the treatment just now advocated by the essayist, he was still of opinion that it was impracticable in these severe cases.

Mr. James Broad confirmed the statements of his father. He had tested his plan in the most acute cases which had come under his notice, and with unvaried success, so much so that the worst of them will become thoroughly convalescent within a week or ten days.

Mr. J. C. Broad said that such rapid convalescence could never be relied upon by the old depletive plan of treatment; perhaps one case out of a hundred may end very rapidly in total resolution, but not more. He stated further that, although he had been acquainted with this new method for some years past, he had never tested it upon one single case, as he had ever been exceedingly sceptical about its results. However, as the essayist had brought it out, and directly affirmed that such success does follow and in all cases, he was bound to accept it as a truth.

Mr. W. Raddall still maintained his former opinion. He contended that it was thoroughly impossible, with the aid of any amount of persuasion or coercion, to induce an animal suffering from the worst and most acute form of laminitis, to walk even outside his stable door, and that the poor suffering beast would fall headlong from exhaustion before he could accomplish the distance of fifty or a hundred yards necessary to relieve the engorged vessels of his feet. Such measures, in his estimation, were totally and thoroughly im-impracticable.

Mr. T. D. Broad observed that at first the same objection had become evident to him, but he had found, on testing it in practice, that the animal, after walking a few yards, would rapidly evince less pain in his progression. He had never met with a case in which it was impossible to induce his patient to move.

Mr. Dobson made some remarks on analagous cases in the human

nail. In such he had always adopted the old method of resting the part and applying warmth and moisture, at the same time lessening as much as possible the pressure on the portion affected by scraping the nail.

Mr. Broad considered that no analogy whatever existed between the human nail and the horny box of the horse's foot, at least not so far as the disease in question was concerned.

Mr. T. D. Barford maintained that there was a precise similarity between these two structures, both in health and disease, but the main question in these cases was the cause of the malady—there was the only difference; in the one it was common, in the other specific. In treating them he considered that similar measures should be adopted, as he himself in veterinary practice had always hitherto done. The speaker expressed himself sceptical as to the results of the new method in all cases.

Mr. T. Aubrey considered that the acute cases of laminitis were caused only by over-exertion. The most severe cases never resulted from simple plethora, unless such plethora be first augmented into febrile or inflammatory symptoms, when the metastatic form of the disease might appear. Such cases as these often ran a very rapid course; they would rank second in intensity to the acute. He had always adopted the old antiphlogistic plan of treatment, but with variable success. He was somewhat dubious as to this new method, but would give it a fair trial. He asked the essayist how he would treat a single foot affected with laminitis, as it occasionally occurs with the opposite limb injured.

The President observed that since the last meeting he had ordered slow exercise in two subacute cases which had come under his notice, and in both it was followed with beneficial results. He had not yet tried it in any case of a severe nature.

Mr. B. Jermyn said that he had adopted Mr. Broad's treatment in one case only, and in that it proved successful. He imposed some amount of faith in it on that account.

Mr. Isaac James wished to know why the essayist advised such an extreme thickness in the shoes in these cases.

Mr. Broad, in reply, said that he always found horses to travel with greater ease if protected by a good thickness of shoe; the concussion, in his opinion, was not so great as it would be with a shoe of less weight.

Mr. Thomas Greaves, in commenting upon the essay generally, observed that he had the good fortune to have heard this subject brought forward and discussed at three or four previous veterinary medical meetings, but on no single occasion had he felt greater pleasure or profited more than on the present one. He complimented Mr. Broad upon his having broken fresh ground, and advanced a new principle of treatment, by which a degree of success was obtained hitherto considered impossible. He observed that by such essays the advancement of the profession would be effected, and at the same time they would reflect credit on their authors and the associations of which they formed part. In speaking of the

treatment of the disease, he said that the views he formerly held were precisely identical with those now expounded by his friend Mr. Raddall, viz. that in severe cases there must exist intense congestion of the vascular system of the feet, and that strict depletive measures were essential; he consequently had been in the habit of bleeding largely, both generally and locally, until syncope supervened—followed it up on the second and even third day to the same extent—but to no purpose. Had also used hot fomentations and poultices at one time, at another cold water in a running stream, and even ice itself. On some occasions had cast his patient on his first visit, at others had slung him, but all with no decidedly beneficial result. Had also adopted paring of the soles, followed by frog setons, but with like inutility. In those cases in which he had bled the most had observed the most serious effects, in others in which he had not bled at all had seen recoveries. He now considered that there was no more blood in the feet during laminitis than in health, that neither the pain nor the throbbing of the artery was due to congestion or inflammation; but he thought that the latter was due to vibration in the coats of the vessel itself, and therefore abstraction of blood would do no good. Mr. Greaves further gave it as his opinion that the disease was more akin to neuralgia or protracted cramp, forcibly drawing backward and downward the toe of the coffin-bone, and that, therefore, it was not amenable to the same treatment as true inflammation. In conclusion, he remarked that if Mr. Broad's method be followed by such unvarying results of success, that the essayist will richly deserve the warmest thanks of the whole profession. As to the cruelty of its adoption, he considered that such a thought should be dismissed from our minds when we feel confident of soon allaying our patient's intense suffering, and restoring him to usefulness in so short a time.

The hour appointed for dinner having arrived, the customary votes of thanks were proposed and seconded, after which the members sat down to a substantial dinner at the same establishment, and during the remainder of the evening discoursed most freely and agreeably on the proceedings of the day, which one and all seemed thoroughly to have appreciated. The next meeting was fixed for Dorchester, of which due notice will be given.

J. A. Collings, *Hon. Sec.*

THE LIVERPOOL VETERINARY MEDICAL ASSOCIATION.

The eighteenth quarterly meeting of the above Association was held in the Medical Institution, Hope Street, at six o'clock, on Friday, the 13th of November.

After partaking of refreshments, which the President had kindly provided, the meeting was opened. There were present—Messrs. Heyes (President), Morgan, Wilson, Harwood, R. Reynolds, W. C. Elam, Akroyd, and Leather (Liverpool), A. Lawson (Bolton), W. C. Lawson (Woolton), Storrar (Chester), Whittle (Worsley), T. Greaves, P. Taylor, Tom Taylor, and Nottage (Manchester), and the Secretary.

The minutes of the previous meeting having been read and confirmed, the Secretary read a letter from Mr. Richmond, of Chorley, expressing his regret at being incapacitated by illness from attending the meeting, and offering some remarks upon the administration of medicines to animals. He also enclosed a cheque for 10*s.* 6*d.* towards the expenses of the Association, and desired to become a member. After some discussion, it was moved that the Secretary write to Mr. Richmond, thanking him for his kind donation, and to request his permission that the same be handed over to the Benevolent Fund of the Defence Society, as the Association was not in want of it, and also to request that gentleman to forward a paper for discussion at some future meeting, on the best mode of administering medicines to our domestic animals.

A letter was also read from Mr. Cartwright, of Whitchurch, expressing sorrow for being unable to attend, and relating some cases of poisoning by acorns amongst some young stock in the neighbourhood of Crewe. The *post-mortem* appearances were principally those of gastro-enteritis of a most intense nature, and ulceration of the leaves of the third stomach, the folds of which had holes in them sufficiently large to put a pea through.

Mr. Cartwright was then duly elected an honorary associate, and Mr. Akroyd a member, of the Association; Mr. Richmond was also nominated as a member.

Mr. Elam then introduced for discussion the subject of "Affections of the Brain," by relating a case of rupture of the basilar artery in a mare, the property of the Liverpool Omnibus Company. She was taken ill on the 22nd of September, having evinced no previous symptoms. On that day she became dull in appearance, sluggish in action, rested her head on the manger, breathed with difficulty; she was partially paralysed, eyes amaurotic, bowels constipated, and fæces coated with mucus, surface chill, pulse quick. The treatment consisted of laxatives, with stimulants, blister to poll, and general attention to comfort and diet.—23rd: No improvement; pulse fuller and stronger, no action of bowels; repeated the physic, abstracted about six quarts of blood, and applied cold ablutions to the head at intervals; administered enemas, &c.—24th: No better; she succumbed to the disease the same morning, and upon making a *post-mortem* examination the internal organs were found healthy, as also the meninges and substance of the brain. The basilar artery was varicose, being filled with congested blood, and underneath it was a clot of blood, extending from the middle of the medulla oblongata to the fissure. He thought it probable that these appearances may have been caused by violence.

Mr. Walley then read the following account of a case of tumour at the base of the brain, accompanied with effusion:—*Subject:* A grey cart-mare, seven years old, very fat, always employed in farm work.—*History:* From three to four weeks previously to my attention being directed to the case, her owner suddenly died from a cause which necessitated his speedy burial; in order to collect his friends together for that purpose, the son put the mare in a light vehicle, and drove her a long round at her highest speed, the day being one of the hottest experienced in the late very hot season. At the time of this journey and afterwards she was engaged in reaping corn with a machine; she perspired freely after her journey, and was very dull, the attendant, of course, thinking it was due to exhaustion. From this period she never recovered her former spirits, and it was with difficulty she was made to do her work; This was attributed to laziness, from the hot weather. On the 20th of August I was requested to examine and treat her. I was informed that the symptoms then presented had been gradually developing themselves for some few days.—*Symptoms:* So far as pulse, breathing, colour of the membranes, excretions, &c., there was nothing to indicate ill-health; the appetite, however, was *very* bad; she was partly unconscious, and on being made to move did so with an uncertain gait, and showed great inclination to perambulate the box, invariably turning to the right, rubbing the left side against the wall as she progressed; on pressure being applied to the poll and to the base of the ears, considerable tenderness was evinced.—*Diagnosis:* Pressure on the brain from abscess, tumour, or water.—*Prognosis:* Very unfavorable.—*Treatment:* Perfect quietude; counter-irritation to poll and base of ears; laxative medicine, which latter operated more freely than was desirable; offer her small quantities of grass, mash, scalded hay, &c., frequently.—August 21st and 22nd: Decidedly better in every respect; bowels responded freely; counter-irritants acted powerfully; gave a slight stimulant and sedative combined, twice a day.—23rd: The symptoms had returned with great violence, and she had bruised herself considerably, but still lay down at intervals. I immediately bled her (the owner had also done this previously to my seeing her); inserted a seton either side the poll, and gave her one or two doses of calomel and opium; but feeling assured that treatment would be thrown away, I did nothing more afterwards than attend to her general comfort. She continued to get worse, and about ten days after, I was requested to go and destroy her, which I did.—*Post-mortem:* All the organs of the body beautifully healthy. The cranium was opened carefully; the vessels of the brain were somewhat congested, and there was a considerable amount of effusion into the cranial cavity. On removing the brain a small tumour, about the size of a hazel nut, was revealed to view, situated on the floor of the cranium and adherent to the anterior part of the os sphenoides, a little anterior to the sphenoidal hiatus. The tumour appeared hard and sarcomatous, but upon opening it it contained a small quantity of fluid.—*Conclusions:* The tumour

the primary cause of illness, interfering with the circulation. The long journey the cause that produced death, the vessels becoming congested, and ultimately throwing out serum. It is remarkable that she always turned the same way in the loose box as she had been accustomed to do in the mowing machine. Could it have been correctly diagnosed, a puncture might have been made through the bone.

Mr. Tom Taylor also related a very interesting case, which occurred in his practice about a month previously, and illustrated it by a most beautiful and perfect specimen.—*Subject:* A light spring cart-mare, about seven years old; Mr. Taylor had known her about eighteen months, during which time she had been healthy, with the exception of one or two attacks of influenza. *Symptoms* resembled sleepy staggers; she was dull and heavy, pulse 32, and constantly boring her head into a corner and resting against the manger. Administered physic, &c. The symptoms gradually developed themselves into those of madness; she would keep her head obstinately in a corner for ten minutes at a time, and shiver all over, with her mouth awry and her eyes amaurotic. Attempted to bleed her, and after had opened the vein she became so unmanageable that for some time could not get near her to pin it up, until her head was forcibly pulled through a window. She then had cold water applied to her head by means of a pipe, and mustard to her stomach; carbonate of soda with acetate of potash were given. The following day she was much better, and the physic had acted well; she continued improving about four days, and worked well for about ten days, when the attack returned, but yielded to treatment in another four or five days. She had five such fits, each worse than the other; while she was in the last fit I took Mr. Gibson to see her, but found her dead. The *post-mortem* revealed a healthy condition of the thoracic and abdominal organs, with the exception of the stomach, which was slightly inflamed. The brain was taken from its cavity, base uppermost, and thus was brought in view without injuring it, a very large sac, formed by a fine delicate membrane enveloping a quantity of serum. The sac had caused absorption of a large portion of the anterior part of the medulla oblongata and of both hemispheres, its only attachment being by a small twine-like connection to the interior of the right hemisphere, the pineal gland being directly underneath the body of the tumour. Mr. Taylor, for the information of the members, brought the brain with him, and it certainly was a beautiful specimen, and was examined by all present with great interest.

A spirited discussion followed the relation of these cases.

Mr. Lawson said he had seen several cases with similar symptoms as those described, but, as they had all recovered and passed out of his sight, he was not able to trace them to their several causes. He had one horse of his own that was liable to such attacks very suddenly, and they as quickly passed off. He was also sold, and he did not know the close of his career. He thought the best treatment for such cases was getting the bowels to operate freely, and

the application of blisters and setons to the poll and the back of the ears.

Mr. Tom Taylor remarked that he thought the most interesting thing to arrive at in these cases would be the capability of distinguishing by the symptoms between temporary functional derangement of the brain and organic derangement, so as to be a guide to a decision.

Mr. Morgan spoke of the fact that animals with organic derangement of the brain invariably kept up their condition well, and instanced a case of a fat cow with an ossified brain, the report of which he read.

Mr. Tom Taylor alluded to a case of fracture of the ethmoid and sphenoid bones that had come under his notice, which had been caused by a horse falling on his incisor teeth. The symptoms present in this case were similar to those in the one he had related, especially the symptom of boring with the teeth.

In reference to this, *Mr. Storrar* said he had seen the symptom present in simple functional derangement.

The President instanced a case similar to Mr. A. Lawson's, in one of his own horses. He could not account for it in any way, and she worked for years after in a cab without a return of it.

Other gentlemen also spoke of having seen such cases, *Mr. Storrar* mentioning that the Scottish shepherds frequently passed a stocking needle up the nostrils of sheep into the brain, and gave them immediate relief.

Mr. Taylor still adhered to the opinion that the intense boring of the head was characteristic of great pressure on the brain.

Mr. Greaves remarked that the subject was one of great interest to all, and he thought it very desirable that we should be enabled to diagnose these cases correctly. He remembered one case of abscess in the substance of the cerebrum, where the symptom spoken of by Mr. Taylor was particularly marked, the animal also describing a circle in his movements. He had also had several horses the subjects of fits under his care at various times, all of which had recovered, but he attributed their recovery to the employment of setons; he had used all other known remedies, and had found the seton succeed after their failure. He also expressed the opinion that the usual mode adopted in the treatment of these cases was bad.

Mr. Walley related the particulars of a case in a cart-horse, where, from a kick, there was a fracture an inch square, causing an opening of that size in the frontal bone, the jagged edges of the fractured bone being driven inwards. This horse's brain could be freely probed without his evincing the slightest symptoms of the fact; and in allusion to this subject, *Mr. Greaves* cited the example of a Manchester surgeon, who was in the habit of forcing stocking needles into the brains of his patients, without giving rise to untoward results; both these instances going far to prove how much the brain may be interfered with without there being much evidence of the same.

Mr. P. Taylor made some sensible remarks as to the little that was known about the brain and its diseases; and as that organ was not supplied with absorbents, he saw the greatest necessity for prompt and energetic treatment when it was the subject of disease, especially of an inflammatory nature. He thought there was always a peculiar appearance of the eye indicative of affections of the brain. He did not agree with the use of counter-irritants, as he thought they only made the head a greater load for the animal to bear. He always relieved the liver in the first instance, then applied cold applications, and paid attention to the dieting of the patient. He agreed with Mr. Greaves that all, especially young men, should do their best to get at the bottom of these cases; he thought there must be some peculiar symptoms belonging only to organic diseases. He had one mare subject to fits, to which Mr. Greaves administered ʒj calomel three times a day for three days, and used setons; she had as many as ten fits in a day, but they were the result of functional derangement. He deemed it better to remove these morbid conditions by medicine. With respect to the use of calomel, Mr. Greaves had seen ʒij given daily for a fortnight without any injurious effects.

This closed the discussion, when the President delivered his speech previous to retiring from the chair. He recorded his hearty thanks to all for the kind and courteous manner in which they had behaved towards him during his two years of office, and also for the indulgent way in which they had taken his shortcomings, assuring them that he would endeavour to increase the success of the Association in his character of a member, and support his successor in office. The Secretary then read his report, bringing before the members a short résumé of the work of the Association during the past year, from which it would appear that the Association, instead of diminishing in strength, had increased. Six new members had been elected; one, viz. Mr. Twist, was removed by death, and several had chosen to withdraw from the Association from motives best known to themselves.

From the Treasurer's report it would appear that there was a balance in his hands in favour of the Association of £30 3*s*. 10*d*.

Mr. Morgan proposed a vote of thanks to the retiring officers, which, being seconded by *Mr. Greaves* and supported by *Mr. Whittle*, was unanimously carried.—*Mr. Morgan* declined the office of President, stating that some of the members in Liverpool had expressed the opinion that he wished to have the management of the Association in his own hands. He would propose Mr. Greaves as President for the ensuing year. *Mr. Heyes* seconded the motion, which was carried unanimously.—*Mr. Walley* proposed Mr. R. Reynolds as Secretary, and Mr. Harwood as Treasurer. *Mr. Morgan* seconded the first proposition, and *Mr. Tom Taylor* the second, and both gentlemen were elected.—Messrs. Morgan, Heyes, and Wilson were elected Vice-Presidents.

At the close of the meeting *Mr. Morgan* gave notice of motion that £25 be given to the Benevolent Fund at the next meeting.

THOMAS WALLEY, *Secretary*.

ROYAL AGRICULTURAL SOCIETY.

On Wednesday, December 4th, the annual meeting of members was holden at Hanover Square, the Duke of Richmond in the chair.

Mr. Hall Dare read the report of the Council.

Before the report was adopted, a discussion upon the proceedings of the Council took place, in especial reference to the amalgamation of the offices of secretary and editor, to which double office Mr. Jenkins, assistant secretary, librarian, and curator of the Geological Society of London, and editor of the quarterly journal of that society, had been appointed. The several speakers, Messrs. J. C. Morton, T. Duckham, Clare, Sewell Read, M.D., Sidney, Sir Geo. Jenkinson, Sir M. Lopes, Sir W. Stirling, and the Rev. J. Constable, were unanimous in condemning the course which the Council had adopted in selecting a gentleman for the office of editor who admittedly knew absolutely nothing of agriculture. It was allowed that the committee of selection had appointed the best among the candidates who offered themselves for election, but it was nevertheless contended that the association of two perfectly distinct offices had kept out of the field eminent practical agriculturists, who would otherwise have been induced to come forward.

At the conclusion of the discussion the Chairman put the motion that the report be adopted, which was carried against many dissentients.

Subsequently, the subject of shearing sheep in April for the Society's exhibition in July was considered.

Mr. Willson also made some suggestions in respect of the erection of buildings by the exhibitors instead of by the Society's contractors.

A vote of thanks to the Chairman concluded the proceedings.

THE SMITHFIELD CLUB CATTLE SHOW.

If success is the test of merit, the exhibition of fat stock at the Agricultural Hall, Islington, this year, may claim to have been highly meritorious. The general opinion among the numerous visitors was that no such show of stock had been seen in the hall on any previous occasion.

The Herefords were the most prominent feature of the exhibition, and next to them the Devons took place. The

Sussex breed gave evidence of careful cultivation, and it was more than once remarked that these animals approach the character of the Devons more closely year by year.

Among the sheep the South-downs attracted most attention; the long-wools were, however, well represented. Pigs were neither numerous nor of unusual merit, but, judging from the crowded state of the small compartment of the hall which was assigned to them, they have lost nothing of their popularity with the visitors.

The annual meeting of the Club was holden on December 8th. Lord Powis was elected President for the ensuing year.

NEW MEMBERS OF THE PROFESSION.

At a Meeting of the Court of Examiners of the Royal College of Veterinary Surgeons, held December 21st, the following students from the Royal Veterinary College, London, passed their examination, and received the diploma of the College, viz.—

Mr. Alexander Attwood	Putney, Surrey.
— Alfred Blogg	London.
— Thorpe William Bishop	Brixton, Surrey.
— Thomas Gaved	St. Austell, Cornwall.
— John Wickham	Albourn, Sussex.

At a Special Meeting of the Court of Examiners, held on the same day, in accordance with the resolution of the Council for the examination of candidates holding the Highland and Agricultural Society's Certificate, Mr. Alexander Lamont Butters, Exeter, was admitted a member of the College.

Veterinary Jurisprudence.

COUNTY COURT, BRADFORD (YORKSHIRE).

(*Before* — Daniel, *Esq.*, *Q.C.*, *Judge.*)

Tuesday, 15th Dec., 1868.

CLIFF *v.* CAWTHRA.

This was an action brought by Messrs. Cliff, iron-founders, Bradford, against Mr. Enoch Cawthra, horse-dealer, to recover

£14 14*s.* 6*d.*, the alleged loss on a black draught horse which the Cliffs had bought of the defendant for £34, and another horse, valued at £6, in exchange. The said black horse was afterwards sold by public auction, resulting in the above loss. Mr. Terry appeared for the plaintiffs, and Mr. J. H. Hutchinson for the defendant.

On the 1st May, 1868, the horse in question (five years old) was purchased with a written warranty of soundness and free from vice. Shortly after the contract Mr. Carter, M.R.C.V.S., Bradford, examined the horse and declared it to be unsound, and gave a certificate that the animal had chronic disease of the back, having a "*chinked back*," and, in his opinion, the disease had existed a month at least antecedent to the sale of the horse to the plaintiffs.

Mr. Collins, M.R.C.V.S., Bradford, also examined the horse for the plaintiffs, and was of opinion there might be some injury to the ligaments of the dorsal vertebræ; thought that a horse might recover from such a strain.

The defence was, the horse was sound when sold to the plaintiffs, was not "jinked" in the back, had no chronic disease, and was sound now, and was working in Leeds, being the property of Messrs. John Pepper and Company, carriers, at this time. Dr. Spence, of Weston, near Otley, proved that the horse formerly belonged to him, and that he sold it with a warranty. Mr. Bale, M.R.C.V.S., Otley, proved that he had been in attendance at Dr. Spence's stables, and had frequent opportunities of seeing the said horse, and never attended him for any disease. Mr. Walker, M.R.C.V.S., Bradford, examined the horse for the defendant, and was convinced he was sound and free from chronic disease of the back. Mr. Broughton, M.R.C.V.S., of Leeds, examined the horse on the 22nd of September, and confirmed Mr. Walker's opinion; so also did Mr. Edward Coleman Dray, M.R.C.V.S., Leeds, who examined the horse on the same day, viz. 22nd September.

His Honour came to the conclusion the horse was sound when sold by Dr. Spence; sound when it came into the hands of the plaintiffs, and was sound and working regularly now, in the possession of Messrs. J. Pepper, at Leeds; consequently he gave a verdict for the defendant.

ARMY APPOINTMENTS.

War Office, *Dec. 22nd.*

Veterinary Department.—Acting Veterinary Surgeon J. Bunnell has been permitted to resign his appointment: J. C. Dwyer, Gent, to be Acting Veterinary Surgeon, *vice* Case, appointed Veterinary Surgeon, Royal Artillery.

Royal Artillery.—Acting Veterinary Surgeon M. F. M. Case to be Veterinary Surgeon, *vice* Phillips, who has retired upon half-pay.

THE

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Communications and Cases.

THE MICROSCOPE IN VETERINARY MEDICINE.

By Professor Brown.

(*Continued from vol.* xli, p. 667.)

The fungoid theory of disease.

In the article which appeared in the October number of the *Veterinarian* on the subject of active molecules in vaccine and variolous matter, allusion was made to the researches of Professors Hallier and Du Barry, who are asserted to have discovered fungi in the intestines of persons dead of cholera; and also in the morbid products of other diseases. It is not to be presumed that any definite conclusions can be drawn from the evidence at present available, but the apparent tendency of the inquiry is to associate various diseases with the development of vegetable organisms in the blood and other fluids of the animal body. Whether future investigation shall confirm or negative this view of the relation of fungi to morbid changes in the organism of the animal, it is very desirable that the members of the veterinary profession should not be unconcerned spectators of experiments which have such an important bearing upon pathology. Hence, in the article referred to, it was proposed to record the results of microscopic observations upon various animal fluids at intervals. A comparison of the evidence obtained with that which may hereafter be collected by investigators will at least be interesting, and, possibly, not uninstructive.

The first observations were made upon the blood and lymph taken from a sheep affected with variola. In both fluids moving bodies were detected; even under the quarter-inch objective minute specks and fine filaments were seen in a state of considerable activity. A higher power ($\frac{1}{25}$) was afterwards employed for the purpose of bringing into view the structure of the organisms, and it was found that they were thus resolved into bacteria and vibriones. The specimen in which these bodies were most numerous was kept moist for a few days, and on being again examined with the $\frac{1}{25}$ of an inch glass was observed to contain large bacteria, some of them of a peculiar form; and besides the bodies previously observed, many infusoria were present. At page 667 of the *Veterinarian* for October, Fig. 9, the several bodies are depicted, excepting the animalcules, which possess no special interest, as they occur in all fluids which contain a small quantity of organic matter.

No fungi nor spores of fungi were detected during the examination of lymph from a variolous vesicle and the blood of a diseased sheep; and the specimen figured at page 667, vol. xli, was therefore set aside in order that frequent examinations might be made, and any further development of organic bodies in the fluid at once discovered. The method pursued was very simple and perfectly effective, requiring so trifling an expenditure of time, that the experiments may easily be repeated by those whose professional occupations leave them very little leisure to prosecute minute researches.

First, the object was prepared in the ordinary way:—a drop of the fluid was placed in the centre of a clean glass slide, and covered with a piece of thin glass; if the $\frac{1}{25}$ is to be used the *thinnest* glass, prepared for the purpose, must be put over the specimen. The ordinary covering glass will not answer for anything above the one eighth of an inch objective. In the next place a few threads of cotton were loosely twisted together and placed across the glass slide in such a way that the cotton touched the edge of the covering glass, and hung down on each side for one or two inches; the slide was then placed over the opening of a small jar filled with distilled water, the ends of the cotton being left in the water. By capillary attraction the water will ascend on both sides, and keep the object in a moist condition for any length of time, if care is taken to supply the loss of water from the jar occasioned by the evaporation which is constantly going on.

In this manner the specimen of variolous matter was treated, and at the same time a drop of milk and a portion of

tubercle from the lungs of a cow were similarly arranged for the purpose of comparison. In the course of a few days numerous infusoria were seen moving very actively among the particles of organic matter. The bacteria and vibriones in the variolous lymph also increased in size, and new ones were developed; these small organisms also grew in the milk and tuberculous matter, but neither specimen presented any signs of fungi. Repeated examination of the objects during the next two months showed a gradual decrease, and finally extermination of the bacteria and vibriones, with multiplication and growth of infusoria, which ultimately consumed the organic matter, and soon afterwards perceptibly diminished in numbers; before this occurred, however, about the end of the second month, numerous minute filaments (mycelium) of fungi were observed to spring from the edges of the objects, and traverse the whole field of view; each specimen was carefully noticed, and in each the same appearances were perceived. Week by week the development of the

Fig. 10.

Mycelium spores and spore cases of fungus developed on a portion of ovine variolous matter.

fungus advanced, numerous spores were perceived to exist among the filaments of the mycelium; and lastly, circular bodies of considerable size were seen in many parts of the field apparently filled with spores. One of the objects was examined in the beginning of January with the $\frac{1}{25}$ glass, and the appearances represented in the illustration were distinctly observed. (See Fig. 10.)

It will be noticed that many of the filaments are hollow cylinders, and contain minute spores; the spore cases are represented at the bottom of the figure, and several masses of spores are seen scattered over the field.

So far the experiment was interesting, not on account of the evidence it afforded of the truth of the fungoid theory of disease, but rather for the contrary reason. The disappearance of the minute moving organisms in smallpox lymph, the commencement of the growth of fungi after the greater part of the organic matter had been destroyed by animalcules, and the growth of the same species of vegetable organisms in each specimen, tended to prove that, in this instance at least, there was no connexion between the fungus and the disease; but without accepting the results of the experiments as conclusive in either direction, it is important to notice the discovery of an unexpected fact in connexion with the growth of the fungi. During an inspection of one of the objects, it was noticed that the infusorial animalcules were moving freely among the filaments of the fungus without in any way disturbing them; and further, in focussing with high powers, the animalcules were only dimly seen when the fungus was clearly defined: these observations led to the inference, that the fungus was growing on the *outside* of the covering glass and not in the morbid fluid. With the intention of deciding this question, one of the specimens was placed under the inch objective, and when the filaments of the fungus were brought into view, a camel hair pencil was gently drawn over the surface of the covering glass, with the anticipated result; the fungus was thereby removed while the other parts of the object remained intact. A further test was applied by lifting the covering glass and carefully cleaning the under surface which had been in contact with the animal matter, and then placing it with the upper surface turned downwards on a perfectly clean slide. An examination under the microscope now proved that the fungus remained uninjured, while the other parts of the object had disappeared. The fact of the fungus having grown on the outside of the covering glass, and quite separate from the animal matter in each specimen, could no longer be doubted. Had the object been left unco-

vered, in all probability the fungus would have grown upon the surface of the organic matter, but the exclusion of atmosphere prevented its development underneath the cover, and accounted for its extension from the edge of the thin glass over its surface. Experiments will be continued for the purpose of further elucidating this interesting subject; but it is satisfactory to be able even now to point to one possible source of error which may be easily avoided.

REMARKS ON THE ALLEGED DEATH OF SEVENTEEN COWS AND TWO HORSES THROUGH DRINKING BAD WATER.

By Professor Tuson, Royal Veterinary College.

In the *Nottingham Journal* published on Tuesday, the 8th of September last, there appeared the following article :—

"Seventeen Cows and two Horses killed by bad Water."

"The injurious and fatal results arising from the use of impure and bad water have recently been illustrated at Colwick, a village in close proximity to Nottingham. Mr. Thomas Elnor, an extensive grazier at that village, a few weeks ago lost two valuable horses under somewhat mysterious circumstances, and seventeen head of cattle, pastured in the same field, were also attacked with a serious malady, of which some of them died, and the others were so bad that it was necessary to kill them. A *post-mortem* examination of the carcases made by Dr. Barlow, of Cotgrave, veterinary surgeon, revealed the fact that all the animals had greatly enlarged spleens, and it was conjectured that the same had arisen from the effect of some irritant poison. The loss of cattle under these circumstances being calculated to affect the food supply of the town, and the case having come to the knowledge of the Sanitary Committee of the town, Mr. Alderman Page, the chairman of the committee, and Mr. Wm. Richards, the Sanitary Inspector, proceeded to Colwick, and having reason to believe that the water the cattle had been drinking was the cause of their death, obtained specimens for the purpose of analysis. Three specimens were obtained—one of them being taken from a pond in a field in which the stock had been kept. They have been duly sub-

mitted to Dr. Beekit Truman, Castle Gate, Nottingham, and his analysis of the same is appended below. Mr. Alderman Page deserves the thanks of the town for dealing so promptly with the subject, as apart from the importance of the facts revealed by this investigation to the grazing interest, the question is one of great moment to the general public of the town and district.

Report *on the* Three Specimens *of* Water Supplied *to* Me *for* Analysis.

"None of the waters contain poison. The water, in all three cases, was unfit to drink on account of the amount of mineral matter, especially of the lime salts, which it contained. These, however, would not produce the symptoms under which the cattle laboured. The great amount of organic matter in the water obtained from the stagnant pond points to that as the cause of disease in this case. Although the precise cause of malarious diseases is not known, they are believed to arise from, or to be communicated by, drinking the stagnant water found in marshy situations. So long ago as the time of Hippocrates, it was said that "the spleens of those that drink the water of marshes become enlarged and hard." The *post-mortem* appearance of the cattle presented the lesion known as "splenic apoplexy," a malarious disease. I am, therefore, of opinion that the cattle died of acute malarious disease, brought on by drinking the water from the stagnant pond. The dike water was tolerably pure.

"Aug. 25th." "E. BECKIT TRUMAN.

"1.—*Analysis of Water, labelled 'Dike Water.'*

"Slightly milky, slight musty smell, neither ammonia nor sulphuretted hydrogen. A very decided brownish sediment.

"Under the microscope, this showed numbers of living creatures; a few small worms; two kinds of rotifers with their eggs; a cyclops; numbers of diatoms, and infusoria; hair of some animal; decaying vegetable fibre and leaves, &c.

"Reagents detected the following mineral substances:—Lime, free acid, chlorine, sulphuric acid, magnesia. There was no metallic poison, no ammonia, no sulphuretted hydrogen.

The total solids were 12·6 grains per gallon.
Of this, organic matter 4·81 grains.
mineral 7·69 „
The ash, after red heat, amounted to 8 grains.
Total hardness of water . 30°
Permanent ditto . . 30°
After precipitation with lime . 24°
Ditto and boiled . 22·5°
Chlorine . 1·367 grains per gallon.

"A gallon contained therefore,

	grains.	grains.	
Organic matter .	4·81		
Sulphate of lime .	2·856	2·856	
Magnesia . .	2·87	2·87	
Chloride of Sodium .	1·759	1·759	
		·515	other salts.
	12·295	8·00	ash per gallon.
Loss . .	·205		
	12·5		solid matter per gallon.

"2. *Analysis of Water, labelled 'Stagnant Pond.'*

"Slightly milky, no strong smell.

"The microscope showed infusoria, eggs of a rotifer, minute algæ, crowds of diatoms, and much decaying vegetable matter.

"Reagents showed the following mineral substance: chlorine, free acid, lime, sulphuric acid, magnesia. No metallic poison, no ammonia, nor sulphuretted hydrogen.

Total solids were . . 22·4 grains per gallon.
Of this, organic matter . 12·41 „ „
mineral . . 9·99 „ „
The ash amounted to 7 grains: CO_2 driven off.
Total hardness of the water . . 41°
Permanent . . . . . 30°
Temporary . . . . . 11°
Magnesia hardness . . . 18°
Chlorine . . . 1·663 grains per gallon.

"A gallon contained

Organic matter .	12·41		
Chloride of calcium .	2·568	2·568	
Carbonate of lime .	3·85	3·85	
Sulphate of lime . .	1·112	1·112	
Magnesia . . .	2·24	2·24	
	21·771	9·77*	
Other salts, &c. . .	·629		
	22·4		total solids.

* This contains carbonic acid, which being driven off would reduce the quantity to 7 grains, the ash.

"3. *Analysis of Water, labelled 'Trent Water.'*

"Clear :—Living creatures seen by the eye, no smell.

"The mieroscope showed decaying vegetable tissue; spiral ducts (from leaves), diatoms :—Small algæ, infusoria.

"Reagents showed the presenee of ehlorine, lime, magnesia, free acid, sulphuric acid. No metallic poison, ammonia, or sulphuretted hydrogen.

Total solids were 20 grains per gallon.
Of this, organic matter 5·33.
Mineral 14·67.
Ash amounted to 14 grains.

Total hardness of the water	46°
Permanent	46°
Temporary	none
Magnesia hardness	8°
Chlorine	4·244 grains.

"A gallon contained

Organic matter	5·33 grains.
Chloride of calcium	6·635 „
Sulphate of lime	8·184 „
Magnesia	·84 „
	20·989
	·989
Excess	20· solids."

Three samples of water, taken from the same sources and at the same time as those referred to in the preceding report, were forwarded to me for analysis. My results, however, differ very widely from those published by Dr. Truman; and, as it appears to me that that gentleman has fallen into many unaccountable errors, I deem it but an act of justice to myself, as well as to Messrs. Cave and Pyatt, veterinary surgeons of Nottingham, who were engaged with me in investigating the cause of the mortality among Mr. Elnor's stock, to place before the readers of the *Veterinarian* a few remarks on Dr. Truman's report, and subsequently a statement of the results of my own analysis.

In the second sentence of Dr. Truman's report, he states that "the water in all three cases was unfit to drink on account of the amount of the mineral matter, especially of the lime salts which it contained." According to the doctor the total solids, *i. e.*, including organic and mineral matter of various kinds, in the "Dike Water" was 12·5 grains per

gallon, in the "Stagnant Pond" 22·4 grains, and in the "Trent Water" 20 grains.

Assuming these numbers to be correct, it will be readily conceded that Dr. Truman is not justified in drawing the positive conclusion named in the sentence just quoted, for many thousands of men and the lower animals drink with impunity New River and Thames water daily, both of which contain from 17 to 22 grains of solid matter per gallon.

Subsequently Dr. Truman observes, that "The great amount of organic matter in the water obtained from the stagnant pond points to that as the cause of disease in this case." To this statement I would reply, that, while admitting the presence of organic matter in a water may be justly regarded with suspicion as being a possible cause of disease, or as supplying a condition favorable to its development, there are many waters which contain much larger quantities of organic matter than those found by Dr. Truman in the stagnant pond, and which have nevertheless never been known to produce any ill effects on the horses, cattle, sheep, and other animals that drank them. During the drought last year, and shortly after examining the Colwick waters for Mr. Cave, I analysed the water from a stagnant pond on a farm near London. This water contained 28·7 grains of mineral, and 18·2 grains of organic matter per gallon, and yet it has never been observed to prejudicially affect the health of any of the many horses, oxen, and cows that drank it daily for several months.

No doubt organic or organised matter is in many instances productive of disease, but I believe the activity of such substances in this respect is dependent much more upon *condition* than upon quantity.

(*To be continued.*)

LAMINITIS AND ITS TREATMENT.

By G. Fleming, Royal Engineers.

Among the many interesting and valuable papers read before veterinary medical associations in this country, that on laminitis, by Mr. T. D. Broad, reported in the last number of the *Veterinarian*, deserves particular attention, not so

much from anything novel to be found in the pathology of the malady, as from the very rational and sueeessful method of treatment pursued and recommended. From the frequency of the disease, espeeially among army horses during active service, its intense painfulness, and the serious eonsequenees that only too often sueeeed the more acute inflammatory stage, any mode of treatment that promises better sueeess than that attending the usual routine in such eases, deserves to be investigated, and, if found satisfaetory, adopted. There can be no doubt whatever as to the nature of laminitis. From its commencement to its termination, in its early and late effects, it is an inflammatory disease, terminating like all other inflammatory affeetions, in resolution, or inducing changes in strueture and organization, such as we see developed elsewhere, as a eonsequenee of acute or ehronic inflammation.

The principal eauses of the malady have been enumerated by Mr. Broad. So far as my observation extends, I am confident in asserting that improper shoeing, the barbarous custom of mutilating the sole and frog of the foot, and throwing the whole weight and strain on the wall and laminæ, are the chief excitants.

The treatment hitherto followed to subdue the inflammatory eondition of the laminæ has been most irrational, and doubtless has, in the great majority of eases, brought about the very disastrous results sought to be averted. Paring the soles until only a thin pelliele of horn remained to protect the sensitive and vascular tissues beneath, and inflicting a large wound at their margin, already in a state of abnormal excitement, would not, to those who understand the funetions of the horse's foot, appear a very likely mode of subduing the inflammation promptly, or preventing untoward sequelæ; but must, on the contrary, rather aggravate the one and favour the others. Such has been my opinion for several years, and I have been strongly eonfirmed in it by seeing the comparatively great number of horses in the public streets, suffering more or less from the ehronic form into which the acute stages subside, when improperly or imperfectly treated, and which the faulty shoeing maintains.

One of the most prominent features in Mr. Broad's system of treatment, and the one to which I think his success is greatly due, is the abstention from paring the soles and bleeding at the toes. Both of these praetiees are eminently injurious, and even destructive; and why they were ever adopted and practised for so many years is a mystery to me, seeing that from no possible point of view can they be justified.

Compelling the animal affected with acute laminitis to move about, however cruel it at first sight may appear, is also one of the noteworthy features in this system, the beneficial effects of which I am ready to corroborate, by two instances in particular. On the advance of the British army to Pekin in 1860, shortly after disembarking at the Peiho, a number of severe cases of laminitis in the fore feet occurred among the horses and mules in my charge. For several reasons I did not resort to the stereotyped paring and bleeding, but contented myself with removing the shoes, rasping the crusts of the hoofs to a level with the sole, and fastening on Japanese straw shoes or pads, which mainly rested against the frogs and filled up the space around them. By this means the inflamed laminæ were at once relieved from the weight of the front part of the body, and as no poultices could be applied, the animals were driven, with great difficulty, from the camp lines to a running stream about half a mile off, where they were kept standing for a number of hours every day. This rough and ready treatment had the most astonishing success, the animals being fit for work in a few days, and the feet quite recovering in every instance. Had the soles been mutilated and blood abstracted from the toes, I am certain several of these cases must have been destroyed. I did not have another case to treat until about two months ago, when a horse that had been in low condition and unfit for severe exertion, was taken out to hounds and had a heavy day's hunting, at the end of which he was ridden home nearly twenty miles on a bad road. The next day he was suffering from a most acute attack of laminitis in both fore feet, and lay groaning in the greatest agony. The Chinese treatment was pursued, Cherry's footpads taking the place of the Japanese sandals, and in the absence of a running stream immersion in buckets of cold water, and the application of cold bran poultices being resorted to, while the horse was allowed but little rest. The result was as favorable as on active service. On the third or fourth day an hour's exercise was prescribed, and in ten days the horse was in the hunting field.

The beneficial effects of movement during laminitis have been already noted on the Continent, and particularly in France. M. Bouley,* in an excellent article published in 1862, and to which I would beg to refer those who complain of the unsatisfactory descriptions of the malady, says that "it is known that progression is an immediate and very efficacious means, if not very durable in its effects, of facili-

* 'Nouveau Dictionnaire Pratique, &c., Vétérinaires,' vol. vii, art. "Fourbure."

tating the eireulation of the blood in the parts where it is most ready to stagnate, and to diminish the intensity of the suffering resulting from the eompression these parts are subjeeted to by the hoof in their abnormally swollen state."* In speaking of the treatment of laminitis, he reeommends that "animals suffering from this disease should be eondueted to running streams, and rather kept moving than allowed to remain standing, so as to prevent their getting eold, and also to render the eireulation more free at the extremities of the limbs. It is known that walking prevents capillary stagnation, and eonsequently eonsiderably diminishes the pain that arises from the compression of the living eongested tissues by the inextensible horn enveloping them."† And he speaks of irritating frietions, made with spirits of turpentine, partieularly on the limbs and lumbar region, as being extremely useful in preventing horses with inflamed feet from remaining fixed in one place, in a state of almost eomplete immobility. "They cause them to move about much better than any other excitant, for the sensations they produee, although ephemeral, are energetie enough to dominate for a eertain time the pain in the feet, and cause the animal to forget it. And as this suffering is eonsiderably diminished by walking, in consequenee of the depletion in the keratogenous apparatus that the motion determines, it results even when the effeets of the irritating frietions have passed away, that the animals do not the less eontinue to move about freely, their feet, for the moment *disengorged*, being no longer the seat of any pain. It is good when sueh horses are exereised, to have them led on soft, damp ground, sueh as a meadow, newly tilled soil, or a muddy road, for then the astringent action of eold on the hoofs assists locomotion in disengorging the capillary system of the feet."

Lafosse,‡ in his new 'Treatise on Veterinary Pathology,' in an almost inexhaustive, and eertainly unequalled deseription of the maladies the horse's foot is liable to, enters minutely into the subjeet of laminitis and its treatment. In doing so, he alludes to the effeets of motion: "It is always remarked, that no matter how extensive and serious the disease may be, walking is never more diffieult than at starting; as it is prolonged and the animal beeomes heated, the suffering diminishes, doubtless beeause the exereise, in aeeelerating the venous circulation, relieves the eongested eapillaries."

With such high authority to sanction this mode of treat-

* Page 323. † Page 329.

‡ 'Traité de Pathologie Véterinaire,' vol. ii.

ment, there need be little hesitation in resorting to it. I would certainly rather prefer M. Bouley's turpentine frictions to induce movement, than flogging the unfortunate creature with a whip, or other instrument of torture, which certainly looks bad in the hands of one whose duty it is to diminish animal suffering.

The application of special shoes to the feet, during their acutely inflamed state, I have never tried, nor do I think I would be inclined to do so. The act of nailing on shoes, burthening the crust, and compressing it by nails, does not appear to be indicated or justified. Removing the lower margin of the wall from pressure, and throwing the weight entirely on the sole and frog—parts little, if at all, implicated—seems a rational mode of procedure, and the success attending it, in my experience, is a proof of its utility.

By leaving the soles and frogs unpared and in their natural condition, and allowing them to sustain a portion of the weight and strain by proper shoeing, I am confident laminitis would be a much rarer disease than it now is; and even feet already deformed can be restored to nearly, if not quite, their pristine condition by the same conservative management. It is to be hoped that the day is not far distant when the reasonableness of this management will be generally recognised, and the destructive drawing knife and its equally damaging congener—the sole-bevelled shoe, be greatly limited. When it arrives we will have less to do with navicularthritis, laminitis, contracted heels, and other abnormal conditions of that most important and beautiful organ —the horse's foot.

REMARKS ON THE "GOODENOUGH" SHOE.

By J. C. Broad, M.R.C.V.S., Market Street, Paddington.

Considerable discussion has lately taken place respecting the merits of a new kind of horseshoe, a short time since introduced into this country. It is called the "Goodenough" Patent Horseshoe, and it also bears the somewhat sensational name of the Humane shoe. In order to make myself fully acquainted with the principle of the shoe, the mode of its application, and other particulars which would enable me to form an impartial judgment as to the real merits of the new system, I paid several visits to the forge at Chelsea, where a large number of the horses belonging to the London

General Omnibus Company are shod on that system: and I also visited about a fortnight since the works of Messrs. Robinson and Cottam at Battersea, where the "Goodenough" shoe is manufactured, and I need hardly say that I was received by Mr. Cottam (whom alone I saw) in the most courteous manner. He very kindly showed me over their large establishment, fully explaining every particular relating to the mode of making the shoe in question, the machinery used for which is most ingenious, complicated, and extensive. Mr. Cottam also favoured me with a copy of a small pamphlet, in which the advantages presumed to accrue from the adoption of the new system of shoeing are set forth in such a manner that, if experience warranted the statements made, the inventor of it unquestionably deserves not only the praise, but also the thanks of the civilised world for the boon thereby bestowed upon it.

Now I should be very sorry, in discussing this subject, to give the slightest offence either to Mr. Goodenough or to Messrs. Robinson and Cottam, and wish it therefore to be distinctly understood that my only desire is to examine carefully and practically the statements put forth in the pamphlet in question, in order to ascertain how far they agree with my own experience, which extends over a period of upwards of thirty years, more than twenty-five of which were spent in connection with one of the largest shoeing establishments in London.

In the first place, then, I have yet to learn upon what *established* ground the shoe in question specially merits the appellation of the "Humane Shoe," seeing that it has by no means yet been proved that there is necessarily any degree of inhumanity in the ordinary mode of shoeing. It is asserted in the pamphlet that "the results are astonishing in improving the feet, and also the general condition of horses which have been subjected to the imperfect mode of shoeing commonly practised." For my part I must confess that I fail to observe anything whatever in this particular shoe, or in its application, that would justify the assertion that its adoption would prevent the existence of the various diseases enumerated in the pamphlet, seeing that, in the process of shoeing, whether by the "Goodenough" or by the ordinary method, the ground surface of the foot has equally a rim nailed on its outer portion or wall. It is true that in the "Goodenough" shoe there are certain projections which for the first few days after the horse has been shod give the animal a somewhat surer foothold, but by the time the shoe is half worn out, it is found that the projections have disap-

peared, having been worn down to the level of the shoe; and, consequently, the temporary advantage resulting from them no longer exists. In several of the newly-made shoes which I saw at the forge I have spoken of, the projections were but very slight indeed.

Another advantage claimed as resulting from the use of the "Goodenough" shoe is that the weight of the horse is mainly sustained by the crust, and the shoe is so contrived that no pressure is put on the sole. I would ask what system of shoeing is in operation where the weight is *not* so contrived? or, again, who would think of fitting a shoe so that it should take its bearing upon the sole.

In the next place the advocates of the new system attach great importance to the circumstance of frog pressure, as produced by the "Goodenough" method of shoeing. I am certainly no advocate for mutilating the frog, as is frequently done by overparing it, at the same time it remains as yet to be proved by more lengthened experience whether or no the frog is capable of bearing, without injury, the full exposure of its surface upon our rugged macadamized roads. As regards the "rest to the tendons, expansion of the foot, and healthy deposit of sound horn," which it is affirmed must result from the adoption of the new system of shoeing, I cannot at all see in what way any rest *is* given to the tendons by that system; and in reference to expansion of the foot, I should certainly look for contraction as a result more likely to follow its adoption, in consequence of the nail-holes being placed so near to the heels on both the outer and the inner portions of the shoe; nor can I understand how it can have the effect of increasing the deposit of horn.

It is further asserted that the new system will "in due time remedy contraction, corns, split hoof, false quarter, or sandcrack and thrushes." I cannot but think that had the real causes of those diseases been duly considered by the writer of the pamphlet in question, so rash and extravagant an assertion would have been withheld; as doubtless would also another to the effect that springing of the knees and shrinking of the shoulders are prevented by the use of the new shoe,—those being results which I cannot admit to be consequent upon the process of shoeing, by whatsoever method it may be performed. We are further informed that "the pernicious practice of burning on the shoe—a practice which destroys the vitality of the horn—is entirely obviated, as the "Goodenough" horse-shoe is made to a true form and fitted to the foot cold." I am strongly of opinion that in fitting a shoe a moderate amount of careful burning is productive

of no injury whatever to the vitality of the horn, nor can the same amount of security be given to the work by cold fitting as by the common plan of burning on.

A great advantage is said to belong to the new system from the circumstance of the ground surface of the shoe being made concave, "thereby preventing balling in snow or mud." In every case of the use of the shoe that I have observed, this concavity had nearly or quite disappeared by the time the shoe was half worn out; another advantage is stated to be that which arises from the nail-heads being prevented from striking the ground,—"a desideratum that will be appreciated by those who know how sensitive the foot is for some time after shoeing." In my opinion the foot is *not* more sensitive after a careful shoeing than it was before, and if it *were* so, how much greater would be the jar given to the foot by the projections of the "Goodenough" shoe than by those of the nail-heads of the ordinary kind; for it must be remembered that the former, for some considerable time previous to its being worn out, possesses a ground surface as plain as that of the common shoe. The "Goodenough" shoe is also said to prevent "overreaching," and is likewise stated to be "a non-interfering shoe," a term I take to imply that it prevents cutting or striking the opposite leg when in action. The first of these evils is occasioned rather by the excessive stride of the animal than by any particular mode of shoeing.

Another advantage claimed for the "Goodenough" shoe is that of its being 40 per cent. lighter than the ordinary shoe. Now it is clear that the latter can be made of any weight, and it is also well known that its weight is regulated according to circumstances, that is to say, according as the work to be done by the horse is heavy or light, fast or slow.

I have now to notice a circumstance which, in my opinion, is important in connection with this subject, I have been informed upon good authority that many of the horses belonging to the London General Omnibus Company, now being shod with the "Goodenough" shoe, are found to wear out the hind shoes in particular in five days (the fore shoes perhaps not so quickly); if this is true the frequent shoeing thereby necessitated must, in my opinion, be productive of great injury to the feet.

We are informed in the pamphlet to which I have referred that horses shod on the new system are found to travel five miles in fifty farther without more fatigue, and also to draw heavier loads than when otherwise shod; but by what method of calculation such a conclusion is arrived at we are

not informed, and I consequently believe that the hesitation and doubt with which I receive the statement will be shared by others besides myself, as I do also that they will join me in the belief which, having carefully examined the shoe itself, and also the mode of its application, I now express without either doubt or hesitation, namely, that the system of shoeing, as at present practised in this country, is in no danger whatever of being displaced by the introduction of the "Goodenough" system.

TREATMENT OF LAMINITIS.

By H. Flower, M.R.C.V.S., Derby.

I was much interested in the perusal in last month's *Veterinarian* of Mr. Broad's paper on Laminitis, read by him before the members of the West of England Veterinary Medical Association.

It is not surprising that sceptical opinions should have been expressed by some of those present respecting the mode of treatment recommended, recollecting, as I well do, my own views of the subject when I first read Mr. Broad's statements some two or three years ago in the *Veterinarian*.

I felt disposed to pooh-pooh the idea, but as I have always endeavoured to keep my mind open to conviction, the more I thought about it the more I became convinced that both in theory and practice he was correct; and as to my mind one fact is worth a thousand theories, and knowing that truth is sometimes stranger than fiction, I determined to test its value the first opportunity, which occurred shortly after, and the result was most satisfactory, as the subject, a beautiful roan pony, is now doing any amount of work, while before he was perfectly useless. Since that time I have treated other cases in a similar manner with like results; and my advice to those who doubt is to try it, and they will then become convinced of its value. For my own part I feel individually indebted to Mr. Broad for giving publicity to so valuable a mode of treatment.

THE PRINCIPLES OF BOTANY.

By Professor Buckman, F.L.S., F.G.S., &c. &c.

(*Continued from* vol. xli, *p.* 826.)

We have already described the leaves of plants as being a continuation of the bark, which in the case of the leaf is spread out into a more or less flattened pagina, or blade, supported by a more or less branched framework, called by some leaf-veins, by others leaf-nerves; but whichever term be employed it must not be confounded, either in structure or uses, with those parts in animals to which the same names have been applied.

Leaves are sometimes very simple in structure, as in the accompanying example, consisting of a central nerve, mid-rib, and lateral nerves of a like kind. This bears a direct resemblance to a parallel veined leaf, but must not be confounded with it, inasmuch as in this plant the nerves are anastomosed by a most complicated net-work, as may be witnessed by an examination of a recent leaf of the common

Fig. 4.—Leaf of plantain.

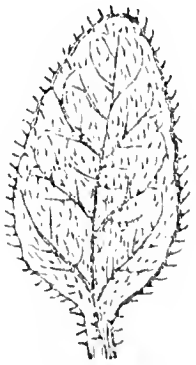

Fig. 5.—Leaf of Forget-me-not.

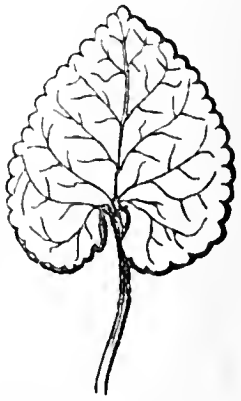

Fig. 6.—Violet leaf.

plantain. In the case before us the leaf may be said to be *lanceolate*—lance-formed—in shape.

Our next example is that of an ovate leaf, in which the margin is still *entire*, but it is fringed with *ciliæ* of fine hairs, which, indeed, are seen to cover its surface. This form will at once be recognised as *ovate*, or oval.

Take another common leaf, that of the sweet violet, and it

will be seen to be uneven, or *crenated*, at the margin, while its heart-like shape has caused it to be described as cordate.

Our next example, that of the common English ivy, is seen to be more complicated in outline, being divided into lobes, and as some leaves have a determinate number of lobes,

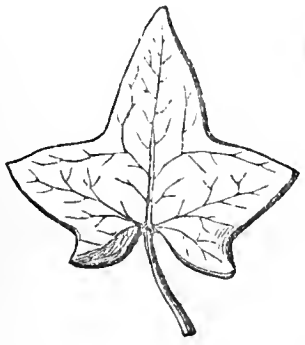

FIG. 7.—Common ivy.

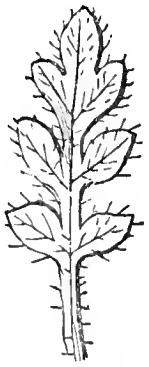

FIG. 8.—Poppy.

as 3-lobed, 5-lobed, 7-lobed, and the like, the numbers of the lobes thus become of importance in plant discrimination.

The annexed cut of a poppy leaf shows still deeper divisions down even to the midrib. This is a *pinnatifid* form of leaf, which differs from the pinnate leaves of the rose and the ash, inasmuch as the latter divisions or leaflets are still more determinate in their structure, and, indeed, are portions articulated to the mid-rib, and thus the ash leaf, in frost, will sometimes fall to bits *leaflet* by leaflet, while this highly complicated structure can after all be shown to be the result of morphological change, as the leaf of the *Fraxinus heterophyllus*—a mere variety of the common ash, *F. excelsior*—has a large flat simply lanceolate leaf.

Now as leaves are the more prominent parts of plants, it follows that they are constantly appealed to in plant discrimination, and hence it becomes important for the student to become acquainted with the simple terms by which their forms are distinguished, and, no less so, the manner in which these organs may be situate on the plant. For example, the laurel leaf is attached by a short *petiole* (leaf-stalk), while that of the ivy is comparatively long. In most leaves the petiole is broad and thick, while in the poplar the leaf-stalk is much flattened at right angles to the *pagina* or blade, and when, then, we are next invited to

"Come where the aspens quiver,"

if not too much preoccupied, it may not be amiss to mark the beautiful mechanical principles upon which the ceaseless motion of the aspen and other poplars depend.

Leaves, again, are placed on stems in different ways *accord-*

ing to species; some being single, as in the ivy, some in pairs opposite each other, as Laurustinus, others in whorls of several springing, as it were, from a collar all round the stem, as the Woodruff.

Again, the leaves at the base of a plant will be sometimes different from those of the stem, hence, then, the *radical* and *cauline* leaves will have to be distinctly diseriminated.

The Morphology of Leaves is perhaps amongst the most interesting of botanical subjects, and we shall, therefore, now only glance at a few of these.

If the student will examine the garden pea while growing he will see that it is a climbing plant, which keeps itself in an upright position by twisting a series of wire-like tendrils around the twigs of the supporting sticks. Now, if a perfect leaf be first looked at, it will be seen to be a pinnate leaf, consisting of perhaps two pairs of lateral leaflets, with sometimes a terminal leaflet of a like kind, but more frequently the pagina of this terminal leaflet is wanting, as the nerve has elongated into a tendril. So, again, it will be found that there will be examples of the two upper leaflets being in like manner metamorphosed into tendrils. Nay more, all the leaflets will sometimes be so changed, and thus a new, and apparently complicated and distinet, organ for a speeial purpose has been eonstructed out of the simple leaf elements.

But the most curious examples of leaf morphology may be seen in the tropical houses of our best plant eollections in the pitehers of the *Nepenthes*. In this plant the lower part of the petiole is winged with *pagina*, and this part, indeed, performs the leaf function. This kind of leaf elongates upwards into a strong wiry stem, by which the piteher is supported, this pitcher being another expansion of leaf matter, but here with the edges cemented at their margins—hence the hollowed pitcher. Here, then, the lower part of the petiole has been expanded into a leaf, the middle part being a really supporting stem. It, however, supports a pitcher, while the true leaf must, after all, be sought in the curiously-formed lid by which the mouth of the piteher is closed.

Now, strange as all this may seem, the initiative of these metamorphoses may be made out from the leaves of orange and lemon, which, to the common observer, appears to be simply an ovato-lanceolate leaf, while in reality it is highly complicated in structure, consisting of a flattened blade; it is true, but this is *articulated* to a petiole, which is dilated or winged after the same manner as that of the base of the leaf of the pitcher plant. Viewed in this way these leaves will be found to be capable of endless morphological changes, and

thus the spines of the gorse are either metamorphosed branches or altered leaves, whilst the prickles of roses and briars are mostly only abortive leaves.

We have now to glance at some further modifications of leaves, which will not be without significance in the remarks which are to follow. These will be reviewed under the heads of (*a*) *stipules*, (*b*) *bracts*, and (*c*) *spathes*.

a. Stipular leaves are placed at the base of the true leaves. Sometimes, as in the roses, they are anastomosed with the base of the petiole, at others, as in the pea-tribe, they are separate and distinct. The yellow vetchling (*Lathyrus aphaca*) when arrived at maturity shows a plant in which the true leaves are wholly abrogated; the truth being that the leaves are diverted to form tendrils, and the apparent leaves, which are large and shield-shaped, are *stipulæ* enlarged to perform the leaf function. The whole of this—the papilionaceous family of plants—is remarkable for the variation and changes in the stipular leaves.

b. Bracts are metamorphosed leaves situate at the base of flower buds, and may perhaps most readily be seen on the *scape* or flower-stalk of the violet, consisting of a pair of minute lanceolate leaves. Leaves of this kind are mostly found at the base of each flower-stalk, and its object appears to be as a covering and protection to the flower-bud during its immaturity.

c. *Spatha* are still further developed leaf-organs for particular purposes, as thus the covering to the bud of the snowdrop and daffodil are spatha; the expanded flower-like leaf surrounding the stamens and pistils of the *Arum*—lords and ladies, or the finer white one, *A. Italicum*, of the greenhouse —is a spatha. The lily tribe is remarkable for this protective covering to the flowers, which, like those parts already mentioned, can only be considered as modifications of leaves; just so are the scales by which young buds are protected, as a simple gradation may be traced from the outer scales of the buds of the chesnut or ash to the more complicated leaf bud in the centre. There is, then, in plants a diversity of organs, and these assume numberless forms, and their modifications are in reference to that law which is now distinguished by the term Morphology, a recognition of the true principles of which forms the only sound basis of true botanical knowledge. This law is so well described by Professor Balfour in his *Manual of Botany* that we make no excuse for copying the passage in this place, not only in explanation of much we have here advanced, but in anticipation of our next paper on the structure of flowers.

"In tracing the various parts of plants it has been shown that all may be referred to the leaf as a type. This morphological law was propounded by Linnæus and Wolff, but it is to Goethe we owe the full enunciation of it. Vegetable morphology, the study of forms, or the reference of the forms of the parts of plants to the leaf, is now the basis of organography; and it will be observed that in considering the various organs this has been kept constantly in view. The calyx, corolla, stamens and pistils, are only modifications of the leaf, adapted for peculiar functions. It is not meant that they were originally leaves and were afterwards transformed; but that they are formed of the same elements and arranged upon the same plan, and that in the changes which they undergo, and the relation which they bear to each other, they follow the same laws as leaves do. The different parts of the flower may be changed into each other, or into true leaves; or, in other words, the cellular papillæ from which they are formed are capable of being developed in different ways, according to laws which are still unknown. These changes may take place from without inwards by an ascending or direct metamorphosis, as in the case of petals becoming stamens; or from within outwards by descending or retrograde metamorphoses, as when stamens become petals."

LETTER FROM EDWARD COLEMAN DRAY, RELATIVE TO SHOEING.

LEEDS; *Jan.* 15*th*, 1869.

GENTLEMEN,—Since the *Times* of December 10th, 1868, saw fit to devote two of its columns in giving an exposition of the "Goodenough Method of Shoeing Horses," I have been repeatedly asked by my patrons, why the art of shoeing has been so long neglected, and why the veterinary surgeon does not grapple with the subject? I never had a forge connected with my practice, but there are many members of our profession who have, and it is to them that I appeal for suggestions to produce a reformation in this important branch. I have endeavoured for years to give advice to blacksmiths, as shoers of horses, but I regret to say with few good results. Unless better educated men are employed to shoe horses, and equivalent prices are charged, I despair of seeing any great improvement effected. Still the subject is of sufficient importance to warrant its ventilation.

To the Editors of the 'Veterinarian.'

Pathological Contributions.

FRACTURE OF THE OS CALCIS.

An interesting specimen of a fracture of the os calcis, by which the "point" of the bone was separated from the body, has been received at the Veterinary College. The patient, a thorough-bred yearling colt, being frightened by a dog, leaped at a hedge and fell, thus sustaining the injury. The parts had an appearance of the fracture having been caused more by the powerful contraction of the *Gastrocnemius externus*, than by the force of the fall. An analogous case to this occurred some years since in our practice. A yearling bull in endeavouring to get into an adjacent meadow, in which some cows were at pasture, jumped at the ditch and fence which divided the fields, and fell backwards. The result was a fracture of both *ossa calcis* at the "points." In this case also the lesion appeared to have been caused by violent muscular contractions.

PATHOLOGY OF THE TEXAN CATTLE DISEASE.

We are informed that recent researches into the pathology of the Texan cattle disease have shown that the malady is associated with the existence of fungoid organisms within the circulatory system. The fungi are said to destroy the red cells of the blood, and thus lead to alterations of the fluid, which unfit it for the maintenance of life. These parasitic organic bodies are said to belong to a class of fungi which thrive when excluded from the atmosphere. Should this view of the pathology of the disease receive confirmation, it will call for even greater care being observed against cattle being brought in contact with the excretions of diseased animals, or with any thing that they have been in close connection with.

SPREAD OF THE CATTLE PLAGUE.

From communications which have reached us it appears that the cattle plague prevails very extensively at the present time in Eastern Europe, and that great fears are entertained of its extension from Austria, to those states from which

England receives a large supply of cattle. Not only are Moldavia, Wallachia, and Transylvania greatly infected, but also Poland, Gallicia, and Hungary. From the latter country in particular cattle are drawn into Austria, Bohemia, Bavaria, and Silesia, and often forwarded without delay to Western Europe. It behoves the authorities to exercise the greatest vigilance against the reintroduction of the disease, which threatens again to extend its devastating influence far and wide.

PLEURO-PNEUMONIA.

This disease is again on the increase, not only in the London dairies, but in several parts of the country, and also on the Continent. Very recently we have received information of its existence in a severe form in Spain. In the present state of legislation on contagious diseases of cattle it is important that the members of the profession should make public all outbreaks of these affections as early as possible. We should be glad to assist them in doing this, and also in recording in a systematic manner the general state of the health in their respective neighbourhoods of all animals used as food for the people.

Any veterinary surgeon who would be willing to supply the necessary returns would greatly oblige by putting himself in communication with us, that arrangements may be made for the purpose.

SMALL-POX OF SHEEP.

It appears, from information which has been received here, that the smallpox of sheep is far from being exterminated in Western Europe. The disease is reported to have very recently broken out in the neighbourhood of Hamburg, and to be still prevalent in some parts of Holland, particularly near to Rotterdam. Under these circumstances it can be scarcely expected that the Government will withdraw the Order of Council, which requires that all imported sheep shall undergo a quarantine of fourteen days, or be slaughtered within four days of debarkation at any of the ports.

OVARIAN DROPSY.

Mr. S. J. Rayment recently forwarded for examination a specimen of diseased ovarium which he removed from an old

cow on January 14th. The animal was in good condition, and was sent for slaughter to the Metropolitan Cattle Market. On the abdomen being opened, one ovarium was found to be enormously distended, round in form, and to weigh sixteen pounds. As soon as the tumour was cut into it collapsed, in consequence of the escape of the contained fluid—serum mixed with the blood.

The sac was composed chiefly of the peritoneum, with a small portion of the fibrous stroma of the ovary, nowhere exceeding a quarter of an inch in thickness.

The interior of the sac was pulpy in appearance, and covered with numerous small tufts of a yellow colour. These under the microscope were found to consist of fine white fibrous tissue, with many nuclei and cells, undergoing conversion into fibres, showing all the intermediate forms of oval, fusiform, and spindle-shaped cells. The uterus contained a fœtus, and it did not appear that the presence of the ovarian tumour had materially interfered with the animal's health.

TUMOUR WITHIN THE VAGINA OF A COW.

Mr. D. B. Howell, M.R.C.V.S., Reading, has forwarded to us an interesting specimen of a tumour which had formed beneath the mucous membrane of the vagina of a pregnant cow. It appears that the cow—an aged animal—had been consigned to a salesman at Reading; and that, on the day following her arrival, she gave indications of approaching parturition. No advance of the fœtus taking place, an examination *per vaginam* was in due time made by the consignee, who finding "something" to be occupying the passage which prevented the birth of the calf, sent for Mr. Howell. Exploration at once revealed the existence of an immense tumour filling up the vaginal passage, and firmly pressing against the cervix uteri. With much difficulty the mouth of the womb was reached, when it was found that although the fœtal presentation was natural, delivery was impossible. The animal was consequently slaughtered.

The tumour, which is ovoid in form, with slightly flattened sides, measures in its long diameter fifteen inches, and in its short ten inches, having a circumference of twenty-five inches at its largest part. Its surface is smooth and unbroken, and covered with the mucous membrane. Its colour varies slightly in places, but as a whole it differs but little from the normal hue of the vagina. Its attachment, which is just above the

os uteri, is broad and thick, differing greatly in this respect from so-called vaginal polypi. Its weight is a little short of twenty-one pounds.

A microscopic examination showed that its substance was made up of fibres arranged in the form of network, the meshes of which contained exudation corpuscles.

DEATH OF A NUMBER OF SHEEP FROM THE EFFECTS OF NITRATE OF POTASH.

We are indebted to Mr. Batchelder, M.R.C.V.S., of Grantham, for the following explanation of a paragraph which has appeared in several papers on the poisoning of sheep by nitrate of potash.

Mr. Batchelder writes:

"I have inquired respecting the sheep belonging to Mr. George Freistone, of Witham Common, near Grantham, and have ascertained that he, having lost several lambs from a dropsical disease locally termed 'White Water,' or 'Red Water' when tinged with the colouring matter of the blood, supposed to have been caused by the long-continued scarcity of food and water, resolved to adopt a remedy recommended by the shepherd. The disaster appears to have arisen from the misapplication of the term 'nitric,' which is frequently applied to the spirit of nitric ether in this part of the country, and for which nitrate of potash was substituted. The chemist cautioned Mr. Freistone respecting its properties, but that gentleman had sufficient faith in his shepherd to administer the following:

Sulphate soda . . .	1 oz.	each.
Nitrate potash . .	1 oz.	
Oil of terpentine . .	2 ozs.	to 30 lambs.
"Volatile Ammonia" .	1 oz.	

"The above was administered to 226 lambs, which were rather in a weakly state, out of which 130 died.

"The shepherd intended to give nitric ether instead of nitre."

Facts and Observations.

Removal of the Restrictions relative to Imported Hay from America.—"The Lords of Her Majesty's Most Privy Council, by virtue and in exercise of the powers in them vested under The Contagious Diseases (Animals' Acts, and of every other power enabling them in this behalf, do hereby revoke their Orders bearing date the fifteenth day of September, one thousand eight hundred and sixty-eight, and

the nineteenth day of October, one thousand eight hundred and sixty-eight, relating to hay which is shipped at, or imported from, any port of the United States of America, and which is brought to, or arrives at, any port or place of the United Kingdom; provided that nothing herein shall be deemed to invalidate or make unlawful anything done under the said Orders before the date of this revocation, or intefere with the institution or prosecution of any proceeding in respect of any offence committed against, or any penalty incurred under, the said Orders, or either of them.

"(Signed) ARTHUR HELPS."

Jan. 15*th*, 1869.

THE THERAPEUTIC EFFECT OF ERGOTINE.—At a late sitting of the French Academy of Sciences a paper was received from Dr. Bonjean, of Chambery, on certain properties of ergotine. He stated that the mortality caused by amputation had, in the course of the last twelve months, been reduced to one-fifth of what it formerly was at the hospital of St. Andrè at Bordeaux, by administering, immediately after the operation, a draught containing from two to three grains of ergotine, to be drunk in the course of the day.

COLD AIR AS A THERAPEUTIC.—In his lecture, delivered on Tuesday, January 12th, Dr. Richardson proposed the inhalation of cold and dry air as a remedy for the condition associated with separation of fibrine from the blood in inflammatory diseases. He finds, by experiment, that the inhalation of air artifically cooled is capable of bringing down the temperature of an animal several degrees. In the condition above referred to, there is, concomitant with an increase of the fibrine and water of the blood and a diminution of the corpuscles, a marked rise in the temperature of the body. By an ingenious apparatus he is enabled to cool and dry the air which is to be breathed by a patient in this condition, and he suggests that the diminution of temperature which will result may probably be accompanied by an arrest of the tendency to separation of fibrine from the blood. As a therapeutical means the inhalation of cold air is not new. Dr. Richardson informs us that the treatment of disease by the inhalation of air rendered artifically cold was proposed by Dr. Drake, a follower of Dr. Currie, of Liverpool, in the second volume of the *American Journal of Medical Science.* We believe, however, that Dr. Richardson has been led to suggest it as a means of reducing the temperature by his experiments and his researches into the phenomena which accompany the separation of fibrine.—*Med. Times and Gazette.*

THE VETERINARIAN, FEBRUARY 1, 1869.

Ne quid falsi dicere audeat, ne quid veri non audeat.—Cicero.

APPOINTMENT OF A COMMITTEE TO CONSIDER THE SYSTEM OF EXAMINATION FOR THE DIPLOMA OF THE ROYAL COLLEGE OF VETERINARY SURGEONS.

At the last quarterly meeting of the Council Mr. Ernes introduced the subject of examination of candidates for the Veterinary diploma; and after considerable discussion a committee of members was appointed to consider and report upon the propositions which were made relative to the manner of conducting the examination, division of subjects, and time to be devoted to testing the candidates' knowledge.

Mr. Ernes commenced by alluding to the short period which is at present allowed for examination, and contended that it is impossible in the space of an hour to ascertain the fitness of the student to undertake the practical duties of his profession. In place of the one hour *viva voce* examination, Mr. Ernes proposes that both oral and written questions should be given, and that a part of the examination should be of a practical character, and be conducted at a veterinary college, where both living and dead subjects may be made available for testing the candidate's skill and knowledge of his profession. He further suggests that the examinations shall be divided, so that a certain number of subjects may be comprised in each, for example:—Anatomy, physiology, pathology of domestic animals to be included in the first examination. In the second, hygiene, etiology, diagnosis, prognosis, therapeutics, surgery, shoeing, and jurisprudence. And in the third period, chemistry, materia medica, pharmacy, botany, and microscopy. Examiners, Mr. Ernes considers, should be elected for a term of years, and not for life; and he also advises that veterinary surgeons should be elected to examine on all branches, excepting chemistry, physiology, and botany.

What modification of Mr. Erne's plan may be recommended by the committee it remains to be seen; and pending their deliberations it is not our wish to prejudge the very intricate question which is before them; but, without any reference to the results of their labours, we may state our conviction that Mr. Ernes has done the profession good service in bringing the matter before the Council, and still more in pushing it to a substantive position. It seems pretty evident that unless the final test is made crucial, there is a end to progress in veterinary education. There is a certain amount of speciousness in the oft-repeated sophism —that it is only fair to examine upon subjects which are taught at the schools; but, on the other hand, the schools might retort that no necessity exists for teaching subjects in reference to which there is no examination; and thus arguing in a circle the result would be continued stagnation. The Charter gives the governing body no power to interfere with the curriculum of the colleges; and we apprehend that evil, rather than good, would come of the exercise of such power if it were conferred. Quite sufficient influence may be brought to bear upon the educational course through the medium of the examining board; and in this department the power of the Council is absolute: at least is only circumscribed by such limits as are imposed by courtesy and a desire to work in harmony for the advantage of the profession. Until some steps are taken by the Council, it is scarcely possible for the colleges to make any important changes in the course of study, particularly in the direction of an extended curriculum which would necessitate an increase of fees. The movement, if commenced by the schools, would seem like an effort to increase the amount of their revenues, whereas the same action taken in due course after the Council had notified its intention to require the student to submit himself to further tests before he would be admitted a member of the college, would bear no other interpretation than that of ready and courteous compliance with the wish of the profession expressed by its representative body, the Council.

We do not advocate any sweeping measures of reform;

and we distinctly deprecate the adoption of a course of action which may not be in accordance with the views of the teaching colleges. We do not imagine that reasonable propositions will be met by opposition, and it is not to be expected that any irrational or impracticable suggestions will emanate from a body of men competent to deal with the subject. One thing we hold to be barely possible—we view the possibility with apprehension—that is, an attempt to introduce an "apprenticeship clause." And in the hope of avoiding this catastrophe, we venture to tell the profession and the Council that the matter is quite out of their province. Admitting, as we readily do, their right to regulate the manner and subjects of the examinations, we contend that they have no power to dictate the method of acquiring knowledge. And whether a pupil learns the practice of his profession as an apprentice with a veterinary surgeon, or as a student under the direction of the profession, is a matter of no consequence to the examiner, so that the required proof of proficiency is given. The time has come for some movement to be made, and we hope to see a system of progressive advancement in the character and extent of the examinations rather than an abortive effort to effect everything at a stroke; for this reason some alteration in the bye-laws of the kind suggested by Professor Gamgee last year would be desirable, enabling the Council to make any necessary alterations at once by resolution, without the necessity of suspending or altering laws to meet every trifling change of circumstance.

McBRIDE *v.* WILLIAMS AND DALZELL.

We publish in *extenso* a report of this extraordinary trial, that our readers may be put in possession of all the facts of the case as described in evidence. Our first impression was to select those facts for publication which seemed to be of the greatest importance, but a careful perusal of the whole case showed that justice would not thereby be done to either party. It is not unlikely that we shall hear more of this matter, and that it will again come before our law courts.

This no one can be surprised at, as the verdict would seem to be directly opposed to the summing up by the judge, and to have caused much surprise in the amount awarded to the plaintiff.

The *Edinburgh Daily Review* in alluding to the matter says: "A jury trial of some public interest in connection with the Edinburgh Veterinary College was concluded yesterday (December 30th, 1868), before the Lord Justice General. A veterinary surgeon, Mr. M'Bride, was appointed one of the lecturers. It would seem that Mr. M'Bride did not possess in a very high degree the power of controlling the students, and there was much confusion in the class and considerable injury to the property in the class-room. The result was that the class-room was closed and an inquiry made into the case, when a letter was forwarded by the defenders to the Secretary of the Highland and Agricultural Society, which had appointed Mr. M'Bride, expressing their opinion of the matter. It is on this letter that the issue was sent to the jury, who found by a majority in favour of the pursuer, giving damages to the extent of £500. As this decision was directly opposed to the ruling of the presiding judge, a new trial will in all probability be moved for."

Reviews.

Quid sit pulchrum, quid turpe, quid utile, quid non.—Hor.

Report of the Delegates appointed by the Board of Agriculture of the Province of Ontario to inquire into the Causes, Nature, and Extent of the Texan Cattle Disease.

All that is to be learned respecting the cattle disease in the United States of America is most probably contained in the report of the gentlemen whose names are appended to the published statement of the results of a long and extended inquiry in those parts of the country where the disease was most prevalent. The committee consisted of a physician,

Dr. Thomas Richmond; one veterinary surgeon, Mr. Andrew Smith; and three practical agriculturists, Messrs. Thomas Stock, Frederick William Stone, and David Christie. With such a combination it is fair to say the subject must have been investigated in all its aspects.

In presenting their report the committee explain the method of inquiry which they followed before stating the conclusion at which they arrived.

The results of the investigation are thus stated:

"THE ORIGIN OF THE DISEASE, AND THE VARIOUS THEORIES RESPECTING IT.

"There is now no difference of opinion as to the fact that contamination is due, in some way, to contact with Texas cattle. The disease is one peculiar to Texas, the Gulf States, and to Florida and Georgia. When it appears in other latitudes, it is conveyed there by cattle from those States, brought to the north at a season of the year favorable to its exhibition. It is not a disease of the north, and never exists there, except in the circumstances named. The most prominent theory as to its cause is that it is the result of feeding on astringent plants, specially the 'Live Oak.'* It is said that in Southern Texas, where that tree grows abundantly, the cattle partake largely of it, and that its use causes the disease. It is alleged that a disease similar in its character, called 'darn,' prevails in Aberdeenshire, Scotland, which, it is believed, is caused by the cattle feeding on oak shoots and other astringent plants. Still 'darn' is not the analogue of Spanish or Texas fever. It differs from it in some essential particulars. 'Darn' is not so speedily fatal after its elimination, and tympanites is common to the latter. Moreover, it has never been known that cattle affected by 'Darn,' when removed to other parts of the country, affected others. This is a very important difference. Even were there not satisfactory evidence of the erroneous character of the 'Live Oak' theory, it is difficult to see that their partaking even largely of live oak shoots could cause the disease in cattle. The essential principle of live oak is *tannin*, an astringent and tonic, which, unless taken in very large quantities, would not have a morbid influence. Besides, of the rough material, even of the bark, the essential principle forms proportionately but a small part. And can it be supposed that to any appreciable extent cattle in Texas would prefer to live on oak shoots to the rich and early verdure so characteristic of Texan pastures? That there may be *accidental*

* Gamgee.

poisoning, as in the case of 'darn,' is quite probable, but such a case fails lamentably in all its chief elements to account for the terrible and highly infectious disease which has been sweeping whole districts in Illinois and Indiana. The reception of either mineral or vegetable poison into the system would not give rise to such a disease, neither could it give an infectious character to the disease. Besides, as incontestable evidence shows, those Texan cattle which come from the northern part of the State, where there is no *live oak*, present the disease in all its malignancy, and have the same power of infection. The cattle brought by the way of Abilene, and those brought by southern routes, are equally affected by the plague, and are equally potent as media of contamination.

"Another theory is that the disease is due to the long journey from Texas; that the cattle become foot-sore, and that, as in the case of foot and mouth disease, the virus oozing from the feet of the animals affected contaminates others. No doubt, many animals, which come overland from Texas, become lame; but, unfortunately for this theory, native cattle affected by this plague show no disease in their feet; neither are their mouths affected, as in the case of cattle having foot and mouth disease. Besides, cattle which come by the way of New Orleans are as much diseased as those which come overland.

"The remaining theory is that the plague is caused by the ticks or parasites which infest many of the Texas cattle. It is said by the advocates of this theory than when the ticks have attained their full growth, they drop from the cattle and reproduce their species in large numbers on the grass, with which they are taken into the stomachs of the cattle and form an acrid poison. This theory is so absurd and so generally discredited that it is unnecessary to comment on it.

"Your committee are of opinion that the disease is one peculiar to the Gulf States and to Georgia and Florida. They think that it is a species of low typhoid fever, somewhat analogous to yellow fever in the human subject, and that it is due, in great measure, to climatic influence, having its origin in a climate near the tropics and extending its infection northward, as it may be conveyed there by natives of that climate, only during the hot season of the year, which is not only specially favorable to its extension, but is essential to its existence; because it is well known that this disease never appears in cold and frosty weather, even when there are large importations of Texan cattle.

"Your committee discredit the idea that the Texan cattle are not themselves affected by the plague—large numbers of

them are diseased and die of the disease both in Texas and in the north. Your committee had plain evidence of this; and in a recent report by Dr. Rauch, of Chicago, presented to the Board of Health of that city, on the 1st September, Dr. Rauch states—'That during the past week it has been satisfactorily demonstrated that Texas and Cherokee cattle suffer from this disease, but not to the same extent as native cattle. The same structural lesions have been found, and three carcases have been condemned as unfit for food.' It is quite possible that in many Texan cattle the disease may have assumed a form not sufficiently active to destroy them speedily, but, like some of the natives of India, having enlarged spleens, not very sick, yet sufficiently diseased to contaminate others. It is well known to medical men that such men are moving pest-houses, and army surgeons are careful to exclude them from the camp. Such may be thousands of Texas cattle. The idea that a perfectly sound and healthy animal has the power of imparting a disease of a highly infectious and virulent character, is contrary to correct pathological principles. In conjunction with this extraordinary notion, it is contended that diseased native animals cannot contaminate others. Thus we are asked to believe two statements entirely opposed to each other, and equally opposed to pathological science. First, we are asked to believe that perfectly healthy animals can impart a malignant and highly infectious disease, and then that the animals which have become diseased have not the power of infecting others.

"During their stay at Illinois your committee had no evidence presented to them which proved that diseased native animals *had, or had not,* the power of infecting others, *because the period necessary for the second incubation of the disease had not elapsed.* However, in the Illinois correspondence of the *Country Gentleman* of the 10th instant, it is stated that, 'Cattle continue to die, and it is now generally believed that sick native cattle will infect healthy native cattle. I have a valuable cow at home, which has never been exposed, and I am now so convinced that she might take the disease from such native cattle, that I would not leave her six hours on the street or public road for half her value.'

"Your committee found that the most ardent advocates of the theory that diseased native cattle had not the power of affecting others would not run the risk of placing their own healthy stock beside them. They were not willing to subject their theory to this test. It is to be feared that ere long there may be abundant and melancholy evidence of the fact that diseased native cattle will infect others. Nothing short

of fatal folly could lead any one to place or allow healthy native cattle to remain with those which had contracted the disease. Entire and continued isolation is the only safeguard.

"THE INFECTIOUS AND MALIGNANT CHARACTER OF THE DISEASE.

"Your committee are of opinion that the cattle plague is infectious, and that it is of a malignant character. Some assert that the disease cannot be communicated to animals fed in troughs, boxes, stalls, or yards in which Texas cattle had previously been fed, but that it is necessary for cattle to pasture, day after day, on the same grounds, because the virus is specially communicated through the media of excrementitious or urinary deposits. On the other hand, it is stated that *all* the secretions are powerful as media of infection, and that cattle may be contaminated by being *anywhere* that the Texas cattle may have been, or where their secretions may have been deposited. With this opinion your committee coincide. They have unquestionable evidence of the fact that cattle following Texan cattle, even on the same *highway*, as in the case of Mr. Shelton's cattle, near Urbana, have contracted the disease. The same evidence has been presented in other cases, and the virus has been known to retain its potency for a period of two months. In the case of Mr. Shelton's calf, a month had elapsed after the passage of the Texan herd before the little beast was driven along the road, and yet it contracted the disease.

"The committee are of opinion that cattle pasturing in the same fields or commons, travelling on the same highways, in the same cars, feeding in the same yards or stables, coming in contact with the cattle themselves or with their secretions, will contract the disease.

"Of course it will be understood that in none of those cases disinfectants have been used previous to exposure.

"GENERAL SYMPTOMS AND DURATION.

"In the early stage of the disease there are no well-marked symptoms presented by which it may be distinguished from many other complaints. Where a number of animals are pasturing together, the infected ox or cow is observed to leave the rest of the herd; the walk is slow and finally becomes unsteady; the head is hanging, the ears drooping forward, the eyes dull, and from the nose issues a discharge of dark-coloured mucus; the back is arched and the flanks hollow,

there are generally involuntary twitchings of the muscles of the shoulder and of the flank; the pulse is quick and weak, varying from ninety to one hundred; the coat is staring, and the general temperature of the body increased; the urine is dark coloured, and passed often, and, when urinating, the animal appears to suffer a considerable amount of pain; the fæces are hard, the breathing is quickened and panting; there is often great loss of muscular power, caused by nervous depression, and varying from partial paralysis of either the fore or hind quarters to complete loss of power. In some cases there are symptoms of delivery well marked; as in the case of Mr. Larman's two-year-old cow; in others, again, a comatose appearance is presented.

"In milch cows, often, the first symptom noticed is either impaired or arrested secretion of milk. With these symptoms the animal may linger for a shorter or longer period, and die, apparently, from exhaustion.

"Animals may suffer from the disease without showing any visible symptoms, as in the case of a number of cattle in Chicago that were slaughtered by order of Dr. Rauch, they having been in contact with Texan cattle. After death the viscera presented a similar appearance to the viscera of cattle dying from the disease, but in a less degree. In this case it was naturally supposed that the usual symptoms would have been developed in a few days.

"The duration of the disease, after permanent symptoms are exhibited, is from two to seven days.

"POST-MORTEM APPEARANCES.

"When the skin is removed the flesh looks pale and flabby, and has the appearance of the flesh of an animal bled to death; the abdomen is distended, the lungs occasionally show a slight congestion, the heart is enlarged and soft, and presents towards its apex a number of light spots, the covering of the heart (pericardium) is also studded with blood extravasations. The first and second stomachs do not present any particular change; the third stomach is generally full of digesta, the fourth or true digestive stomach on its inner coat shows in some instances small ecchymosed spots, whilst in others it presents the appearance of an irritant poison; the small intestine, and especially the duodenum, has a similar appearance to the fourth stomach. The liver is congested, and the gall-bladder full of very dark coloured bile; the spleen is enlarged and its inner structure completely broken up. The congested and turgid liver, and enlarged and disintegrated spleen, two organs intimately connected with the

formation of blood, are to be constantly met with in after-death examination of cattle dying from this disease. The kidneys are congested and very dark coloured, and their pelves present small ecchymosed spots; the bladder is generally distended, with dark coloured urine; the mucous membrane of the bladder appears thickened, and occasionally shows blood extravasations; the brain is generally soft.

"PER-CENTAGE OF DEATHS.

"The evidence presented to your committee leads them to believe that the average per-centage of deaths among those attacked will reach ninety per cent. In fact, this is a low estimate. In some localities every beast has been cut off. No reliable curative seems to have been discovered; and, in most cases, proprietors seemed to have no faith in any curative process proposed. They seemed to regard animals attacked as beyond recovery. Your committee suggested the use of *sulphite of soda* as a probable means of destroying the virus, but no information has reached them as to whether this agent was employed, and with what results.

"The committee may properly advert to another aspect of this important question. It has been stated by a learned scientific gentleman, 'that it is a consolation to know that there is not the slightest danger of any evil arising from the drinking of the milk of the sick cows,' 'and,' adds the same gentleman, 'I should have no scruples in eating the flesh.' This seems a bold and extraordinary statement. On this point, your committee beg to refer to a report of the Metropolitan Board of Health, dated New York, August 13th, 1868. It is there stated, that 'the investigations made by scientific and experienced members of this Board, have fully confirmed the opinion that the flesh of these diseased animals cannot safely be used for food. The information now before us clearly shows that, until some proof of the contrary is shown, the malignant disease which has been brought eastward from Illinois and Indiana, should be regarded and treated as an infectious fever or plague. The transportation of any sick or infected cattle from the sickly district to other States, should be prohibited.' This seems to be a rational conclusion, and the authority is high."

This account of the malady contains information of an important character, which more than justifies the apprehensions felt by breeders in this country of danger arising from the unrestricted importation of American hay, and proves that a necessity really did exist for the prohibitive order which limits the consumption of that provender to horses.

Extracts from British and Foreign Journals.

THE CATTLE PLAGUE.—FOREIGN IMPORTATIONS.

The cattle plague, obeying the laws which seem to regulate the progress of contagious diseases generally, is advancing westward from its reputed home in the Steppes. Hungary has been suffering from its effects for some time past. It also prevails in Lower Austria, in at least three districts. In Transylvania nearly thirty places are infected. Buckovina is not free from the pestilence, and Galicia is reported to have several infected districts. Altogether, in Hungary, Lower Austria, Buckovina, Transylvania, and Galicia there appear to exist between sixty and seventy centres of infection. Saxony, we learn, has prohibited the passage of Steppe cattle over the Sax-Bohemian frontier, but permits the entrance of Bohemian cattle with certificates of health.

The contemplation of these facts is not likely to produce a very cheerful state of mind among those who are especially interested in home-bred stock. We have felt ourselves tolerably secure from invasion up to this time, because we have been principally supplied with foreign cattle from healthy districts; but now the grass season is over, and we are about to import cattle bred in the districts which are now being ravaged by the cattle plague, or in very decided proximity to them, Galician, Hungarian, and white Austrian cattle will now be sent to our markets; and, although all those cattle are presumed to have been feeding for many months in Austrian and Prussian distilleries, and growing fat upon the refuse products, there is at least a possibility of other animals of the same breed being smuggled over the Prussian frontier. Indeed, the probability of such an occurrence was distinctly admitted by the Veterinary Congress, held in Vienna in 1865. Our own experience is strongly in favour of the presumption, that such violation of frontier rules is neither so difficult of execution nor so infrequent as many persons would lead us to believe.

In the spring of 1867 an outbreak of cattle plague in the East of London was, with good reason, charged upon white Austrian cattle, which, according to the system pursued on the Continent, ought not to have been capable of introducing the disease. Regulations, however, are not always carried

out as they should be; and there is nothing to justify the assertion that foreigners have stronger scruples about "running the blockade" than Englishmen have. We found it here exceedingly easy to pass Orders of Council, and to issue directions from all sorts of authorities, but the task of enforcing the laws was by no means trifling, particularly when people quietly ignored their existence, and acted in accordance with their own ideas of right or convenience. Providing that all the regulations respecting the passage of animals through Prussia are carried out stringently, we may perhaps rest in tolerable security, but any evidence of the fallibility of the precautions which are adopted by that power will necessarily disturb our repose, and such evidence we undoubtedly have had. Under ordinary circumstances, the system of feeding Bohemian and other "white cattle" in the large distilleries works well, and no foreign beasts imported to this country "die better," in butchers' phrase, than the cattle so treated; but this is small compensation for an occasional outbreak of cattle plague in the metropolis, or elsewhere. So long as all the conditions of security are maintained, no danger need be apprehended. Capitalists on the Continent may buy hundreds of cattle in Bohemia, Moravia, and Hungary, feed them upon the waste products of their distilleries, and having brought them to a condition fit for the English market send them to England; the time required to fatten them will in itself be a guarantee of their freedom from infection, and if there is no disease in the locality where they are fed, they may safely be treated as though they had been bred there. The transit of these cattle through Prussia to the coast is permitted only under restrictions; evidence of their having come from a healthy locality is required; and, in short, every care is taken by the Prussian authorities, as might be expected, to prevent the entrance of infected animals into their country—not always with success, as their records will show.

The transit of cattle through Prussia to this country occupies some days. Cattle coming from Bohemia are usually on the road about six or seven days before they reach the London market; and it may be said in reference to the "white cattle" of Austria, that their passage occupies something like a week. This fact is often quoted in support of the theory that infected animals—that is, cattle infected in any part of Austria (in Bohemia or Moravia, for instance)—cannot be sent to London, because by the time they arrive the disease will be sufficiently advanced to be at once detected by he inspectors. The argument rests entirely upon the as-

sumed fact that the cattle which first became infected in their own country are as a matter of course brought on to London, altogether ignoring the probability of such animals falling sick before they are shipped, and being disposed of while the remainder of the herd—a certain number of them having received the infection from those originally diseased—will be shipped for England, and thus arrive in our ports two days, instead of six or seven, after infection. In this way the Silesian cattle, which are said to have imported the disease in 1867, may not, and most likely did not, show any symptoms of ill-health on their arrival in this country, although some of them died here so shortly afterwards that there was no possibility of their having been infected after landing in London, where, indeed, cattle plague did not then exist.

It is to be hoped, in view of the steady progress of the plague in the Austrian provinces, that every care will be taken to prevent its introduction here, but it is quite impossible to doubt the extent of the risk which we must continue to incur, so long as the malady exists in countries adjacent to those from which we now obtain large supplies of foreign cattle.—*The Gardeners' Chronicle and Agricultural Gazette.*

CATTLE DISEASES IN THE UNITED STATES.

A MEETING of the Cattle Commissions' Committee, during the second week of December, at Springfield, Illinois, was attended by delegates from Illinois, Missouri, Iowa, Wisconsin, Michigan, Indiana, Ohio, New York, Pennsylvania, Maryland, Massachusetts, Rhode Island, and the province of Ontario. Hon. Lewis F. Allen, of New York State, was chosen to preside. The object of the meeting was the adoption of recommendations to be presented to the Legislatures of the several States for their action, involving the following leading measures:

1. The appointment of commissioners for five years, to report annually; whose duty is to prevent the spread of dangerous diseases and protect the public from diseased meat; with such assistants and legal powers as are necessary; who are to give public notice of the existence of dangerous diseases, and who may place diseased animals in quarantine, or, if necessary, kill them, the county or State in that case paying for them at a fair appraisal.

2. The commissioners or their assistants to have the power to inspect all cattle brought within the boundaries of the

State, on foot or by any means of conveyance, and to detain them so long as the inspection may require; to prevent the entry of any considered capable of diffusing disease; to prohibit the progress of any train in which the animals it contains have not been supplied with food, water, and rest within the twenty-four hours previous; to enforce rest and access to food and water, for twenty-four hours, for animals that have travelled that length of time; and to inspect the yards of railroad companies as to their accommodations, and the cleanly and wholesome condition in which they are kept.

Section 3 we copy at length:

"SEC. 3. *Whereas,* A malignant disease among cattle, known as fever, has been widely disseminated by transit of trains and other sources to western cattle through the western and north-western States during the warm weather of the year, occasioning great loss to our farmers, possibly endangering the health of our citizens therein:

"*Resolved,* that this convention earnestly recommend the enactment of stringent laws to prevent the transit through these States of Texas or Cherokee cattle from the first day of March to the last day of November inclusive.

"*Resolved,* That the interests of the community require the enactment of laws making any person responsible for all damages that may result from the diffusion of any dangerous disease from animals in his ownership or possession."

After some discussion the period named for the non-introduction of Texas cattle appears to have been changed so as to read from March 1 to November 1. The second of the resolutions, unless limited and guarded in some manner which has not been thus far explained, appears decidedly objectionable. But the recommendations, on the whole, embody a policy which should receive the hearty support of our legislatures, both on the subject of diseases themselves, and also with regard to the point—the more humane and proper treatment of stock in transit.—*Mark Lane Express.*

RAILWAY WAGONS FOR MEAT TRANSPORT.

THE adoption of refrigerator cars for bringing dressed beef, pork, mutton, and poultry from the Western States to the seaboard cities, promises most important results. Under the old system of putting the live animals into the cars and transporting them eastward, they almost invariably suffered a large decrease of weight from want of proper feeding and watering. Those who have seen cattle trains on a hot day

will understand something of the torments to which the cattle have to submit and the probable effect upon the flesh as human food, of their long confinement in these pest houses denominated "cattle cars." Persons of delicate organization have been known to faint from the effects of the stench of the passing trains, and the effect upon the health of the animals must be very prejudicial, rendering them unfit for human food. By the adoption of the refrigerating car all this can be changed for the better. The cattle are slaughtered and dressed when in their best condition, and the meat there packed directly into the car, and thus transported to the points of consumption. These cars are of the eight-wheeled freight pattern, built of two thicknesses of three-quarter-inch pine plank, three inches apart. In the intervening space three-inch slabs of cork are inserted, cork being considered the best non-conductor of heat. On the top of the car is a flutter wheel of zinc, working horizontally by the current of air created during the motion of the train. On the same spindle with this wheel is a revolving fan, which throws the air through flues the entire length of the car to the ice-chambers at each end. It is here cooled and condensed, and falls through other flues to the floor, passing under the hanging meat, and enveloping it as it rises to the ceiling. The temperature maintained is forty-two degrees.

These cars can carry from 20,000 lb. to 25,000 lb. each, and the meats invariably come forward in excellent condition. The benefits of this system in brief are—a saving in weight to the owners of the cattle, the abolishment of slaughter-houses in or near cities, the retention of the refuse matter to be returned to the soil through the compost heaps where the cattle were raised—a most important matter—and the improved character of the meat brought to market. If there were no question but that of the greater humanity of this method of treatment of cattle, it ought to be decisive in favour of this system, but there are other questions all in favour of it. For sanitary reasons the system should be adopted; first, that it enables cities to get rid of slaughter-houses, those great pests of every inhabited neighbourhood. Second, that the meat is preserved in a more healthy and fit state for human food. The return of the refuse matter of slaughtered cattle to the soil, thus enriching it with those elements which enter into the growing of cattle, is a matter which the more intelligent agriculturists and cattle breeders will properly estimate, and one to which we hope they will give due emphasis in the discussion of this question in the agricultural journals.—*American Railway Times.*

ROYAL COLLEGE OF VETERINARY SURGEONS.

QUARTERLY MEETING OF THE COUNCIL, HELD JAN. 6TH, 1869.

PRESENT:—The President, Assistant-Professor Pritchard; Messrs. Broad, J. C. Broad, Cartwright, Ernes, Fleming, Gowing, Greaves, Harrison, Hunt, Lawson, Wilkinson, Withers, and the Secretary.

The President in the Chair.

The minutes of the preceding meeting were read and confirmed.

A discussion ensued on the subject of copying letters requiring to be entered on the minutes.

It was moved by *Mr. Wilkinson*, and seconded by *Mr. Lawson*—

"That the letter received from Mr. Wilkinson, the solicitor to the Council, be entered on the minutes, and also in the book kept for that special purpose; and that an annotation be made indicating where the letter is to be found."—Carried.

The substance of three letters, dated November 5th and 7th, received from a Mr. Williams, of Welshpool, relative to a Mr. Whisken, of that town, practising as a veterinary surgeon, who was not a member of the Royal College of Veterinary Surgeons, was read. Also a letter from Mr. Whisken, complaining that the information of his non-qualification had been furnished, and requested that he might have a copy of the Register.

The applicant was informed that the new Register would not be issued until after the quarterly meeting of the Council.

A letter from Mr. Alexander McCallam, of Edinburgh, a chemist and druggist, holding the Highland and Agricultural Society's certificate, was read; Mr. McCallam desired to be informed whether he could obtain the diploma of the Royal College of Veterinary Surgeons by a written examination before December next.

The applicant was informed that a written examination in his case would not be granted, but that he could present himself before a special board in London on December 21st, or in Edinburgh at the usual meeting of the Court of Examiners in the month of April, by giving the usual notice, remitting the examination fee, and producing his Highland and Agricultural Society's certificate on the day of examination.

A second letter from Mr. McCallam was also read, wherein he considers it a hardship being denied the privilege of a written examination, and requests to be informed whether he could present himself for examination before any of the members of the Examining Board in Edinburgh before January next.

The Secretary, in his reply, stated that the Board of Examiners would not meet in Edinburgh until next year.

A letter from Mr. C. W. Blake, of Crewkerne, Somerset, was read on the subject of his eligibility to present himself before the Special Board of Examiners. He stated that he had been a student at the Royal Veterinary College in 1834-5, but had not presented himself for examination.

The Secretary referred the applicant to Bye-law 27, which requires "that he should produce a certificate of having been educated at one of the recognised schools."

A long letter from Mr. John Barker, of Scarborough, was then read, requesting a copy of the new Register, and at the same time to be informed whether a Mr. Wm. and Mr. Foster Maw, of Thornton, near Pickering, were entered as students at the Veterinary College, they having represented themselves as members of the Royal College of Veterinary Surgeons. Mr. Barker also complained of the non-professional conduct of a veterinary surgeon in Scarborough, enclosing the copy of an advertisement, which he requested might be laid before the Editors of the *Veterinarian*.

The applicant was informed that there was no person living of the name of Maw on the Register, a copy of which was forwarded to him. The advertisement was returned in order that he might lay the subject before the Editors of the *Veterinarian*.

The Secretary informed the Council that he had received 253 copies of the new Register, one of which was laid upon the table.

A letter was also read from Mr. Adlard, enclosing a policy of insurance for £50 on the type of the Register, the property of the Royal College of Veterinary Surgeons. The premium having been paid by Mr. Adlard, he at the same time informed the Council that the policy might be retained or returned to him, as they thought fit.

It was moved by *Mr. Wilkinson*, and seconded by *Mr. Lawson*—

"That the policy of insurance on the type should remain in the custody of the Secretary."—Carried.

It was then moved by *Mr. Gowing*, and seconded by *Mr. Withers*—

"That the receipts for the insurance be forwarded to the Secretary annually."

The motion having been put from the chair, was lost.

The Secretary reported that five condidates, late pupils of the Royal Veterinary College, London, had been admitted members of the body corporate. Also that one candidate, holding the Highland and Agricultural Society's certificate, had passed his examination before a Committee of the veterinary members of the Court of Examiners. The names of the successful candidates were then read, together with those of the examiners and ex-officio members who were present.

The Registrar then proceeded to read over the list of deaths, seven names having been added to the list since the last meeting of the Council.

The Secretary informed the Council that the Record-book of the examinations was nearly full; he had therefore to ask the Council to sanction the purchase of a new book.

It was suggested that there ought to be an official book, larger than the present one, and an arrangement made for its division into columns that would contain the different subjects upon which the student had been examined, and that a committee be appointed to report thereon.

It was moved by *Mr. Wilkinson*, and seconded by *Mr. J. C. Broad*—

"That a Special Committee be appointed to consider the best form of book in which the examinations should be recorded."—Carried.

It was resolved that the Committee should consist of Professor Simonds; Messrs. J. C. Broad, Fleming, Gowing, and Wilkinson.

The Secretary apprised the Council that there were not more than ten leaves unused in the Minute-book, and that a new one would be required.

The Council authorised a new Minute-book to be ordered, similar to the last.

The Finance Committee reported that they had examined the vouchers and receipts of payments during the preceding quarter and found them correct. The quarterly balance sheet of the Treasurer's account was submitted. The current expenses for the quarter amounted to £157 14s. 4d., including the accounts from Mr. J. E. Adlard, the printer, and Messrs. Loch and Maclaurin, the Parliamentary agents, which the Committee recommended should be discharged.

The House Committee reported that they had examined

the accounts submitted to them for repairs during the past year, which were approved.

It was moved by *Mr. Lawson,* and seconded by *Assistant-Professor Pritchard*—

"That the Reports and the Treasurer's quarterly balance-sheet be received and adopted."

Cheques were ordered to be drawn for the current expenses.

The Secretary read a letter from Mr. Herbert, Secretary of the Board of Trade, addressed to the President of the Royal College of Veterinary Surgeons, requesting to be furnished with a printed copy of the Charter of the College, so as to enable the Board of Trade to complete a set of documents to be laid before Parliament.

The President's reply was also read, which enclosed a printed copy of the Charter.

It was moved by *Mr. Wilkinson,* and seconded by *Mr. Fleming*—

"That Mr. Herbert's letter and the President's reply be entered on the minutes."—Carried.

The subject of a renewed attempt to obtain a Scotch Charter having been brought before the Council,

It was suggested that Messrs. Loch and Maclaurin, the Parliamentary agents, be re-employed, and that the President place himself in communication with those gentlemen in order to ascertain what was being done.

Mr. Ernes then laid before the Council the suggestions which he had prepared in reference to the examinations, and the appointment of a committee to take into consideration the insufficiency of the present examinations, to which he had drawn the attention of the Council at the last meeting.

After a considerable discussion, the Council having expressed their obligations to Mr. Ernes for bringing the subject before them,

Mr. Wilkinson moved—

"That a Committee be appointed to take into consideration the mode of examination by the Board of the Royal College of Veterinary Surgeons."

Some alteration having been proposed to include the admission of the Professors of the Colleges on the Committee,

Mr. Wilkinson withdrew his motion.

After some further discussion,

It was moved by *Mr. Wilkinson,* and seconded by *Mr. Harrison*—

"That a Committee be appointed to inquire into the pre-

sent system of the examinations, with reference to the suggestions made by Mr. Ernes."

The following amendment was then moved by *Mr. Greaves*, and seconded by *Mr. Cartwright*—

"That no Committee be appointed unless the Principals of the Schools be on the Committee."

The amendment, having been proposed by the President was lost.

The original motion was then put and carried.

It was resolved that the Committee be composed of the following gentlemen, viz. Messrs. J. C. Broad, Cartwright, Ernes, Fleming, Gowing, Greaves, Harrison, Hunt, Lawson, Mavor, Thacker, and Wilkinson.

By order of the Council,

WILLIAM HENRY COATES,
Secretary.

NORFOLK AND EASTERN COUNTIES VETERINARY MEDICAL ASSOCIATION.

THE first quarterly meeting of the above Society was held on Tuesday, the 5th ult., at the Norfolk Hotel, Norwich, Mr. W. Smith, President, in the chair.

There were also present—Messrs. J. W. Riches, F. Low, and G. Whincop, Norwich; E. J. King, Diss; J. Seaman, Saffron Walden; Seaman, jun., W. Shipley, Yarmouth; J. Baldock, Royal Artillery; E. Barker, St. Faith's; D. J. Hunting, Loddon; and J. D. Overed, Blofield, Hon. Secretary. Some medical and other friends of the chairman likewise attended. Letters of apology were read from Messrs. C. Waters, H. Emms, J. R. Scruby, L. Young, &c.

The Secretary read an elaborate report of the inaugural meeting, after which communications were read from several gentlemen residing without the Eastern Counties, wishing to become members of the Association.

On the motion of *Mr. King*, seconded by *Mr. Seaman*, it was unanimously resolved to admit as members such veterinary surgeons as were desirous of joining the Association, but who were non-resident in the Eastern Counties.

Mr. J. W. Riches proposed for election as an Honorary Associate, Clare Sewel Read, Esq., M.P., of Honingham, Norfolk, which, having been seconded by *Mr. E. J. King*, was carried by acclamation.

The Hon. Member for South Norfolk would have been present, but was prevented by a long-standing engagement.

Mr. Seaman, of Saffron Walden, then read a very able and interesting essay on "Indigestion in Ruminants." He divided the subject into mechanical and chemical indigestion. The causes of each, comprising mechanical irritants, unwholesome food, impure water, and zymotic influences. The pathology, symptoms, treatment, and morbid appearances, were likewise explained.

The paper was illustrated by specimens of the stomachs of a sheep, and several morbid preparations, together with quantities of nails, pieces of metal, and pottery, taken from patients suffering from the disease. In the discussion which followed, most of the gentlemen present took part. The President, who concurred in many of Mr. Seaman's remarks, gave an account of the results of several *post-mortem* examinations which he had made in cattle that had died from eating acorns, in Blickling Park, in October last. He attributed death in these cases to the severe derangement of the digestive organs, resulting in a poisoning of the whole system. He also stated that many of the symptoms, as well as the *post-mortem* appearances, resembled cattle plague, with this marked difference, that in the acorn poisoning the rumen and the other stomachs were much inflamed, especially the former, while in cattle plague the morbid lesions were chiefly confined to the third and fourth stomachs. Several semi-ulcerated spots, in size varying from a pea to a sixpence, were seen in the rumen of the Blickling oxen, precisely of the same character as those which had been observed in the cattle poisoned by eating the *Solanum dulcamara,* at Weston, a year or two ago, and which were erroneously said to have been cases of cattle plague. Mr. Smith also made some valuable observations on the system of feeding cattle with artificial food, and stated that he had found impure cake, especially that containing much cotton fibre, very destructive to young animals, and to lambs in particular.

A unanimous vote of thanks was accorded to Mr. Seaman for his able and instructive paper, which it was resolved to send to the Editors of the *Veterinarian* for publication.

The next meeting will be held at the Norfolk Hotel, Norwich, on Tuesday, April 6th, when Mr. Low will read a paper on "Contagious Diseases in Cattle."

(Signed) JOHN D. OVERED,
Hon. Secretary.

PROPOSED VETERINARY ASSOCIATION FOR IRELAND.

(CIRCULAR LETTER.)

ISLANDBRIDGE BARRACKS, DUBLIN;
January 14th, 1869.

SIR,—From the beneficial results to the veterinary profession attending the establishment and continuance of veterinary medical associations in Great Britain, it has been suggested that a similar effect might be produced, by similar means, in Ireland. It was, therefore, proposed, at a meeting held by a few of the profession, both civil and military in Dublin, that I, the undersigned, should apply to the members of the profession resident in Ireland, either permanently or temporarily, to ascertain if they would co-operate in the formation of an Irish Central Veterinary Medical Association, the meetings of which would be held periodically in Dublin, for the discussion of such subjects of professional interest, scientific and otherwise, as would be calculated to advance the interests of the profession, as well as to, if possible, move the legislature to adopt similar measures to those which have been enacted relative to the professions of human medicine and surgery, to prevent unqualified persons from representing themselves, and being employed as veterinary surgeons; and thus, by their empiricism and deficiency of professional education, bringing into undeserved disrepute the regularly qualified and properly educated practitioners of veterinary medicine and surgery.

Begging the favour of your informing me whether you will co-operate in the formation of the proposed association, and become a member of the same,

I am, sir,
Your obedient servant,

F. F. COLLINS,
V.S., 1st Class, Royal Dragoons.

Mr.————, M R.C.V.S.

THE VARNELL TESTIMONIAL.

THIS testimonial, which consists of a handsome silver tea-urn and a purse of £100, has been forwarded to Norfolk for presentation to Mr. Varnell, accompanied with a suitable address emblazoned on vellum.

Its safe arrival has been acknowledged, but up to the time of our going to press, we believe that no formal reply from Mr. Varnell had been received by the secretary of the committee.

Veterinary Jurisprudence.

JURY COURT.

MONDAY, DECEMBER 28TH.

M'BRIDE *v.* WILLIAMS AND DALZELL.

(*Before* the LORD PRESIDENT and a JURY.)

Counsel for the Pursuer—The Solicitor-General and Mr. G. H. Thoms. Agents—Lindsay and Paterson, W.S.

Counsel for the Defenders—The Lord Advocate, and Mr. Middleton. Agents—Macgregor and Barclay, S.S.C.

ACTION FOR DEFAMATION.

YESTERDAY the case in which John Adam M'Bride, doctor of philosophy, veterinary surgeon, presently residing in Gillespie Street, Edinburgh, and lately professor of cattle pathology in the Edinburgh Veterinary College, was pursuer, and William Williams, veterinary surgeon, residing in Clyde Street, Edinburgh, and Allan Dalzell, doctor of medicine, residing at North Berwick, were defenders, was tried before the Lord President and a jury. The issue was in the following terms :—

> "Whether between 4th and 18th March, 1868, both inclusive, the letter in the schedule annexed was written and sent by the defenders to the pursuer, and whether a copy thereof was sent by the defenders to Mr. Fletcher Norton Menzies, Secretary of the Highland and Agricultural Society; and whether the defenders by said letter did falsely and calumniously represent to the secretary and directors of the said Highland and Agricultural Society, or to the said secretary or directors, that the pursuer was incapable of discharging the duties of the said chair of cattle pathology in a proper and efficient manner, and that such was the unanimous opinion of the members of the Edinburgh Veterinary College Council—to the loss, injury, and damage of the pursuer?"

The damages were laid at £5000.

Appended to the issue was the following letter :—

"DEAR SIR,—We have done all in our power, by careful inquiry impartially conducted, to arrive at the cause of the unseemly occurrences which have taken place in your class, one of them no later than Wednesday last. We have no desire to hurt your feelings, much less to urge against you any wilful omission of duty, but we feel satisfied that you have failed to preserve that order in your class which is necessary for teaching it; and we need scarcely remind you that the occurrences we allude to, though happening only during your lectures, have a very bad effect on the general credit of this college. We are sorry that your position, in terms of

the will of the late Professor Dick, makes it impossible for us to recognise you as a professor of the college, and receive you as a member of its deliberative council; but this ought to have made you all the more anxious to call in our assistance in checking the first outbreaks of insubordination. Instead of reporting to us, you have allowed matters to go on, threatening the unruly, without carrying your threats into execution. We are certain that this college will suffer if you continue in your present position; and with sincere regret we are compelled to suggest to you the propriety of relinquishing a position which seems to us not accordant to the will of the founder of this institution; and taken in connection with what has occurred in your class, is, in our estimation, a position which you may not creditably to yourself continue to hold. We consider it our duty to forward a copy of this letter to Mr. Fletcher Menzies.

"We remain, dear Sir, yours truly.

"Signed, in name of the Veterinary College Council, unanimously agreed.

"W. WILLIAMS, *Principal.*

"Edinburgh Veterinary College,
March, 1868."

The Solicitor-General, in opening the case for the pursuer, explained to the jury that, in his will, the late Professor Dick provided that any student who had attended Professor Gamgee's classes should be disqualified from becoming a lecturer in the Clyde Street College, and contended that, as the will did not come into operation until the death of Miss Dick, the Clyde Street College was at present being conducted under the pleasure of Miss Dick, and not under the will of Professor Dick. He further explained that the chair of cattle pathology was endowed by a salary of £100 from the Highland and Agricultural Society, given on the condition that they should have the patronage of the chair entirely in their own hands, and also £50 from Miss Dick, and also contended that the professor of the chair of cattle pathology could not come under the will of Professor Dick, in which no such arrangement as had been made was proposed.

Mr. M'Bride the pursuer in the action, was first examined, and after describing his previous career in his profession, deponed that, in the summer of 1867, he had applied to the Highland and Agricultural Society for the professorship of cattle pathology in the Clyde Street College, and was successful in obtaining the appointment. He saw Principal Williams, before he made the application, and mentioned to him that he was a student of Mr. Gamgee, but Mr. Williams said that the appointment of the Agricultural Society was quite distinct from the college appointments, and advised him to apply. On the 30th of October, 1867, he was inducted to the Professorship by Mr. Menzies, of the Highland Society. The Principal told him that he had not been inducted by the Lord Provost, whom Mr. Strangeways had told that witness was a student

of Gamgee. On the 2nd of November he was received as a member of the College Council, and unanimously elected secretary, keeping the minute books regularly from that date down to the meeting of the 4th of March. In the early part of December, 1867, Principal Williams changed his conduct to him, and never spoke to him except when he could not help doing so. They met in the yard several times a day, but Principal Williams was perfectly silent except when witness asked a question. Up till about a week before the Christmas holidays, his students, ninety in number, whose ages varied from sixteen to thirty, behaved well. Some of them at that time were a little mischievous, but he attributed this to the approach of the Christmas holidays. After the holidays about eight or nine of the students especially made a noise and were inattentive. He ordered them at once to be quiet; and though they sometimes became quiet, they soon renewed their disturbances. In the early part of January, he mentioned to Mr. Williams that some of the students were mischievous, and he said—"Are they?" Afterwards one of the students came into the lecture-room intoxicated, and there was a little bit of a row. When he told Mr. Williams of the occurrence he was silent. On another occasion, in March, he sent for Mr. Williams to come to his lecture-room, because some of the students had, on the previous night, been throwing shot across the lecture-room during the lecture, and because on that morning the same students repeated the throwing of the shot. Mr. Williams came, and when witness began to tell him of the occurrence, he opened out upon him, and asked, why he did not tell him of the disturbance in the class-room the night before? Mr. Williams spoke to the students, and asked them for their own good name and for his sake to listen to the lectures, if they were bad, and he then walked out of the lecture-room. Immediately after he left, the disturbance was recommenced by the same parties. Mr. Williams returned to the lecture-room, and took a seat beside him, but the disturbance still continued. Witness proceeded with his lecture notwithstanding, and after he had gone on for ten minutes Mr. Williams ordered him to desist. Witness left the lecture-room, and went to the Museum, where he was in a few minutes afterwards joined by Mr. Williams. They went to the house together, where Mr. Williams said to witness if he was in his position he would resign. Witness replied that he had an aged father and mother to support, and could not think of resigning for such a trifling matter. He told him the names of the students connected with the disturbance, and Mr. Williams said there would be a council meeting next day to consider the matter. At that meeting the whole body of students were present. Some of the students whom witness pointed out as having occasioned the disturbance denied connection with it, another made a speech against his qualifications, and Mr. Williams said he had not observed any of the students whom witness pointed out make disturbance, while others of the students said that the parties pointed out did cause the disturbance; a petition against witness, signed by twenty-nine

students, and then a petition in his favour, signed by thirty-nine students, were handed to Mr. Williams. Then Dr. Dalzell got up and said they must inquire into the cause of this disorder. One of the students asked whether those students would get their certificates if they did not attend Mr. M'Bride's class, and Mr. Williams stated that he would give them certificates, but it would be better if they attended Mr. M'Bride's class. Witness went on with his lectures after that time, and the noise ceased; the students who had occasioned the disturbance refraining from attending for about eight nights. Before a second disturbance arose, at the end of the session, he received the letter from Mr. Williams which was appended to the issue. About this time Dr. Dalzell and Mr. Williams did not recognise him in the yard, though he met them several times a day. Some of the students who had occasioned the disturbance, he had seen frequently driving with Mr. Williams, and of all the students in the college they appeared to be the most intimate with Mr. Williams. One day in April he found the door of the lecture-room locked, and until the middle of April he presented himself daily at the door of the lecture-room, but always found it locked. Witness was present on the day of examination. Mr. Williams, on that occasion, accused him of prompting the answer of one of the students. He denied this, and appealed to the examiner, who said that he did not prompt the answer. Witness afterwards received a letter of dismissal from Mr. Menzies, but with that letter he could not hope to get a situation as a lecturer.

The witness was cross-examined at some length by the Lord Advocate, in reference to the statements he considered false in the letter which was addressed to Mr. Menzies, and to the disqualification, by Professor Dick's will, of students who attended Mr. Gamgee's lectures.

James Hume, farmer, Newmains, Berwickshire, deponed to having attended the classes in Clyde Street College during last session, and to the disturbances taking place. He said—It was quite well known that Principal Williams was on the side of the students against Mr. M'Bride. He could have put down the noises if he had liked.

By the Lord Advocate—The Principal could have put down the rows in Dr. Young's class. He did not wish to put down the rows in Mr. M'Bride's class, but I do not know whether that was the case in regard to Dr. Young's class.

John Whitewright, veterinary surgeon in Glasgow, deponed—I attended Mr. M'Bride's class last session. I began to attend it about the New Year time. There was great disturbance apparently among a limited number. I thought myself that the noisy set were particularly intimate with Mr. Williams. That was a subject of common remark among the students. The noises, in my opinion, were just set up to disturb the lecturer without anything to account for them. It was said that they were not good friends. I remember of seeing Mr. Williams at Mr. M'Bride's lecture, and my impression was that there was a look of recognition passed between him and the noisy

party. I remember of him saying at the close of the lecture—"Well, gentlemen, I cannot see anything wrong in this man's lecture." I was at the council meeting, but did not listen to what was going on, as I was disgusted with the whole proceedings. Mr. M'Bride had been badly used all along, and got no support from head quarters. I thought that Principal Williams could put an end to the state of matters if he had liked.

John Jerrard, veterinary student, deponed—The students who were noisy in Mr. M'Bride's class did not seem to be more intimate than the others with Mr. Williams.

Charles Romanes, V.S., Buccleuch Place, secretary to the Veterinary College, stated that he wrote the copy of the letter appended to the schedule, and that he thought the Principal brought the draft of the letter. The handwriting of the draft letter was Dr. Dalzell's. He knew, a day or two before the letter was written, that a letter was to be written from the Principal. He knew there was some difference between the Principal and Mr. M'Bride a few weeks before the letter was written. Mr. Williams never expressed to him a desire to get quit of Mr. M'Bride. Within three or four days after the letter was sent away, Mr. Williams told him to read the letter to some of the students who came into the office, and to any students who asked to hear it. Eight or ten students came into the office, and heard the letter read.

By the Lord Advocate—He attributed the disturbances to some extent to the knowledge among the students of Mr. M'Bride's disqualification as a student of Gamgee's.

Dr. Strangeways, professor of anatomy in Clyde Street College, deponed—That when Mr. Gamgee was lecturing under Professor Dick he attended his lectures. When he was told of Mr. M'Bride's appointment he informed Mr. Williams and Mr. Macgregor, the agent, that Mr. M'Bride was a pupil of Gamgee, and he did so because he thought he was ineligible, in consequence of the statement in Professor Dick's will. Mr. M'Bride attended the council meetings, and he received him as a member of council. After the meeting of council held to consider the causes of the disturbances, an examination was prosecuted, six students being selected on each side, and being examined before the council. Afterwards Mr. Williams or Dr. Dalzell proposed to write a friendly letter to Mr. M'Bride. The letter was written, but the witness declined to sign the letter because he wished to remain passive in the position in which he was placed. It was agreed that Mr. Williams should sign the letter in behalf of the council. Dr. Dalzell and Mr. Williams wished to sign the letter, and witness did not wish to sign the letter. He wished the letter to be sent, but a feeling of delicacy induced him not to sign it. He would much rather that the letter should not have been sent, and he did not authorise it to be sent. He saw nothing improper in the letter. He did not care whether Mr. M'Bride should be dismissed or not.

By the Lord Advocate—Mr. Williams never expressed a desire to witness that Mr. M'Bride should retire. He tacitly agreed to the

proposal that the letter should be signed by the Principal in name of the council. From what passed the Principal and Dr. Dalzell were entitled to assume that the witness did not disagree with the proposal that the letter should be signed by the Principal in name of the council. He considered it was proper that Mr. M'Bride should be made aware of the opinion of the council, that Mr. M'Bride would have consulted his own dignity by retiring, and that the disturbances damaged the college. He had no idea in the world that Mr. Williams was fomenting the disturbances, and thought that he did all he could for Mr. M'Bride.

Re-examined—From what he heard, he thought that Mr. Williams had done what he could to cause the disturbances to cease. He was of opinion that, so far as regards order, Mr. M'Bride was incapable of discharging the duties of the chair.

By the Lord President—I think that ultimately, at the meeting of council, I said that the letter would do no harm if it did no good.

Catherine Smith said she was in the service of Mr. Williams from July, 1867, to April, 1868. Mr. Williams very often had the students attending the college in his house. The students generally came between eight and nine o'clock, and sometimes sat very late drinking and smoking. Professor Dalzell was always there. She sometimes heard the students and the professors speak together about Mr. M'Bride. They were always speaking against him. Once she said to Principal Williams—"Why did the students speak against M'Bride—what had he done?" and he called him some name, which she could not recollect. About the time the petition was presented, Mr. M'Bride was the subject of conversation at these meetings and for weeks before. The students who came were almost always English or Irish. No students who spoke of Mr. M'Bride in a friendly way came to the house at night. After Mr. M'Bride first came, Mr. Williams spoke of him in terms of praise. She understood from what she heard said, that for weeks before the petition appeared, the Principal, Dr. Dalzell, and the students, wanted Mr. M'Bride away.

By the Lord Advocate—The meetings in the Principal's house did not begin before the New Year's Day, but there was a party on that day. The parties began to be held about two months before witness left in April. Dr. Dalzell was in the habit of coming to the house every night with the students in March. The parties of students generally consisted of twos or threes.

The Court adjourned at six o'clock.

Tuesday, December 29th.

This trial was resumed at ten o'clock this morning, when the evidence for the pursuer was proceeded with.

David Hislop, seaman, Leith, deponed—I remember the New Year of 1868. I got my finger taken off then. I was frequently

in Edinburgh. I knew Catherine Smith, servant to Mr. Williams, and called upon her twice every fortnight during the months of January, February, and March. I heard noises in the house, as though there was company. I smelt tobacco smoke. I passed the remark that it was like a ship's forecastle.

John Whitewright, before examined, deponed—I was often about the premises of the college at night. I have seen Cates go up to the Principal's house over and over again, and many others.

By Mr. Rettie—I tried to pass my examinaton in 1867, but failed. I do not know in which class I was rejected. Principal Williams was one of the examiners, but I never thought he had anything to do with my not passing.

William Anderson, veterinary surgeon, Glasgow, deponed—I recommended Mr. M'Bride to Mr. Williams in July, 1867. Mr. Williams said he was afraid that Professor Strangeways was going to leave, and I suggested he should take Mr. M'Bride. Mr. Williams said he would not do, because he had been a student of Professor Gamgee's.

William Fordie, veterinary surgeon, Glasgow, deponed—I am lecturer of anatomy and physiology in the University of Glasgow, I became acquainted with Mr. M'Bride at Mr. Gamgee's classes. He was a very good student. I was about six months in Edinburgh during the past year, and lived with Mr. M'Bride. I have given him assistance in arranging the subject of his lectures—particularly his references.

F. N. Menzies, secretary of the Highland Society, deponed to the appointment of Mr. M'Bride, and to receiving the letter on which the case was founded, from Professor Williams.

Alexander Robertson, veterinary surgeon, deponed—I gave Mr. M'Bride a testimonial. Shortly after the New Year I spoke to Mr. Williams about him, and he said that he was not getting on with Mr. M'Bride as well as he would like. He said he thought M'Bride had something to do in bringing Mr. Fordie to Edinburgh, and setting up a class outside the college. Mr. M'Bride said he had nothing whatever to do with the class.

By the Lord Advocate—I went and told Mr. Williams that, and he said if Mr. M'Bride would declare that to him, they might be as friendly as ever. I understood afterwards that the disagreement had been made up.

Mr. M'Bride recalled, deponed—I had a communication with Mr. Williams about Mr. Fordie at the end of December. I told him that Mr. Fordie did not live with me. He said he was very glad to hear of it. Mr. Fordie was preparing students for examination. Mr. Williams did not behave differently to me after that explanation.

This concluded the case for the pursuer.

Mr. Rettie opened the case for the defenders, holding that in the circumstances they took the only proper step, and arguing that there was no malice against the pursuer.

The first witness examined was

Professor Williams, who deponed—The chair of cattle pathology was established at my suggestion. I was consulted by the Highland Society as to who should be appointed. I recommended Mr. M'Bride to the chair. I knew that he had been a pupil of Professor Gamgee's. I had also read Professor Dick's will. I thought the clause in the will referring to Professor Gamgee's pupils only had to do with the principalship. Some time after the council considered the will, and resolved to pass over Mr. M'Bride. It was intimated to me that the Town Council could not recognise Mr. M'Bride. Mr. M'Bride was inducted by the Highland Society. I heard that Mr. Fordie was living with Mr. M'Bride, and that he was getting up a grinding class for Mr. Fordie. I spoke to Mr. M'Bride about it. He said that Mr. Fordie was a very clever man, and that if he got a grinding class it would be beneficial to the students. I told him that he must not have anything to do with Mr. Fordie's class. Mr. Robinson, of Greenock, told me afterwards that Mr. M'Bride had nothing to do with Mr. Fordie, and I accepted the explanation. I had not individually any interest in this matter, it was only as Principal of the College. I had no other cause of disagreement with Mr. M'Bride. The disturbance in his class first came to my ears in the second week of January. I had returned from a journey when I heard a great noise. I went into the house and took off my topcoat, and when I came into the yard all the class was there, with Mr. M'Bride speaking in an excited manner. I asked what was wrong. He said the disturbance had commenced the previous night. I said why did he not report to me in the morning. He said he thought the thing would blow over. He made no charge against any particular person. Next morning I spoke to the students, saying that I was surprised to hear of the disturbance; that Mr. M'Bride was a good lecturer, and that I hoped there would be no more of it. Mr. M'Bride thanked me. The disturbance continued. The students came to me complaining of the lectures. They said Mr. M'Bride had been delivering lectures upon the "tail ill," and about choosing a wife. (Laughter.) I told the students they must behave like gentlemen. I believe the dissension in the class was caused by Mr. M'Bride not keeping his place as a teacher, but being too much of a student. In March I was called to Mr. M'Bride's class-room, who told me that the students had been making a disturbance. I spoke to them and left the room. I was again summoned. I sat down in the room and asked Mr. M'Bride to go on with his lecture. The noise, however, continued as bad as ever. I tried to find out the guilty parties but failed. I told Mr. M'Bride to stop his lecture, and he left the room. I never said anything disparaging about Mr. M'Bride. I called the students together next day and made an inquiry. Some said the lectures were bosh, and others said they were good. Six students were chosen from either side to be examined before the council. The following day there was an inquiry. I came to the opinion that Mr. M'Bride was incapable of preserving order in his class. I thought his being a Gamgeeite had a good deal to do with

it, and the knowledge that the Town Council had refused to acknowledge him. I told Mr. M'Bride privately, that if it had been me, I would have consulted my own dignity and retired. Many of the junior students told me that they would not come back to the college if he was retained. At a meeting of the college we came to the conclusion to send a letter to Mr. M'Bride and the Highland Society. I think the disturbances in Dr. Young's class are not directed against the teacher, but merely fun amongst the students. I was perfectly aware that he would be discharged. There was a great row during Mr. M'Bride's last lecture. I was from home, and when I came home I found the room in a state of shipwreck. I never instigated or encouraged these disturbances; on the contrary, I did my best to put them down. I heard the evidence yesterday of the girl who had been my servant, and there is no truth whatever in these statements, except that I had two parties. I had a party with the students on my birthday, and one other. On one or two occasions, when students had been out with me at night seeing cases, I might ask them to have some refreshment with me, but they never sat down with me to smoke. That might be on one or two occasions. There is no truth in the statement made by the girl about students being with me every night. I do not think that between April and October Mr. Cates was in my house. I never allowed any students to miscall Mr. M'Bride. That I did so is an absolute falsehood. I never asked the students to sign the petition against Mr. M'Bride. I never heard the girl's story till yesterday. Dr. Dalzell never sat with a student in my house in his life. (Applause.) It is an absolute falsehood on the part of the girl.

By the Solicitor-General—I never knew anything of the petition until it was presented to me. It did not lie in the office for signature at any time. It was said that Mr. M'Bride was keeping Mr. Fordie, and that he was to share the profits of a grinding class which he was preparing to get up. He had introduced Mr. Fordie to the students. It is a proper thing for the students to employ a grinder. I told Mr. M'Bride that there was no impropriety in grinding, but that he must have nothing to do with Mr. Fordie. I can't say whether Mr. Fordie was living with Mr. M'Bride. Although I had been told by Mr. M'Bride that he was not sharing the grinder's fees, I was still under the impression that he was. The students, so far as I was concerned, behaved admirably. If he did not resign, it was my desire that he should be dismissed. There were some of the students behaving well, but the majority were behaving ill. I think the class was equally divided between the noisy and the well behaved. Upon the two occasions on which I visited the class-room, I could not name the parties who were creating the disturbance. I had no power to punish the students. We did not fine any. Acting upon the advice of the law agent, we did not punish by fine the eight or nine students whose names were given by Mr. M'Bride. I do not think there was anything to justify the conduct of the students. I blame Mr. M'Bride for not bringing

the conduct of the students before the college council. When he did bring it before us we did nothing. The students selected on either side agreed that Mr. M'Bride could not keep his class in order. Those students who are in practice are brought more into contact with me, but they are not more frequently at my house of an evening. Some of the students who were mentioned by Mr. M'Bride attend practice. The statement that a set of students were more intimate with me than others is untrue, as also the statement that they were seen going to my house. It is true that students were only in my house once convivially. My servant never spoke to me about the ill-feeling to Mr. M'Bride. It is a mere lively imagination on her part. Dr. Dalzell was frequently with me on an evening, but never with students. The girl must have been very dull to have mistaken any party I had for a meeting of students. Dr. Dalzell wrote the letter at a meeting of council.

By the Lord Advocate—If Mr. M'Bride could have kept order in his class I had no desire that he should leave the college. The servant's statement is in all respects utterly false.

Dr. Dalzell deponed—There is no foundation to the statement that I have malice against Mr. M'Bride. I do not think I have spoken to him more than twenty times. I heard the talk about him having some interest in the grinder, Mr. Fordie. So far as I am concerned there is not one word of truth in the servant girl's statement. I never sat in Mr. Williams' house and drank or smoked with students. During the session of the disturbances I was very frequently with Mr. Williams in his house, but never saw students there for convivial purposes. The girl must have been mad. I would have done anything to befriend Mr. M'Bride. I made a record of the inquiry into the disturbances, but have not been able to find it.

By the Solicitor-General—I never heard of such a thing as a professor sharing in grinder's fees. You are of opinion that Catherine Smith was mad?—I took the most charitable view of the case. She says that you spoke thick?—I hope I do not do so now. But it was later on in the evening? (Laughter.) To my recollection I never was from home after eleven o'clock. I never spoke to the Principal about entertaining students. It is not true that I was there every night, nor anything approaching that. I never saw students there for convivial purposes of any kind. I account for Mr. M'Bride not being able to keep order in his class by too much freedom having been allowed at first, and not able to keep his position afterwards. It was my opinion that he was not fit for the place, and should be dismissed.

The Lord Advocate—If Mr. M'Bride had remained in the college for another season, what would the effect on the college have been? Witness—Shut up. (Laughter.)

William Capes, veterinary student, deponed—I went along with three other students on one occasion to Principal Williams' house. It was on a Sunday afternoon. I also was there on his birthday. I was there on another occasion—namely, after the Principal's mar-

riage. I never heard of students going to drink and smoke with the Principal. I was never asked by the Principal to get up a petition against Mr. M'Bride.

By the Solicitor-General—I never saw the petition lie in the office for signature. I was at the Principal's house every time I was required on business. I lived next door to the college. There were more than a dozen in the class ill behaved.

By the Lord Advocate—The rows were caused by the students being dissatisfied with the subjects Mr. M'Bride lectured upon, and also that he ground students.

John Fawthrop, veterinary student, deponed—The only time ever I was in the Principal's house drinking and smoking was on his birthday.

By the Solicitor-General—I never saw Dr. Dalzell in the house in my life. I was one of those who stamped with their feet. I did not think Mr. M'Bride's lectures were learned enough. He lectured about that absurd disease—"tail ill." I had never heard of it before. I went there to learn. There was no other reason for the disturbance.

Samuel Pallen, student, deponed—I was one of the petitioners against Mr. M'Bride. I was never in the habit of going to the Principal's at night to drink and smoke.

By the Solicitor-General—I do not know whether I was pleasing the Principal in making a noise. I did it for my own benefit. (Laughter.)

Philip Deighton, student, deponed—I signed both the petitions. (Laughter.) I was never in the Principal's house smoking or drinking.

By the Solicitor-General—I attended Dr. Young's class as well as Mr. M'Bride's class. Some of the persons made a noise in Dr. Young's class who made a noise in Mr. M'Bride's class. The petition against Mr. M'Bride was presented to me first. I signed it because the others did. I asked Capes to take my name off next morning.

Henry M'Grath deponed—I never had the pleasure of being at the Principal's house in my life.

Charles Cartwright, student, gave corroborative evidence.

Charles Craig, groom, deponed—I knew the last servant at the Principal's house whom they used to call "Daft Kate" and "Holy Kate." (Laughter.) She used to behave in a very curious manner. If she was carrying glasses, and took a fit of laughing, she used to fall on the ground, and broke the glasses. (Laughter.)

By the Solicitor-General—She used to preach and then swear, she and I being the congregation. (Laughter.) She sometimes preached in the stable, and sometimes in the yard. (Laughter.) I was visited by the agent for the pursuer, who asked me what I knew. I would not tell him.

By the Lord Advocate—I never knew the students smoking or drinking with the Principal.

Malcolm M'Gregor deponed—I am agent for the trustees of

Professor Dick's trust-deed. Professor Williams consulted me whether Mr. M'Bride, being a student of Professor Gamgee's, was qualified for the chair. I gave it as my opinion that he was not qualified.

The examination of Baillie Fyfe closed the evidence.

The Solicitor-General then addressed the Court for the pursuer. After referring to Mr. M'Bride's appointment, and the disturbances in his class, he said there must have been some other reason than that the lectures were not good to cause the disturbances. Mr. M'Bride said it was very manifest that the same set of students did it continually. This had been abundantly confirmed by evidence. And it was very odd that it should have got so much into men's minds that there was a remarkable coincidence in the noisy set in Mr. M'Bride's class and in the Principal's favourite students—those who attended most at his house. It did strike men, and it had been spoken of, and they had not got any explanation of how this set became to be noisy in the class; but they had undoubtedly this remarkable fact, that when Mr. M'Bride pointed them out, named them, and called for an examination with the view to the proper steps being taken to their punishment by the only authority having any power in the matter, that authority had made an investigation, had come to the conclusion that these men were guilty, and had been guilty of a misdemeanour of the gravest kind, such as Mr. Williams said he had never seen in the class-room, yet they had not even been reprimanded. He was not going to make observations on the contradictory evidence in regard to the Principal's friendship to a set of students. In regard to the evidence of the servant girl, he was in a position to state that her evidence had only been sought for within the last few days. She had been brought there, and they had seen the way in which she had given her evidence. She did not appear to him to be pert, forward, or overzealous in the slightest degree. She did not appear to him to be inventing a story in order to do injury to a former master. They had seen how she had stood the cross-examination which the Lord Advocate very properly had subjected her to. He hoped the evidence would be thoroughly sifted, for it was impossible that there could be doubt in regard to plain matter of fact, and to find which of the parties were perjured. In regard to Principal Williams' evidence that he could not recognise the rioters, he thought it showed that he had no desire to do so. He held that the letter had not been written after a careful and impartial examination, but had sprung from feelings regarding Mr. M'Bride which would be gratified by his removal—feelings which were to be gratified without reference to the grievous blow which the gratification of them would inflict upon the pursuer.

The Court then adjourned till Wednesday morning at ten o'clock.

WEDNESDAY, DECEMBER 30TH.

This case, begun on Monday, was continued to-day.

The Lord Advocate addressed the jury on behalf of the defenders. At the outset of his speech he directed the attention of the jury to the nature of the evidence which had been led for the pursuer, remarking that the pursuer, without any previous notice, had raked up what he could to prove malice against the defenders, and maintaining that there was not the slightest foundation for what had been attempted to be proved. He quoted from the regulations for the management of the college in order to show that the council was charged with the regulation of the educational details of the college; and alluded to the circumstance that, notwithstanding the charge of malice attempted to be proved against him, Principal Williams had recommended Mr. M'Bride to the Highland Society for the chair of cattle pathology, although he knew he was a Gamgeeite. He submitted that all the circumstances established by the evidence showed that it was the wildest delusion to suppose that Principal Williams or Dr. Dalzell had been actuated by malice towards Mr. M'Bride, or had prompted the disturbances in the pursuer's class; and contended that Mr. M'Bride, although he might have been a good lecturer, had not succeeded at the first in obtaining the confidence and respect of his pupils. That had been the case with many a good and able man before; many an able man had failed as a teacher, not because he was not perfectly qualified to teach, but because he had not succeeded in gaining a personal influence over his students. He referred to the refusal on the part of the Town Council to induct Mr. M'Bride, or to print his name in the summer programme of the studies, as circumstances which might have occasioned the demonstrations by the students adverse to Mr. M'Bride. Adverting to the circumstances under which the letter on which was founded the action against the defenders was written, he remarked that the credit of the institution was in danger in consequence of the disturbance, and that nobody could doubt that at the time those disturbances had occurred, and when twenty-eight of the students had signed a petition in which they had expressed an opinion that Mr. M'Bride daily showed his incompetency to teach his class, a proceeding on their part in the highest degree indecorous, Mr. M'Bride had lost the confidence and respect of his students. He argued that it was the resolution of the Town Council, suggesting to the Highland Society the propriety of electing some professor in room of Mr. M'Bride, solely on the ground that he was a Gamgeeite, and not the letter written by Principal Williams in name of the Veterinary College Council, unanimously agreed to, which had caused Mr. M'Bride's dismissal; and proceeded to combat the various allegations stated by the other side to prove malice on the part of the defenders against the pursuer. He severely criticised the evidence of Catherine Smith, remarking that her story was wholly uncorroborated, affirming that her story was utterly false,

and that it had been proved to be false by the girl's own lips; and observing that he had never seen such an exhibition in his life as when the girl was being cross-examined in the witness-box. He said that a more shameful attempt to malign the character of two respectable men had never been made in a court of justice.

The Lord President, in summing up, said that the case had been very elaborately laid before them from both sides of the bar, and it was not surprising that it should be so, for it was a case involving character in the greatest sense of the word. He would endeavour to discharge the duty which devolved upon him as shortly as possible, and explain to them what was the question that they were to try, because the question was not precisely the same as was put in the issue. The case, they would observe, was a claim of damages for defamation, said to be contained in a letter which was before them, and he would commence his observations by calling their attention somewhat particularly to the statements contained in that letter. They knew enough of the circumstances in which it had been written to make the letter now perfectly intelligible, and it was quite necessary that they should so far analyse it as to be quite clear as to the statements it contained. Mr. Williams, in the name of Dr. Dalzell and Dr. Strangeways, had thus addressed the pursuer: —"Dear Sir,—We have done all in our power, by careful inquiry impartially conducted, to arrive at the cause of the unseemly occurrences which have taken place in your class, one of them no later than Wednesday last. We have no desire to hurt your feelings, much less to urge against you any wilful omission of duty, but we feel satisfied that you have failed to preserve that order in your class which is necessary for teaching it; and we need scarcely remind you that the occurrences we allude to, though happening only during your lectures, have a very bad effect on the general credit of this college." Now, they saw that the statement here was that these gentlemen, constituting the council of the institution, had made inquiry into the cause of the disturbances in the pursuer's class, and had come to the conclusion that he had failed to preserve that order which was necessary for teaching the class, and, what was of more consequence, that they must have a very bad effect on the general credit of the college. Now, so far, that appeared to him to be a mild and moderate statement, provided always that it was a fair representation of the result of the inquiry. They went on further to say—"We are sorry that your position, in terms of the will of the late Professor Dick, makes it impossible for us to recognise you as a professor of the college, and receive you as a member of its deliberative council; but this ought to have made you all the more anxious to call in our assistance in checking the first outbreaks of insubordination. Instead of reporting to us, you have allowed matters to go on, threatening the unruly, without carrying your threats into execution. We are certain that this college will suffer if you continue in your present position; and with sincere regret we are compelled to suggest to you the propriety of relinquishing a position which seems to us not accordant to the will of the founder

of this institution; and, taken in connection with what has occurred in your class, is, in our estimation, a position which you may not creditably to yourself continue to hold. We consider it our duty to forward a copy of this letter to Mr. Fletcher Menzies." Now, this second part of the letter contained something additional to what was contained in the first part. It imputed blame to Mr. M'Bride, the pursuer, in not having called in the aid of the council at an earlier period to check the disturbances, and it blamed him farther for merely threatening the unruly students in his class without carrying these threats into execution. That was the whole of the letter. They would, in the next place, turn to the issue. The first question was—"Whether, between 4th and 18th March, 1868, both inclusive, the letter in the schedule annexed was written and sent by the defenders to the pursuer, and whether a copy thereof was sent by the defenders to Mr. Fletcher Norton Menzies, secretary of the Highland and Agricultural Society?" Now, about that there could be no doubt. But the most important part was—"Whether the defenders by the said letter did falsely and calumniously represent to the secretary and directors of the said Highland and Agricultural Society, or to the said secretary or directors, that the pursuer was incapable of discharging the duties of the said chair of cattle pathology in a proper and efficient manner, and that such was the unanimous opinion of the members of the Edinburgh Veterinary College Council—to the loss, injury, and damage of the pursuer?" Now, the first question was whether in that letter the writers represented the pursuer as incapable of discharging the duties of the said chair in a proper and efficient manner? The Lord Advocate said that that was not the true expression of the letter; that they did not charge any incapacity against the pursuer, but merely that from circumstances they alleged that he had failed to preserve that order in the class which was necessary for teaching. It was a question for the jury whether the interpretation of the letter was fairly put in the issue. It appeared to him that the distinction between the one statement and the other was not very material, if there was nothing else in the case; because it was charged against a man that he had failed to preserve order in the class, and therefore could not teach the class, that amounted to incapacity in regard to that particular class. That was what was said in the letter. Then the next matter to consider in this part of the issue was whether this was, as the letter says, the unanimous opinion of the Veterinary College Council. There could be no doubt that the letter said that, and therefore it rather appeared to him that the letter generally represented that the pursuer was incapable of discharging the duties of the chair, and that that was the uanimous opinion of the College Council. Now, if that was so, then in any ordinary case of defamation that would be enough to establish the pursuer's issue; but he must explain to the jury what he meant by an ordinary case of defamation. A person who used defamatory expressions against any other, in writing or verbally, could stand in two positions. In the one case there was no occasion

of speaking of the person slandered at all, and that was what he called an ordinary case of defamation; secondly, a person was called upon to speak of another, and in regard to the matter which was called slander, in the discharge of a duty. In the first of these cases, where a man was not called upon to speak of another at all, the law always presumed that if he uttered slanderous words he did so from an improper motive, and that was a very fair result of the law, because no man was entitled morally, and just as little legally, to say illegal and slanderous things of his neighbour, even although they might be true, when he was not called upon to speak of him. And if this was an ordinary case of slander they would be right in finding for the pursuer. But he was bound to tell them, in the next place, as matter of law, that this case belonged not to that ordinary class of cases of slander, but to the second class, which were called privileged cases: because Mr. Williams, the principal of this institution, and the other two gentlemen, Dr. Dalzell and Dr. Strangeways, were called upon to investigate the matter of the disturbances. It was quite plain that they would not have been doing their duty to the institution which was under their management unless they had made an investigation, which they did, and acted upon the conscientious opinions which they had formed as to the result of that investigation. If the defenders believed that the pursuer was incapable of efficiently teaching that class from want of order, they were called upon to take action, and they were not only entitled, but it was a matter of duty, to make known to those with whom the pursuer's appointment rested that such was the insubordination in the class that it could not be taught by him. The jury would see at once that it was not merely a matter of presumption that because the words were slanderous that they had been used from a malicious motive on the part of the defenders. On the contrary, it must be established against them as matter-of-fact. In other words, the pursuer must show not only that the letter was sent as alleged and contained the meaning alleged, but that all that was done maliciously by the defenders against the pursuer. It was very true that in cases of that kind it was always possible to prove maliciousness of a man's mind by expressions or actions importing ill will against the pursuer, and they were quite entitled to gather from the whole circumstances of the case whether there was malice at the bottom of the proceedings. On the other hand, while they were entitled to look into the whole circumstances and history of the case for the purpose of arriving at that conclusion, they must still be satisfied in their own mind as matter of substantial fact of the existence of that malicious motive. The real question, and the only question of importance there, was whether the defenders had been actuated by malice in writing and sending that letter. They had not disguised in the least degree that the object which they had in view was to induce the pursuer to resign his lectureship. They considered that to be indispensable for the wellbeing of the college, and they had not disguised, further, that if he could not be induced to resign, their desire was that he should be deprived of it by those

who had that power. That this was not a malicious motive he need hardly tell them, because if they thought that his being removed from that office was for the wellbeing of the college, it was a matter of duty on their part to endeavour to prove that object. The pursuer had said he could not account for the disturbances, unless the principal was at the bottom of them, by urging certain of the students to create the disturbances for the purpose of making his seat too hot to hold him. That was a very strong suggestion. But, apart from that, was there no other cause for these disturbances? There was one witness whose evidence had made a great impression upon him—a witness for the pursuer: apparently a very intelligent and candid young man, of the name of Jerrard, and he wished to read to them his evidence. His Lordship then read the evidence of Jerrard, in which he stated that he considered the disturbances to have been caused by Mr. M'Bride being too familiar with the students. His Lordship then said he thought that was a very good reason, but it would be for the jury to consider the cause of the disturbances as most consistent with the evidence. After dwelling at some length on the relations between the pursuer and the defenders, his Lordship said the next great point by the pursuer against the defenders was the matter of malice on their part, in having falsely represented this letter to be the unanimous opinion of the entire college, consisting of three, the two defenders and Dr. Strangeways: whereas the pursuer said that Dr. Strangeways was not of that mind at all, and gave no authority to any person to represent him as agreeing to this letter. His Lordship then referred to Dr. Strangeways' evidence in regard to the letter, and said it was not surprising that the defenders should have drawn the inference that Dr. Strangeways agreed to it. The only other matter for consideration was the evidence which had been brought for the purpose of showing malice, and that Principal Williams was the grand author of the disturbance in Mr. M'Bride's class. This was a most grave charge, and one which required their most serious consideration, because if it was established, nothing could be more ruinous to the character of Mr. Williams. On the other hand, if they held it to be false, they could hardly do so without imputing perjury to at least one witness. The improbability of such a charge was an element of some force. They would consider whether Mr. Williams' interest as well as his feelings were not likely to be very much wound up and engaged in the prosperity of this institution, of which he was the head, and whether he was likely to have prompted such disgraceful disturbances in the institution, which must bring the greatest disgrace upon it, and lead to its utter ruin and destruction. But still it was a question of fact in the evidence. Now, he need hardly tell them that this charge depended entirely upon the evidence of the girl Catherine Smith. He did not mean to say that there was not enough in the circumstances of the case, taken in connection with her evidence, to entitle them to arrive at that conclusion if they implicitly believed in her evidence. It had been said by the pursuer's counsel that this evidence had been corroborated, and for

that corroboration he had appealed to the testimony of those students who had been examined by him; and who, he said, proved that there was a very intimate alliance between the principal and a certain body of the students. After referring to that evidence, his Lordship said that, on the other hand, they had had, in the first place, the evidence of the two defenders, the principal himself, and his colleague, Dr. Dalzell; and he thought in a matter of this kind they were bound to take very specially into consideration not only the substance of the evidence given by those gentlemen, but their manner. He was not going to form any opinion on that case; that was a matter entirely for the jury, but he spoke of it as one of the great advantages which the jury had, especially in a case of this kind, where there were falsehoods set up on one side or another. It was of the greatest importance that they should see the witnesses, and from their own judgment from everything they saw or heard, both from the girl and the two defenders, and see whether the girl or the defenders were most worthy of their credit. He had called their attention to the evidence which seemed to corroborate the evidence of the girl, and he had only to add that there were four or five students called, the very men who were said to have been present at these drinking parties—Capes, and all the rest of the unruly students—who said they had never been smoking or drinking there in their lives, except upon three specified occasions, not one of which answered the description of the girl Catherine Smith. Now, it had struck him as rather remarkable that these young men had been allowed to leave the box without cross-examination on this point. Where it was the intention of a party to challenge the truthfulness of a witness, he was bound to cross-examine the witness on the very matter on which he was going to challenge, so as to give the witness a chance of defending himself. In conclusion, let him remind them in a single word what was the question they were going to try. He had already explained to them that this case was what was called a privilege case, and, therefore, they could not find for the pursuer under this issue unless they were satisfied that this letter did falsely and calumniously represent what was set forth in the issue, and that it was concocted by the two defenders from a malicious motive, and not as members of the council of this college. But, on the other hand, if they were satisfied from a consideration of the whole circumstances that those two defenders in writing and forwarding this letter were not acting *bona fide* in the discharge of their duty, but acting from a motive of malice and ill-will against the pursuer, then they were entitled to find for the pursuer, with such damages as they saw fit.

The jury retired about one o'clock, and after an absence of three hours, by a majority of ten to three, returned a verdict for the pursuer, and awarded £500 damages.—*The Edinburgh Evening Courant.*

MISCELLANEA.

PROPOSED GOVERNMENT DEPARTMENT OF AGRICULTURE.

We observe, in the 'Chamber of Agriculture Journal,' now published weekly, an announcement to the effect that a deputation of members of the Chambers will wait on the President of the Board of Trade, on Wednesday, Feb. 3 (or Thursday, Feb. 4), to urge the desirability of a separate Government Department for Agriculture.

ANNUAL MEETING OF THE MIDLAND AND AGRICULTURAL SOCIETY—SCOTCH CHARTER.

"Veterinary Committee."—Mr. Gillon, Wallhouse, Convener of the Veterinary Committee, said that he had little to report. He referred to an attempt, which, however, had failed, to obtain a Royal Charter for Scotland; but although they had hitherto been baffled they did not mean to give up the contest, as a Royal Charter must be got for Scotland. With regard to the Veterinary College, he had only to say that it was in a flourishing condition, under the able direction of Principal Williams, and those labouring under and with him. The report was adopted.—*North British Agriculturist.*

IMPORTATION OF STOCK FROM IRELAND.

By returns recently issued we learn that there were 173,041 head of cattle exported last year from Dublin, which, as compared with 182,924 in 1867, and 191,861 in 1866, shows a considerable falling off. The number of pigs exported last year was also much under the exports of previous years; the number exported in 1868 being 93,767; in 1867, 147,665; and in 1866, 210,268. In the case of sheep and lambs, however, the exports last year were much over the exports during either of the two previous years. Thus, last year, the numbers were—283,541; in 1867, 222,557; and in 1866, 166,397.—*The Chamber of Agriculture.*

ARMY APPOINTMENTS.

10th Hussars.—Veterinary Surgeon W. Appleton, from the Military Train, to be Veterinary Surgeon, *vice* H. Withers, who retires upon half-pay.

OBITUARY.

We have to record the death of Mr. J. Grover, a retired and highly respected member of the profession, who resided at Lewes. Mr. Grover's diploma bears date Jan. 27th, 1815. He died on Christmas day, in the seventy-fifth year of his age.

THE

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Communications and Cases.

REMARKS ON THE ALLEGED DEATH OF SEVENTEEN COWS AND TWO HORSES THROUGH DRINKING BAD WATER.

By Professor Tuson, Royal Veterinary College.

Continued from p. 81.

Before proceeding to criticise Dr. Truman's analyses of the Colwick waters published in last month's *Veterinarian*, it will be desirable, if not necessary, to make a few remarks explanatory of the terms employed by that gentleman and by chemists in drawing up reports on water analyses.

By "total solids" is meant the entire weight of organic and mineral substances which is left upon evaporating a known weight or bulk of water to complete dryness at a temperature of 212° Fahr., and subsequently heating the residue to 260° Fahr. until it ceases to lose weight. After being weighed, this mixed organic and mineral residue is heated to low redness to expel organic matter, moistened with carbonic acid water and weighed again. In this manner the amount of mineral matter is estimated; the product obtained by deducting the weight of mineral matter thus arrived at from that of the total solids shows the quantity of organic matter.

"Hard" waters are those which *curdle* soap, owing to the lime and magnesia salts which they contain; soft waters contain no, or very small quantities of, lime or magnesia compounds, and do not curdle, but readily produce a *lather* with soap. The amount or "degree of hardness" of a water is pro-

portional to the quantity of the above-named compounds contained in it; and when we state that a water has such and such a "degree of hardness," we mean that the total amount of lime, magnesia, and other "hardening" salts existing in it, is chemically equivalent to so many grains of chalk in a gallon of the water. For example, a water of 10° of hardness is one containing an amount of lime and magnesia salts of different kinds equal in its power of decomposing and curdling soap to 10 grains of chalk in a gallon of water. This explanation is not rigidly correct, but is sufficiently accurate for most practical purposes.

If the reader will now refer to page 79, he will find it there stated that in the "dike water" the total solids amounted to 12·6 grains per gallon, and that the total hardness was 30°. Certainly these statements are irreconcilable, for they mean, if they mean anything at all, that *out of* 12·6 grains of solid matter of *every kind*, there were 30 grains of chalk, or their chemical equivalent of earthly salts. It need scarcely be remarked that one of these results must have been impossible, and that if the estimation of the total solids was correct, that of the hardness must have been incorrect, and *vice versâ*.

Dr. Truman next refers to the general difference in condition of combination of the earthy salts by stating that the permanent hardness of the dike water was 30°, or the same as the total hardness; nevertheless, he informs us that after precipitation with lime the degree of hardness was 24°. This latter, assuming such results to have been actually obtained, I, and I believe all other chemists, would have called the degree of permanent hardness, *i.e.*, that hardness which cannot be removed by lime or boiling, and which is due to the presence, not of the carbonates, but to the sulphates, nitrates, and other salts of lime and magnesia.

The difficulty of interpreting this analysis is furthermore increased by another and unintelligible statement, to the effect that, after precipitation with lime and boiling, the degree of hardness was 22·5.

We now come to the chlorine in the dike water, which, Dr. Truman reports, amounted to 1·367 grains per gallon. If this be so, how comes it, assuming, as the Doctor evidently does, that it existed entirely as chloride of sodium, that there were only 1·759 grains of this salt in a gallon of the water, instead of 2·25 grains, which is the quantity equivalent to 1·367 grains of chlorine?

On looking over a detailed account of the constituents of the 12·5 of total solids (12·6 was the number first given), it

will be noticed that, while the lime and sodium are indicated as having been in the form of salts (sulphate and chloride), it appears that the magnesia was in the free or uncombined state. It need only be remarked that magnesia cannot exist naturally uncombined, on account, among other reasons, of the strong affinity which it possesses for the carbonic acid so universally and so abundantly met with in the atmosphere and all kinds of natural water. Such being the case, Dr. Truman's mode of accounting for the 12·5 (or 12·6) grains of total solids requires explanation.

Such are the more striking peculiarities of the published results of Dr. Truman's analysis of the dike water; that they are not confined to this particular sample can be shown by reference to the analyses of the other two samples.

Thus, we are told that the water from the "stagnant pond" contained 22·4 grains of solid matters per gallon, and yet that its total hardness was 41°, and that the chlorine existed, not as chloride of sodium, as it did in the dike water, but as chloride of calcium. It would be interesting to be informed of the grounds upon which this distinction was drawn. The magnesia in this, as in the dike water, is represented as being uncombined. According to Dr. Truman, the "Trent water" contained exactly 20 grains of solid substances, and the hardness amounted to 46°. The error of representing the degrees of hardness as exceeding the number of grains of entire solid matters will, therefore, be seen to exist in each of the three analyses. Magnesia is again stated to have been free, and the chlorine to have existed as chloride of calcium.

Having commented upon the leading errors of Dr. Truman's report, I shall now direct attention to the results of my own analyses of the same waters.

(*To be continued.*)

NUMEROUS CALCULI IN THE BLADDER OF A DOG FOURTEEN MONTHS OLD, PRODUCING DISTENSION AND CONGESTION OF THE ORGAN AND DEATH.

By Messrs. Gowing & Son, M.R.C.V.S.

On Friday, February the 12th, 1869, we were requested to visit a beautiful specimen of the King Charles breed, fourteen months old, which was reported to be unwell. The owner supposed him to be labouring under an impacted condition of the bowels; and as a domestic remedy, he had administered a small dose of castor oil, but this not having the desired effect, and the dog becoming worse and indicating much prostration of strength, the owner applied to us; upon inquiry into the case we found that the dog had not passed any fæces for a day or two, neither had he urinated, although he had made frequent attempts. The first time he was observed to have any difficulty in urinating, was about ten days previous to the application to us, when he passed from the bladder a considerable quantity of dark-coloured fluid. After that he made frequent attempts, and was not able to pass any more. On Friday night, February 12th, the dog was in excessive pain, so much so that the owner had to walk the room with him to tranquilise him. It appears that the dog could not rest, but was constantly crying out and moaning.

The animal had been, we learned, fed upon luncheon biscuits, with such meat as they partook of in the house; occasionally also he had a little liver and horse-flesh. He was frequently allowed a bone to play with, but never broke them up or ate them.

Upon examination, the bladder was found much distended, so much so as to cause a bulging out of the perinæum.

Treatment.—A mild purgative was administered, and stimulants were ordered to be given at intervals, gentle pressure was applied to the bladder by compressing on either side the walls of the abdominal cavity but without producing the effect of emptying the viscus. An injection was also given, consisting of oil with soap and water; and the pain still continuing, hot flannels were applied to the abdomen frequently. The dog being a favourite, and the owner anxious, the treatment was pursued to meet his wishes, although it was con-

sidered that there was no hope of the animal's recovery. He died on Saturday morning, February 13th.

Post-mortem examination—The abdomen was opened down to the pubis, and part of the pelvis was removed. The bladder and other parts of the urinary organs were dissected out entire.

The bladder was observed to be dark in colour over the whole surface from intense congestion. Upon making a section into the viscus, there escaped a quantity of deep dark-coloured fluid, and also two calculi about the size of large peas, spherical in shape, and upon further examination, intermingled with some mucus, there were seen numerous small ones of a seed-like character; one of a larger size was found to have passed into the urethral canal, and there being perfectly impacted, had resisted all efforts of the animal, or contraction of the bladder to overcome the obstruction. This appeared to be the immediate cause of death.

The extensively distended condition of the bladder appeared also to interfere with the action of the rectum.

We think the case a highly interesting one, and would feel favoured by its insertion in your pages.

Examination of the Diseased Structures.

The organs which Messrs. Gowing and Son sent for inspection were the generative organs, with the bladder, kidneys, liver, and intestines, all of which, excepting the bladder, were normal. In the interior of this viscus the morbid changes were very marked, the whole of the mucous membrane was intensely congested, and in many places patches of extravasated blood were firmly adherent to the surface. A quantity of dark-red fluid was taken from the bladder, and set aside for further examination. The most remarkable feature of the morbid changes was the existence of a large number of small calculi, varying in size from a pin's point to a large pea, principally clustered in the neck of the bladder, which was quite black in colour, on account of the quantity of effused blood in the submucous tissues. In the urethral canal, which was cut open, the lining membrane was much congested, but there was no calculus, excepting the one to which Mr. Gowing alludes, and which was the direct cause of the fatal termination of the disease.

Microscopic Examination of the Urine, and the Calculous Concretions.

The dark-coloured fluid which was removed from the bladder contained a considerable quantity of blood; this was evident at once from the presence of large coagula; and under the microscope the blood discs were very abundant; besides these there were epithelial cells, a quantity of amorphous matter, and some large crystals of triple phosphate. From the result of the microscopic examination of the urine there was good reason to conclude that the calculi were principally composed of the triple phosphates; but in order to determine the point some of them were submitted to examination. In form the bodies were spherical or polygonal, the colour nearly white or light yellow, the surface, to the unassisted eye, appeared smooth, but under a magnifying power of thirty diameters it was irregular in consequence of numerous projecting angles of crystals, some of which had become rounded off from attrition. The calculi were unacted upon by water, and also by caustic potash, but dissolved readily in acetic acid and in the mineral acids; the addition of a little ammonia to the acid solution caused an abundant white precipitate, which was found, under the microscope, to consist of phosphate of lime with stellate crystals of triple phosphate. It was therefore evident that the concretions consisted of this salt, in combination with phosphate of lime. The causes which led to the deposit are not apparent in the history of the case, but there is no doubt that the urine was highly charged with phosphatic matter, and, it may be, rendered alkaline, probably from mal-assimilation; and in such a state of the fluid the phosphate cannot be maintained in solution.

Our limited literature on this subject does not permit us to refer to many instances of calculus in the urinary organs of the dog; but two cases occur to us, both possessing some points of interest. One instance of vesicular calculus is recorded by the late Professor Morton in his pamphlet on 'Calculous Concretions.' The animal affected with the disease was a very small spaniel; the calculus was so large as to nearly fill the bladder, and was felt easily through the walls of the abdomen. The next case was one of renal calculi, forwarded to us by Mr. Clarke, of Islington. No history of the case was given, but the morbid specimen is in itself of considerable interest. In both kidneys there are several small calculi, the largest of the size of a horse-bean, lodged in the pelvic cavities. In composition all these concretions from the several dogs are closely allied.

ON LAMINITIS.

By Thos. D. Broad, M.R.C.V.S., Bath.

Feb. 13*th*, 1869.

I beg to ask the favour of being allowed to make a few comments on the paper on Laminitis in this month's *Veterinarian*, by Mr. Fleming, who states that he would rather employ M. Bouley's turpentine frictions to induce a horse to move than have recourse to flogging the unfortunate creature with a whip or other instrument of torture. In nineteen cases out of twenty, the irritation produced by the application of turpentine to the skin of a horse passes off in about twenty minutes, so that the exercise obtained in that way would be very little indeed; and I must say that it appears to me to be a much more cruel and unscientific mode of procedure, than that of frightening a horse by showing him the whip, for that is all that is necessary in the majority of cases; I never found it necessary to use a whip sufficiently to amount to "torture" or even punishment. Mr. Fleming also objects to the application of special shoes to the feet during their acutely inflamed state, and says that a more rational mode of procedure would be to lower the crust and throw the weight on the sole and frog. Had Mr. Fleming not stated in his paper that he had not seen a case for more than eight years, I should have known that those remarks were not the result of practical experience but merely theorizing. To show the effects of pressure on the sole and frog, I will cite two recent cases of Laminitis in all four feet, the result of over-exertion. Both cases had been four weeks under the treatment of a neighbouring M.R.C.V.S. who had carried out my plan of treatment in every respect excepting that he had the horses' ordinary hunting shoes made thin at the heels and put on again without cutting the feet, instead of having special shoes put on. The result was a failure. The horses were brought a distance of fifteen miles to my place, and were excessively lame, all the soles of both horses being sunken, and blood oozing from the toes of the fore feet of one of the horses; so lame were they that it was difficult to get them to stand to have the special shoes fitted, for if left five minutes they would lie down on the bare stones from the excessive pain caused by standing. The fore shoe which was taken off one horse weighed one pound and was replaced by a bar shoe weighing three pounds.

The fore shoe from the other horse weighed thirteen ounces and was replaced by a bar shoe weighing over two pounds. As soon as those shoes were put on instant relief was afforded. The horses stood and moved with a degree of comfort in comparison to the state they were previously in. After being regularly exercised on the road for about a fortnight, they were so much improved that I told the owners that they were nearly fit to leave. Unfortunately they were placed for convenience in two loose boxes which were covered with sawdust. After being there a few days, one of the horses became quite lame in both hind feet, which had tar stoppings and false leathers. Thinking that the pain and lameness were caused by pressure from the sawdust, I removed the false leather and put on ordinary leather soles, which I thought would be sufficient to remove the cause, but I soon found that it was not, for the feet still became balled with the dust, and as a consequence inflammation was set up in the soles, which became under-run. Soon after this occurred, my attention was drawn to the other horse, which began to show signs of pain and lameness, as it appeared upon examination from the same cause. I then had the sawdust replaced by straw, and both cases immediately began to improve, and have since gone on well. In confirmation of the above statement, I refer to Mr. James, M.R.C.V.S., Corsham, near Chippenham, who has been watching the cases from the commencement for his own information.

Mr. Fleming also condemns the ordinary seated shoe, and recommends that a portion of the weight be thrown on to the sole and frog, that by such means deformed feet (sunken soles, I presume), "can be restored or nearly." My experience has taught me to protect from pressure the soles of feet which have become deformed, and I am not acquainted with any system of shoeing, beyond the mere fact of leaving the parts unpared, which gives salutary pressure to the sole. The treatment of cases of canker shows how difficult it is to apply and keep up pressure to the sole and frog, unless the stopping is kept in by pieces of hoop iron placed under the shoe. The pressure received from Chinese straw shoes, or Cherry's footpads, I look upon as more ideal than real. It has been long known to experienced veterinary surgeons and farriers that good feet do not require seated shoes.

There is no doubt that horses' feet are by many farriers most grossly mutilated by the knife, and the system of not paring ought to be carried out as far as possible.

VETERINARY EDUCATION AND THE EXAMINATION QUESTION.

By John Barker, M.R.C.V.S., Scarborough.

Seeing that a committee has been chosen to inquire into the present system of examination of the students with reference to certain proposed alterations, it is to be hoped that the late controversy on veterinary education, or what was aptly termed the "Question of the Day," is not yet at an end, and that each succeeding number of our monthly Journal will continue to furnish the thoughts of various members of the profession on this important subject, which, I consider, is all-important at the present time, particularly to those who, like myself, have not the opportunity of attending the Council meetings and discussing the question. As the members of the Council are, for the most part, town practitioners, and the leading men, also, from our largest and most important provincial towns and cities, whose experience is necessarily made up of the brighter side of professional life from the fact of their practice being chiefly confined to the better classes of society, who can, therefore, well afford to pay for and appreciate their services; and as such men, acting from their own experience in such matters, may possibly legislate on the question from their own point of view, instead of the broad principle of the best means of furnishing every part and district of Great Britain with the most effective body of men willing and able from their previous training and education to supply the wants of the public, both commercial and agricultural, in the care and treatment of their domestic animals, I deem it proper to state my views of the subject.

I think it unwise and highly impolitic to materially alter and interfere with the usual method of examination. There are, perhaps, few who have gone through it but remember that the time preceding it was so full of anxiety as almost to interfere with the natural capacity for study, and in many cases the anticipation so unnerved some students as to prevent their presenting themselves for examination at all, or if they did it was only to meet with defeat, and then to commence practice and add to the number of unqualified practitioners with which the country swarms from John O'Groats to the Land's End, or, as in case of some few, they have pertinaciously presented themselves again and again, and at last have got their diplomas and rid the College of their presence, and

afterwards carried on practice with M.R.C.V.S. to their names, though actually unable to indite a letter or make out a bill so as to be readable, thus lowering the moral effect of the diploma in the eyes of the public, who are not slow to detect such cases. But how is this to be obviated? Well, since the apprenticeship clause seems to be regarded with disfavour by some (and, I think, principally from themselves lacking the advantages of it in their early career), while the preliminary examination is also considered by others in an unfavorable light, I would venture to suggest that a certificate from a qualified veterinary surgeon in actual practice be required from any student who presents himself for examination, the said certificate being simply a guarantee of the student in question being fully acquainted with all the practical details and duties of the profession; and in lieu of a preliminary examination, each student before being entered on the college books should be required to furnish a reference as to respectability, character, &c., a plan which, I consider, would at once do away with many of the evils of the past, and be applicable in the future without reducing the number of students, by whom alone the college and its professors can be supported, and who can supply the places of the old school of practitioners as, one by one, they succumb to the call of time. Many of your readers will, no doubt, be more than ever keenly alive to this subject from recent events, which have shown that pupils, from sixteen and upwards, have been presided over and taught by men whose diplomas were only of one, two, or four years' duration, and who could not, therefore, be efficient teachers of practice based upon sound principles; and I fear much that the day is far distant when even professors of the highest standing will be able, from lack of opportunity, to so teach as to make their pupils what their diplomas say they are, and thus dispense with the advantages to be derived from their living a certain length of time with a professional man. In these days of veterinary medical associations I cannot but think that it is a young man's own fault if he is not well prepared for the teaching he is to receive at college, and thus materially lighten the labours of his teachers, instead of the reverse, which some professors would fain have us believe from the tenor of the remarks lately made in their leading articles with reference to the subject.

THE PRINCIPLES OF BOTANY.

By Professor James Buckman, F.L.S., F.G.S., &c. &c.

(*Continued from p.* 96.)

Flowers may be said to consist of a series of whorls of altered leaves, the theoretical explanation of which proposition will be considered hereafter. At present we shall merely describe the floral organs, which may be conveniently arranged as under, leaving out some occasional adventitious structures :—

Floral Organs.

1. Calyx
2. Corolla } *Floral Envelopes.*
3. Stamen
4. Pistil } *Reproductive Organs.*

1. *The Calyx*, or cup of the flower, usually consists of a whorl of light green leaves called sepals, sometimes separate and distinct, each with its midrib and venation on the plan of a leaf, refined in proportions and in delicacy of structure and tint. Sometimes these are united at their sides, and in this way a tubular calyx is formed. Of course, in perfectly formed flowers there is a persistency in the characters of this organ, and hence the number of its leaves, of its teeth, and its general armature, whether smooth or hairy, entire or notched at the margin, &c., are facts noted in plant discrimination, much in the same manner as applies to leaves themselves.

As regards colour, it will be found that in some instances a great charm is derived from a tendency to variation in this respect, in proof of which we can adduce no better example than that of the fuschia, in varieties of which the calyx will be found to present as many shades as the dresses of the "fairest flowers of creation" on a fête day at the Botanical Society's Gardens ; and, indeed, this portion of the fuschia is not unlike, both in the graces of form and colouring, to the pointed peplums of the ladies' skirt.

The object of the calyx is not only as a cup to support the upper and inner parts of the flowers, but also as a protection to these during their youth and immaturity ; this latter function may be well observed in the common poppy. If we examine a young flower-bud of any species of poppy, we shall

find that it curves downwards. On removing its calyx of two sepals, we see the other parts of the flower as compactly folded in the interior as are the paper caps and odd patterns in the interiors of our Christmas crackers.

If we look for another flower a little more advanced we shall find that as the calyx begins to open, the flower stem begins to assume an upright position, the attainment of which, and the completion of the functions of the reproductive organs, are simultaneous, and these being completed, lo and behold! the calyx drops off. If we seek to know why, we shall soon see that such a sturdy, well-protected seed box as a poppy head cannot require the calyx as a supporting cup. Here, then, the calyx is fugaceous: but if we look at another example, such as may be found in the apple, we shall be able to make out the curious fact that here the whole fruit is but a thickened and enlarged calyx—a fact, indeed, which, when the student has thoroughly mastered, he will know more of botany than will the mere reciter of the whole catalogue of the 'British Flora.'

2. *The Corolla,* or crown, is usually the most conspicuous part of a flower, though in this matter there is an infinitude of variations; thus it is highly conspicuous in the poppies, and, as before remarked, many coloured in the fuschia, whilst it is either not present, or scarcely noticeable, in some of the largest of our forest trees. It may be considered as the second whorl of floral leaves, of which the calyx is the first established on a shortened axis, which is called the torus.

Like the calyx, the corolla may consist of few or many parts or leaves; thus there are four to the poppy, five to the wild rose. In the bell-flower convolvulus, periwinkle, primrose, &c., we may look upon the parts as still consisting of five leaves, cemented at their sides. As regards the description of these parts of plants, they follow the same rule as already pointed out for leaves and calyx; and thus different forms, parts, and colours may readily be distinguished. The function of the corolla is not always so plain to make out, but we may take it for granted that among these will be that of swaddling clothes for the delicate sexes within, a power of attracting and disseminating some of the properties of light in order to the perfection of these, and further of attracting insects by whose agency fecundation is often made to take place; and as assisting the latter we may mention the delicate perfumes and sweet nectareous essences so frequently distilled from the corolla.

3. *The Stamens—stamina:*—again consist of a whorl of

altered leaves; but here, taking on new and special complications, which are distinguishable into

1. *Filament,* a thread or pedicel, supporting—
2. *Anther,* a pouch or minute bag or box, containing—
3. *Pollen,* separable granular matter, called fertilising powder.

Now, these parts are sometimes so ingeniously complicated, that at first it is utterly impossible to accept the proposition that stamens are metamorphosed leaves; but we hope in a future chapter fully to make out this view of the matter. Still, when we see the anthers opening by little lids to let out the pollen, as in the bay tree, or the filament bent up like the spring of a trap, so as to scatter the pollen by its recoil, as may be seen in the common pelitory of the wall, when we notice these with the infinite contrivances presented by stamens, we almost lose the notion of their simple elementary structure. Stamens vary in number in different species of plants, though they are mostly uniform in the same species, and hence has arisen a classification of plants hereafter to be mentioned.

4. *The Pistil* is the central organ of a flower, and therefore, on the leaf theory, composes the innermost whorl of floral leaves; it, too, is complicated for special purposes, giving rise to the following parts:—

1. *The Stigma,* the apex of the pistil, more or less organized.
2. *The Style,* or minute stem, by which the stigma is elevated, reaching down to—
3. *The Germen,* or seed vessel.

All these parts are subject to many and great complications, which we cannot now notice. We would, however, point out that the objects of these arrangements is that of the fecundation and fertilisation of the fruit and seed.

The numbers of the pistilla vary, like those of the stamina; and it should be noted that, though in the generality of plants these two sets of organs consist of whorls, the former surrounded by the latter, yet that this is by no means always the case, as, for example, the catkins of the nut trees are the staminiferous or male flowers in separate bunches; but a close observer will see little pink pistils peeping out of buds on the same twigs. In the cucumber the fruit is produced from a separate flower from the one that grows the stamens.

In the yew and the willows separate trees are devoted to the growth of these separate organs.

Now, when the stamens surround the pistils, but little pollen, comparatively speaking, is needed. Where, however, we

have separate flowers on the same tree, the difficulty of contact will be somewhat increased, and hence these will be found to secrete a thousandfold more pollen than in the first case, so much so, indeed, that such large quantities are sometimes blown to great distances, and have been mistaken for showers of sulphur on being deposited.

In the last case of separate trees for the distinction of flowers, as the difficulty of contact will be still greater, so we have still more pollen produced, so that in early spring it was amusing to illustrate this matter to our class by completely smothering them in pollen when we could get them under a male yew tree.

These facts are of importance in horticultural observations, as in practice we can artificially fertilise plants, and thus produce new varieties, or we can bring together distant sexes, and so ensure fruiting. Some of these facts were well known to the ancients; and such knowledge was turned to practical account, as will be seen from the following, by Sir J. E. Smith:—

"The stamens and pistils of flowers have, from the most remote antiquity, been considered as of great importance in perfecting the fruit. The date-palm, from time immemorial a primary object of cultivation in the more temperate climates of the globe, bears barren and fertile flowers on separate trees. The ancient Greeks soon discovered that, in order to have abundant and well-flavoured fruit, it was expedient to plant both trees near together, or to bring the barren blossoms to those which were to bear fruit; and in this chiefly consisted the culture of this valuable plant. Tournefort tells us that without such assistance dates have no kernel, and are not good food. The same has long been practised, and is continued to this very day in the Levant, upon the pistacia and the fig."

We have somewhere read that in the East an annual procession was wont to be made to the date-palm groves, when the priests, armed with bunches of male flowers (commonly called palms), waved them with prayer and much ceremonial among the fruiting examples, the omission of which, we can well understand, would not eventuate in a blessing. It may be a curious subject for inquiry whether the strewing of palm by way of rejoicing did not originate from this custom. The nearest imitation of palm we have in this country, namely, the male catkins of the willow, is employed in our houses and churches on Palm Sunday in commemoration of these ancient rejoicings.

Pathological Contributions.

PLEURO-PNEUMONIA.

Since the publication of our last number we have received several communications from different parts of the country relative to the spread of pleuro-pneumonia. This disease appears not only to be rapidly widening the area of its existence, but to be assuming a far more virulent type than of late. It has also very recently shown itself in Scotland. Many of the outbreaks are clearly traceable to the introduction of fresh stock unto the premises, and others of them would seem to depend on long incubation of the *materies morbi*.

ECZEMA EPIZOOTICA (MOUTH-AND-FOOT DISEASE).

This malignant and contagious malady is at the present time prevailing in many parts of the Continent. We find that during the past month numerous cargoes of cattle have arrived here which the Customs inspectors have had to detain in consequence of several of the animals being found to be affected with the disease. The rule which is observed appears to be that of slaughtering the infected animals at the place of landing, and allowing the others to go to the consignees. So long as cattle are not permitted to go from the Metropolitan Market into the country, the plan may be tolerably effective against the diffusion of the disease, but once raise the *cordon*, and nothing can save our home-bred stock from this and other contagious maladies brought in from the Continent.

CATTLE PLAGUE.

The information which has reached us relative to the cattle plague is to the effect that the malady has greatly increased during the past month both in Hungary and Poland. It appears to have yielded, for the time, to the means employed in Lower Austria for its suppression; but no well-

grounded hope can be entertained that the disease will not extend westward again, when its wide diffusion in the countries alluded to is considered in relation to the cattle traffic which is continually going on from them into Western Europe.

SPLENIC APOPLEXY IN CATTLE.

Among the diseases of a fatal character which are rife at the present time among cattle, may be mentioned the one known as splenic apoplexy. In our January number attention was directed to this circumstance, and it was hinted that an increase in the number of cases was probably due to the mild and humid state of the weather. If this can be reckoned among the ill-understood causes of the disease, the continued existence of the malady is not difficult to explain. Its fatality remains equally as great, and the preventive measures, which some of our correspondents have adopted, have proved nearly as infective as the curative means employed. We repeat that in our experience the use of sulphites, and a change of location and food, have often arrested the progress of the malady.

"FOOT ROT" IN SHEEP.

As might have been anticipated, a large number of sheep are suffering from "foot rot," especially in those districts where the animals are kept nearly, or entirely, on natural pastures. In such places the feet of the sheep are never dry; and as such the skin between the digits soon suffers from diseased action, and a foundation is laid for those marked changes which give name to the affection. The use of mild astringents, and a removal to ploughed land, will often be found to have a very beneficial effect in arresting the progress of the disease.

In some instances sheep which have been long kept in straw-yards on wet manure have suffered severely from foot disease. Effectual treatment of these cases is impossible so long as the animals remain in the position where the causes are existent; but the use of caustic solutions and frequent applications of tar will, in some degree, palliate the evil.

SCAB IN SHEEP.

A MONTH or two since we directed attention to the great prevalence of scab among the sheep in various parts of the country, and the serious losses which many persons were sustaining among their breeding flocks, in particular, from this disease. Since then several communications have reached us seeking advice on the subject, and some requesting our attendance at County Courts to give evidence in cases in which actions had been commenced for the recovery of damages sustained by the sale of infected sheep. In most of these cases the persons principally concerned appeared to be totally ignorant of the nature and cause of the disease, and hence legal proceedings have been taken in instances in which it was impossible to prove the existence of the disease at the time of sale. Scab in sheep is allied, in its pathological results, to scabies—itch—of man, and depends on the same cause, the existence of acari. It seems to us that the state of our law requires amending on matters connected with parasitic diseases affecting animals.

SUCCESSFUL TREATMENT OF TWO CASES OF UTERINE HÆMORRHAGE.

Mr. H. KING, M.R.C.V.S., Melbourn, Derby, has forwarded to us a short description of two cases of uterine hæmorrhage in the cow following on parturition, in which he succeeded in suppressing the bleeding by slowly injecting cold water into the womb. By furnishing himself with two bladders, and holding each in succession, when filled with water, in contact with the large end of the pipe of an ordinary clyster-syringe, and pressing the bladder with the other hand, he was enabled to introduce the fluid very gradually and with little force. Three gallons were thus injected. The patients were freely supplied with restoratives, consisting chiefly of brandy from time to time.

Facts and Observations.

YEW POISONING OF CATTLE.—The following memorandum, in reference to poisoning of cattle by yew which has been unusually prevalent this season, has been issued by order of the Irish government :—

Veterinary Department of the Privy Council Office, Dublin Castle.

In consequence of numerous cases of sudden deaths of cattle—some alleged to be the result of malicious poisoning—having been reported to the Veterinary Department of the Privy Council office, and it being found on investigation that the animals had been accidentally poisoned by eating the leaves and branches of yew trees, hedges of which have been cut earlier this year than usual, and cattle, in consequence of the mildness of the season, being left out at pasture longer than in ordinary winters, it is deemed desirable to suggest that precautions be taken to prevent live stock having access to grounds or places in which there may be leaves, branches, or clippings of yew hedges or trees, which although fatally poisonous, are much relished by cattle during the winter and early spring months. By order,

(Signed) HUGH FERGUSON, H.M.V.S.

January 26, 1869.

THE GOVERNMENT AND AGRICULTURAL QUESTIONS.—It has been pointed out by the Central Chamber of Agriculture (says the *Chamber of Agriculture Journal*) that, at present, we have no staff of officers in any Government department selected for their competence to deal with agricultural questions other than statistics. It has also been suggested that legislation on the following subjects would naturally emanate from or be referred to a department for agriculture, namely, Sanitary regulation of the importation of animals and of the home trade and traffic in animals; national insurance of live stock; the national food supply; tenure of land; arterial drainage; water storage and irrigation; utilisation of town sewage; supply of artificial manures; public roads; regulation of markets; weights and measures; statistical returns; regulation of agricultural labour and education; veterinary education; agricultural colleges; experimental stations; poor relief; local taxation, and county expenditure; enclosures, tithes, and copyholds. Indeed, a long list of subjects might be adduced, which would provide ample work for the supervision of a professionally-informed department.

HOME PRODUCTION OF MEAT.—It is believed that, without any larger consumption of sheep and cattle food than at present, we may so augment our annual home production of meat that the increase would exceed our total yearly importation. To secure this grand result all that we require is a reasonable measure of success in saving from destruction those wasted portions of our flocks and herds which, after being reared and fed upon valuable food, now perish by preventible diseases. If legal regulations against the travelling or exposure in fair or market of animals suffering from cattle plague, pleuro-pneumonia, foot-and-mouth disease, small-pox, scab, &c.; if sanitary regulation of the transit of animals by ship, railway, or road; if compulsory isolation or slaughtering in some cases; if separation of store stock from fat stock, and if separation of imported from home-bred animals were moderately successful in repressing contagious diseases, we might easily improve our home supply till the increase was equivalent to a doubling of the importation; or, in other words, to an additional 5 per cent. of the consumption.—*Chamber of Agriculture Journal.*

CHARACTERS OF GOOD MEAT.—Dr. Letheby, who has had great special experience during several years in the city of London, describes the following as the characters of good meat:—1. It is neither of a pale pink colour nor of a deep purple tint; for the former is a sign of disease, and the latter indicates that the animal has not been slaughtered, but has died with the blood in it, or has suffered from acute fever. 2. It has a marbled appearance from the ramifications of little veins of fat among the muscles. 3. It should be firm and elastic to the touch, and should scarcely moisten the fingers—bad meat being wet, and sodden, and flabby, with the fat looking like jelly or wet parchment. 4. It should have little or no odour, and the odour should not be disagreeable; for diseased meat has a sickly cadaverous smell, and sometimes a smell of physic. This is very discoverable when the meat is chopped up and drenched with warm water. 5. It should not shrink or waste much in cooking. 6. It should not run to water or become very wet on standing for a day or so, but should, on the contrary, be dry upon the surface. 7. When tried at a temperature of 212° or thereabouts, it should not lose more than from 70 to 74 per cent. of its weight, whereas bad meat will often lose as much as 80 per cent. Other properties of a more refined character will also serve for the recognition of bad meat, as that the juice of the flesh is alkaline or neutral to test-paper, instead of being distinctly acid;

and the muscular fibre, when examined under the microscope, is found to be sodden and ill-defined.—*British Medical Journal.*

The Cuttle-Fish as Food.—We now come to a class of animals which, but for the unreasonable prejudice of our fishermen and the poor generally, might, in the absence of better diet, afford them a large supply of cheap and nourishing food, viz. cuttle-fish. Cuttle-fish of various kinds form the staple diet of the fishermen of France and Italy, and very wholesome nourishing food it is. But the denizens of our own coasts, from silly prejudice, would rather starve than eat them, and, in sinful waste, they leave many tons' weight yearly to rot upon the shore, or to be carted away as manure—and this sometimes in the face of the dire necessity which so often overtakes the poor fishermen in bad, wintry weather. The main thing upon which their foolish antipathy to these animals is founded, is the presence of the wonderful ink-bag with which they are endowed, as a mode of defence against their enemies. Quite as rational would it be to object to eat the flesh of oxen or sheep because they possess a gall-bladder, or that of the cod because the fish has an oily liver. —*Scientific Opinion.*

Loss by Insect Depredations.—*The American Entomologist* asserts that taking one year with another the United States suffers a loss from the depredations of the insect tribe to the amount of 300,000,000 dols. annually. This seems an enormous amount, but when we consider the number of enemies which vegetation has in the bug or insect family, and the rapidity with which each creature saps the life of a plant, or the fruit which it produces, the sum, large as it is, will not be deemed an extravagant one. Alluding to these insect depredators, *The Entomologist* says: "Turn them which way they will, the agriculturists and horticulturists of the Northern States are met by plant lice, bark lice, May bugs, rose bugs, weevils, cut worms, caterpillars, palmer worms, canker worms, slug worms, and leaf rollers; and at periodic intervals the worm army marches over their fields like a destroying pestilence; while in Kansas, Nebraska, and Minnesota, and the more westerly parts of Missouri and Iowa, the hateful grasshopper, in particular seasons, swoops down with the western breeze in devouring swarms from the Rocky Mountains, and like its close ally, the locust of Scripture and of modern Europe, devours every green thing from off the face of the earth." Philadelphia has taken steps to import a thousand English sparrows, which will be let loose in the public squares and parks next spring.

THE VETERINARIAN, MARCH 1, 1869.

Ne quid falsi dicere audeat, ne quid veri non audeat.—CICERO.

THE POSITION AND PROSPECTS OF ARMY VETERINARY SURGEONS.

A SHORT time ago, we took the opportunity of commenting upon the severe strain thrown on the veterinary medical staff attached to the Abyssinian Expedition, the encouraging manner in which the efforts of that staff had been recognised by the general in command, and the neglect of the authorities in England to give force to that distinguished officer's recommendations, when honours were being lavishly awarded to other departments, which had done no more than their share in conducting the hazardous enterprise to a successful issue. We then referred to the general feeling of disappointment and regret which was expressed by the members of our profession in the army at the slight they had, as a body, suffered. Events made it apparent that no amount of exertion or skill in the discharge of their important functions in the field would be noticed by the Government, and that no recommendations from the seat of active warfare would have any effect in obtaining for them the smallest tittle of the recognition awarded to others. It was also noticed that, but for the clamour raised by the public press, not a single veterinary promotion would probably have taken place. When, at last, this external pressure induced a slight relaxation of the rule which had been hitherto acted on, one gentleman only obtained promotion, while the others who were as strongly recommended, and among them the head of the department, were left out in the cold to console themselves by the reflection that honours had been plentifully awarded to their brother officers of the medical and other branches.

The constitution of the British army, and the immense empire over which it is spread, embracing almost every variety of climate, but chiefly that of a tropical character, scarcely warrant our comparing the status of the veterinary surgeon who enters it with that of the army veterinary surgeon of any other country. The former is exposed to far greater risks from the effects of climate, suffers far more inconvenience from frequent changes of station, has to serve in regiments vastly more expensive, and has usually to endure long periods of banishment from his native country. And within this century, veterinary surgeons have taken their share in every war in which Great Britain has been engaged, not only near home, but in the most distant parts of the earth. Yet in this long period, not one veterinary surgeon in the army has been thought deserving of distinction by having conferred upon him the comparatively common decoration of Companion of the Bath. If we look to our colleagues in continental armies, France for example, we find a very different state of affairs. Almost every gazette contains the names of veterinary officers who are rewarded for meritorious service in the field or at home, by receiving different degrees of the Legion of Honour, while every encouragement is given by a liberal and discerning government to foster talent and professional devotion, and the prosecution of those studies which enhance the services of professional men and largely benefit the country. The number of rewards distributed by the French government in the way of decorations, gold medals, and promotions is, in a year, something astounding. And then, again, French army veterinary surgeons of the lower grades have ample prospect before them in the many professorships, staff appointments, and of principal veterinary surgeonships with which the French army abounds.

Far otherwise is it with his *confrère* in the British army. After studying his profession and obtaining his diploma, he undergoes a much more severe examination for admission to the service than he underwent for access to the ranks of the profession, and if deficient in practical knowledge may have to spend much time in acquiring it before finally re-

ceiving a commission. When he has attained this object, he begins his expensive nomadic career on a pittance barely sufficient to maintain him in a respectable position in his regiment, and has to serve for a long period before receiving a very trifling addition to his pay. His promotion to a higher grade will seldom be obtained under twelve years, for, though eligible at five years, if well conducted, no instance has yet occurred in which a veterinary surgeon has been promoted at so early a period; twelve years have been about the term lately, and this will be greatly increased in the future, if only a limited number are to enjoy the advantages of first class. When this degree of promotion has been obtained, there is nothing more to be looked or hoped for. In England, there are only five appointments held by officers above the first grade of promotion, and for all practical purposes it may be said they are life appointments; since it is extremely improbable that a veterinary surgeon, who, through seniority obtains one, will be likely to relinquish it, unless compelled to do so when he has attained a certain age. It may with truth be said, that no veterinary surgeon under thirteen or fourteen years' service has the slightest prospect of rising higher than the rank of first class. This is indeed a miserable and most disheartening prospect. There is so little increase of pay, that after twenty-five years of the most varied service, risks, and exposure, the climate-worn veterinary surgeon only receives 17*s.* 6*d.* a day; and if at this time he claims retirement, he is allowed two thirds of that sum, on which he may contrive to eke out existence as a poor gentleman in some obscure village.

This aimless kind of career must be extremely injurious to the welfare of the service. No sooner does a promising graduate enter the army than the upas-tree shade of non-recognition by the authorities begins to throw its torpid influence over him. His regimental duties may be gone through with scrupulous regularity; the humdrum routine of a kind of professional existence may be enacted; but have we any evidence that the career which promised so well for the graduate has any attractions for

him now? We fear not. The army should afford the best examples of the scientific veterinary surgeon—the cultivated comparative pathologist,—for no civil practitioner ever has or can expect the same opportunities for study and observation, ranging over such a diversity of climate and comprising so many different creatures necessary for the welfare of man. The evidence before us proves that this want of stimulus to exertion, this apathy to labour and improvement, must be injurious not only to the service, but to the country at large. The veterinary literature of Britain proves this. Compare it with that of France, and it will be found that the army veterinary surgeons of that country contribute largely to its welfare, by making known everything connected with the animals entrusted to their care, not only in France, but in her colonies. The management and the maladies of every animal employed by the French in Algeria are as well known as if these creatures were natives of France. Can we say as much for India or any other of our numerous colonial possessions? We have not a single text-book on the varied and ofttimes serious maladies that the young veterinary surgeon has to contend with when he first proceeds on foreign service. This would not be, if our War Department or Horse Guards were fully alive to the interests at stake.

As affairs now stand, it is comparatively a matter of indifference to the veterinary surgeon in the army whether, after he receives his commission, he keeps up or adds to his scientific knowledge or not. He who happens to be senior to him, though he may never read a professional book, and may even avoid everything that might be termed professional, is just as likely to be promoted as the one who endeavours to raise himself and the profession by unremitting study and conscientious zeal.

Surely this ought not to be the case! The system is one which requires to be amended. The younger veterinary officers ought to be encouraged in every possible way; the seniors, comparatively speaking, are much better provided for; a higher rate of pay should be allowed to the young officers, for it is they who always bear the brunt of active

and foreign service. Every inducement also should be held out to them to prosecute their studies and to advance their own and their country's interests, by zealously cultivating those splendid opportunities which are their special privilege. We have no reason whatever to doubt that if this be done the Army Veterinary Department will vie favorably with that of any other European power, well knowing, as we do, the material of which our colleagues in the army are composed.

We have ventured to indicate the principal features of what we consider an important question; and we have only to hope that those who listen to a statement of a grievance may have the power and the will to remove it.

RETURNS OF THE STATE OF HEALTH OF ANIMALS USED AS FOOD FOR MAN.

It is satisfactory to be able to state that our scheme has met with the approval of influential medical authorities as well as of agriculturists and members of the veterinary profession. Several veterinary surgeons in different parts of the country have kindly offered assistance, which we thankfully accept, with the expression of a hope that we may soon have a sufficient number of volunteers in our list to enable us to arrange and set in action an effective plan for the obtainment of the required information. One correspondent complains that inspectors were badly treated by the local authorities under the Cattle Plague Act, and seems to entertain the belief that the returns for which we ask may, in consequence, be withheld. We fail, however, to perceive the bearing of his objection upon the matter in hand. We do not ask for official reports from inspectors, but as conductors of the organ of the profession, we invite the co-operation of veterinary surgeons in carrying out what we deem a very important public work, holding ourselves

free, and leaving the public free to use such information in whatever way may seem desirable, in reference to the advancement of the stock-producing interests of this country.

SMALL-POX OF SHEEP.

THERE is good reason to fear that the small-pox of sheep is not yet exterminated in those countries from which importations take place to England. In our last number we stated that reports existed of its having broken out near to Hamburgh, and of its prevalence in some parts of Holland. After the 26th inst. a free importation and unrestricted transmission of foreign sheep to all parts of the country from the place of import will be allowed, unless they are brought in the same vessel with cattle. The risk of the introduction of the disease has aroused an opposition to this Order of Council, chiefly on the part of agriculturists. Much has been said of the diminished numbers of sheep which have been received here while the revoked Orders were in operation, but we have heard little or nothing of the increased quantity of imported mutton. It is much to be regretted that precise information on this point is not obtained, as it materially affects the question of the meat supply from the continent.

Reviews.

Quid sit pulchrum, quid turpe, quid utile, quid non.—Hor.

On Seats and Saddles, Bits and Biting, and the Prevention and Cure of Restiveness in Horses. By Francis Dwyer, Major of Hussars in the Imperial Austrian Service. William Blackwood and Sons, Edinburgh and London.

Every man, according to Sidney Smith, or some other authority, thinks he can drive a gig or edit a newspaper, and the experience of ordinary life furnishes numerous illustrations of the truth of the assertion; at least, editors of newspapers and drivers of gigs are abundant enough to give sanction to the idea that the qualifications for either function are universally diffused. As with drivers of gigs, so with riders of horses, our national pre-eminence self-asserted has remained long uncontradicted, if not universally admitted; and having been born under the motto which asserts the English to be the first riders and drivers in the world, we have calmly accepted the proud distinction, probably without a shadow of suspicion as to its absolute and unassailable truth. In this happy frame of mind Major Dwyer's book finds us, and with evidently deliberate intention acts the part of that insufferable personage, the candid friend who always speaks his mind, which means unlimited indulgence in unpleasant sayings, all the more galling because you feel convinced they are, in substance, true. The author prepares his victims for the operation which they are about to undergo by a process of soothing, allied to the administration of an anæsthetic: for example, at page 3 of the introductory chapter, after alluding to the failure of those who vainly seek for ease on horseback, he writes:—

"It must be confessed, indeed, that it is most usually a very thankless office to offer to any man that rides anything like advice, however well meant and sound, on anything concerning his horse, bridle, saddle, or seat. The great majority would much more patiently tolerate very decided expressions of doubt as to their mental or moral qualifications, if only conveyed with a calm amount of tact, than the

slightest imputation of want of knowledge or skill in things pertaining to horsemanship."

Then he goes on to enumerate the ills which are inflicted upon good and willing beasts by the unskilfulness of riders, the broken knees and tempers, the plungers, bolters, kickers, and rearers, which are produced *secundem artem* by the riders of the period. Admitting the excellence of our horses, in which matter Major Dwyer does no more than justice, he proceeds to inquire into the failure of the riders, and very distinctly illustrates the essential points of difference between a bad rider and a good one. First, the framework of the horse is described principally with respect to the mechanical principles which are involved in the arrangement of his osseous structure, all the so-called points of the animal, the mysteries of his angles, and perpendiculars, and verticals, are systematically elucidated, and the reader, if he is painstaking and interested in his work, finally gets an idea of the why and wherefore of bits and saddles, and is highly delighted to discover that the fault is not all his own, but that imperfectly constructed saddles and badly adjusted bits have much to answer for. In the matter of saddles, the author writes clearly and carries conviction to the reader's mind; the introduction of iron in the framework of a saddle he deprecates in the following terms:—

"The original Hungarian saddle had not a particle of iron in it; no doubt it was subject to breakage, but it could be repaired, or a new one made at the side of a ditch, and in time for the next day's march. The nineteenth-century men have improved it everywhere, especially in England, up to more than its original weight, to a nearly total incapacity for repairs or alterations, and to being the most efficient instrument conceivable for making holes in horses' backs."

Good and bad seats on horseback are next considered, and the rules to be observed are summed up at page 60, in these words:—

"*The larger the surface of the rider and saddle brought into permanent contact, the firmer will be the seat, and the less will it depend on the stirrups or the reins.*"

And further on—

"*The saddle in the centre of the horse's back; the girths, stirrup, and rider about the centre of the saddle.*"

Critical observers, with the least taste in life of the humorous in their composition, find an inexhaustible source of amusement in the observation of the manners and customs of the "promenaders on horseback," who are to be seen everywhere, but always in greatest luxuriance on the road to

the races. Our author being critical without satire, thus epitomises his description of the various methods of sustaining the equilibrium under difficulties :—

"One man sitting at one end of the saddle, as in an easy chair, with his legs tucked up at the other, till his knees are nearly on a level with the pommel; whilst a second, sitting on his fork, sticks out his legs as stiff and as far away from his horse as he can, taking for his model what is very aptly named in 'Harry Lorrequer,' 'the pair of tongs across a stone-wall seat.'"

At page 97 we have the remedy—

"The grand end is to arrange the saddle itself and the stirrups, so that the *rider can only sit in the proper position that he falls naturally into it, and that it requires no muscular effort to maintain it.*"

Proper construction and arrangement of the bit are indispensable to the due guidance of the animal, and the usual sins of commission are very clearly pointed out by the author, whose arguments on this point of the subject are, as in other cases, compressed into a short sentence at the end of the chapter :—

"To conclude, *lightness, accuracy, easy motion, a total absence of stiffness, constraint, or painful motion, are the characteristics of good bitting; and if these be attained, ready obedience to the rider's hand and heel will be the result.*"

Vice and restiveness, with the means of prevention and cure, form the concluding subjects, and are admirably handled by the writer. All who care to know something of the art and science of riding will profit more than they can imagine by a careful perusal of the book, every page of which deserves assiduous study. The horse and his rider are equally indebted to Major Dwyer for his effort to promote a better understanding between them; the quadruped will doubtless express his gratitude by an intelligent obedience to the master who punctually carries out the author's maxims; the "nobler animal" will best show his appreciation of the work by the admission that there is something yet to be achieved by the nation which aspires to a position of equestrian eminence before its reputation can be honestly maintained.

Address of SAMUEL D. GROSS, M.D., LL.D., President of the American Medical Association, Philadelphia.

DR. GROSS in his able address reviews the history of medical science in America, and it is interesting to trace in his illustrations of defects and abuses a resemblance to our own errors and grievances. In education, in examinations, and in the services, there seems to be in America as in England much that might be improved, at least be re-arranged with that intention.

Referring to the necessity for an improved standard of education, the speaker observes:

"The schools are afraid to elevate the standard of requirements without the general co-operation of the colleges, lest they should suffer in the number of their pupils and the amount of their emoluments. Nor is it worth while for a few members of a faculty to raise their voices in favour of reform when all the rest are opposed to it. It is confessedly difficult, if not impossible, for seven or eight men to see any one subject in the same light. 'Quot homines, tot sententiæ' is as true of medical faculties as of any other associations; and it is therefore simply absurd for the profession to hurl its wrath at this or that institution because it will not step out of its way to sacrifice itself to reform, of the importance of which it may be perfectly sensible. Practitioner and professor, private preceptor and college teacher, are, in the existing state of this grave and important question, equally at fault and equally censurable."

We might have written a good while without so aptly expressing the state of our own professional difficulties.

Equally applicable to us are the remarks on scientific evidence.

"Medical men, in the exercise of their functions, are often called upon to act as witnesses in cases involving property, reputation, and even life itself. The real object, as contemplated by the law, of every trial in which scientific testimony is required is to ascertain 'the truth, the whole truth, and nothing but the truth,' both as it affects the interests of the State and of the accused. The procedure, as generally conducted, partakes much more of the character of a combat, in which the opposing parties are pitted against each other, often with a degree of fierceness and acrimony that only shows too clearly the partisan feelings of the belligerents, instead of the dignified inquiry into the real merits of the case. The result

is that, instead of enlightening the court and jury by their testimony, the medical witnesses only embarrass their minds, and this especially defeats the ends of justice."

Veterinary medicine, in its influence upon the health of the live stock of a country, is alluded to by Dr. Gross, in the latter part of his report, in terms which clearly indicate his conviction of the importance of a scientific and liberal education for the man whose duty it is to attend to the complaints of the lower animals as well as for him whose higher privilege it is to devote himself to relieving the pains of his fellow-creatures. In respect of American veterinary institutions he says:

"Our country has, thus far, made little progress in the education and proper training of veterinary physicians and surgeons. Most of the persons known as such, at the present day, are wholly ignorant even of the first principles of the art and science of veterinary medicine; they are the merest pretenders and charlatans, utterly unfit for the exercise of their important duties; in a word, they are simply a disgrace to their profession. Of the few veterinary colleges to be found in this country there is hardly one that is organized upon a proper basis. Europe, in this respect, is far in advance of us. While we have kept pace in medical science and practice with the most civilised and refined nations of the Old World, we have done literally nothing for veterinary medicine and surgery."

Upon the subject of veterinary literature Dr. Gross gives the following statistics, which do not place England in the most favorable light.

"Up to 1863, over 3000 works had appeared on veterinary medicine and surgery. Of these Germany has supplied 809, France 433, Italy 183, Spain 103, England 164, and America about one dozen! Some of these productions are well known and highly appreciated. The treatises of the late Mr. Youatt, of England, enjoy a world-wide reputation; and the 'Dictionary of Veterinary Medicine and Surgery' of Hurtrel D'Arboval, of which a new edition only recently appeared at Paris in six large octavo volumes, is a monument of industry, research, and erudition precious alike to veterinary and human medicine.

"Among the latest and most esteemed German works upon the subject are those of Hertwig, Falker, Röll, and Spinola. The treatise of Mr. Gamgee upon the rinderpest as it recently prevailed in England is a production of great labour and merit, affording the most complete history of that terrible and destructive malady that has ever appeared.

"An extensive periodical veterinary medical literature exists. I have time here only to allude to the *Veterinarian*, a journal published in Great Britain, and distinguished for the variety and excellence of its contributions, now in its fortieth volume; and to the 'Repertorium der Thiersheilkunde,' commenced at Stuttgart in 1840, and of which, up to 1866, twenty-seven volumes had appeared.

"Several treatises have been published upon medico-legal veterinary science, chiefly, if not exclusively, in the German language. Among the latest works of this kind is that of A. C. Gerlach, Professor in the Royal Veterinary School at Hanover. Homœopathic veterinary medicine and surgery appear to have thus far made little progress, either in this country, in England, or on the continent of Europe. In 1863, Dr. G. W. Schrader, of Hamburg, and Dr. Edward Hering, of Stuttgart, published a 'Universal Biographico-Literary Lexicon of Veterinary Surgeons,' comprising upwards of 2000 names, and forming a closely printed octavo volume of nearly 500 pages, illustrated with forty-three portraits and ninety-five autographs; a work in striking and painful contrast with our want of concern about the honoured dead of the medical profession.

"Numerous veterinary medical associations exist both in Great Britain and on the continent of Europe; and the former country recently inaugurated a medical congress, embracing many of the most able and distinguished veterinary surgeons of the land. The subject of education and reform is everywhere, as among us, engaging earnest attention."

It is satisfactory to find our brothers on the other side of the Atlantic taking an interest in our veterinary journals and associations; and still more gratifying when the eloquent assertor of the importance of veterinary science is a distinguished member of the medical profession.

Extracts from British and Foreign Journals.

THE USE OF CARBOLIC ACID.

THE *Lancet* says:—"We are indebted to Mr. Cluff, late house-surgeon to University College Hospital, for an interesting and elaborate account of the results of the employment of carbolic-acid dressings, and regret that our space will not permit us to give more than a brief glance at the principal points to which he alludes. Experience has shown that the greatest exactitude is requisite for the dressings to be successful; and with this attention no doubt is entertained that antiseptic dressings diminish the amount of suppuration, and expedite the cure. For out-patients generally, the use of the chloride of zinc, according to Mr. De Morgan's method, is thought to offer superior advantages to carbolic acid, because less minute care is required in its application, and its effects seem more permanent. Mr. Christopher Heath speaks in high terms of its efficacy.

As regards carbolic acid, the strongest solution in use is made with one part of acid to four of boiled linseed oil; and this is rarely used, except for compound fractures, and such like cases. The solution commonly employed is one containing one part of acid to ten of oil. Still weaker solutions—one to twenty of water, and one to forty of water—are also in common use. The former is employed for washing out wounds that have been exposed to the air for some time before being dressed; and the latter is the ordinary detergent lotion of the hospital, used for washing wounds after operations, and as a protective wash when the outer dressings, afterwards applied, are subsequently changed. The lac-plaster suggested by Mr. Lister has been used in all available cases with good results.

Great importance is attached to the securing a free exit for the discharge which drains from a wound in the first twenty-four hours. The importance of attending to this point was long since pointed out by Mr. Lister; and it is believed that some of the failures in the early experiments with carbolic acid at this hospital were due to the neglect of this. This discharge is in no way affected by carbolic acid as regards its quantity; the acid prevents its decomposition. An important question is,—What is the effect of antiseptic

treatment on the constitutional condition of the patient, and on his chances of ultimate recovery; Mr. Lister's views on this point are well known; and the experience of this hospital goes to confirm them in every essential particular. Mr. Lister teaches that with carbolic acid dressings the febrile disturbance which follows operations is notably lessened; that suppuration is enormously diminished, and that the really perilous form of suppuration—that, namely, which he has designated "septic," and which depends on the irritation produced by the decomposition of the discharges,—is altogether abolished; that, as a consequence of this, the perils of hectic and pyæmia are reduced to a minimum; and that, as the result of the whole, cicatrisation and recovery are accelerated. We shall glance at these points *seriatim*.

First, as to the pyrexia immediately following the operation. A number of careful observations have been made on this point by the house-surgeons in the course of last summer, with this general result,—that after all capital operations a decided elevation of temperature is found, ranging commonly from 100° to 102° Fahr., whether the wound be dressed with carbolic acid or otherwise; but that with carbolic-acid dressings the fever is less severe, and is of notably shorter duration. Individual cases differ much in this respect; in some cases dressed by the old method the febrile disturbance may be insignificant, while in some dressed antiseptically it may be severe, and this without any assignable cause. But a broad review of a number of cases treated by the two methods points to the conclusion stated above.

Secondly, as to the effect of carbolic-acid dressings on suppuration. It is rarely or never found that a wound of any considerable size heals under carbolic-acid dressings without the formation of some pus. But this pus, in a successful case in which the antiseptic effect has been thoroughly attained, is always inconsiderable in quantity, and altogether free from smell, and is evidently secreted in great part, if not entirely, by the granulating surface at the part of the wound left open for the escape of discharges under the irritation of the carbolic-acid dressings, with which the granulations are necessarily in contact. If the suppuration extends farther, or if the pus secreted gives evidence by a fetid smell of having undergone decomposition, the antiseptic treatment has, *pro tanto*, failed.

On the whole, the best general results have been obtained in connection with the opening of abscesses. Some of these cases have been remarkable successes; and there has not been one failure, nor a single case in which a doubt was

entertained about the antiseptic treatment having done positive good. In compound fractures, too, the average of success has been high; and there has been, in particular, one very notable case of a middle-aged man, under Mr. Marshall's care—a compound and badly comminuted fracture of the tibia in its lowest third, to which were superadded a compound fracture of the fibula and severe laceration of the soft parts,—a case apparently, at first sight, demanding immediate amputation. The absence of constitutional disturbance in this case was extremely remarkable; after the second day the man had literally none whatever, and the deep parts of the wound closed in with the formation of hardly any pus. The fracture was firmly united when he left the hospital.

In the treatment of wounds of all kinds, whether produced by surgical operation or by accident, the success has been of a more moderate kind. Many of the cases would have recovered as soon under ordinary treatment, provided no complication—especially the terrible one of pyæmia—had supervened; but, on the whole, the belief is that, though in many of these cases the time of convalescence may not have been accelerated, in a very great number the constitutional disturbance, and in nearly all the amount of suppuration, were diminished. It so happened that during the earlier months of last year, pyæmia was exceedingly rife in this hospital. Patient after patient perished by it; and indeed recovery after amputation of a limb was almost becoming an exceptional rarity. This endemic of pyæmia continued up to the date at which carbolic-acid dressings began to be used. Not one of those treated antiseptically died of pyæmia, or indeed ever had a pyæmic symptom.

Phlegmonous erysipelas has not once occured here in connection with antiseptic dressings in the wards. Among the out-patients several cases presented themselves; but in all the dressings had been tampered with, and the wound (in the arm, in most of the cases) had not been kept at rest. It was the occurrence of these and other similar cases that led to the comparative disuse of antiseptic dressings in the casualty-room.

Secondary abscesses and sloughing of the skin are occurrences of infinite rarity now that the acid has ceased to be used in a concentrated form.

Notably, there have been more cases of persistent and uncontrollable vomiting after operations since the introduction of carbolic-acid dressings than there were before; and it is not unreasonable to suppose that the absorption of some of the acid from the raw surface of the wound superadds a

new irritant to that already circulating in the blood—namely, chloroform. This vomiting is often a very serious matter, and in three fatal cases appeared to contribute no inconsiderable share to the disastrous result. It is not influenced by any remedies that have been tried; and the plan of treatment that has been found to answer best is to feed the patient by the rectum till the sickness ceases, some soothing emollient being applied to the epigastrium in the meantime.

In a few cases, where suppuration was already established, carbolic acid was tried as a curative agent, but the results were not such as to warrant a repetition of the experiments. In cases where confirmed suppuration, with an external vent, is already established, the attempt to stop it by active antiseptic measures seems to be productive of nothing but harm. The strong solution of the acid which has to be injected for the purpose seems only to irritate the pyogenic membrane, and to increase its secretion; the external dressings tend to dam up the pus thus formed; the pus has finally to be evacuated, and when evacuated is commonly found to be fetid. The history of these trials has hitherto been uniformly one of failure.

ARE CERTAIN EPIDEMIC DISEASES CAUSED BY INFUSORIA?

By M. J. Lemaire.

The question may be fairly asked: Are such diseases as intermittent fevers, typhus, cholera, dysentery, yellow fever, and hospital gangrene, distinct species? The names given to these are founded on one of their chief symptoms, and appear to me to possess no scientific value, for in one of those diseases are found all the symptoms of the others collectively. A glance at the synonymy of those diseases shows that many authors have rejected those appellations. Amidst the confusion of names and opinions from which they have sprung are found landmarks planted by the fathers of medicine, who have indicated the path which, in my opinion, must lead to the proof that those diseases form but one species. It has been proved by physicians and veterinary surgeons from the time of Hippocrates, that wherever an abundance of putrefying matter exists, there are produced serious diseases, which are considered by some to be infectious, and by others to be not so. The diseases

of which I speak are endemic in the neighbourhood of accumulations of decomposing matter.

My inquiries into the nature of the miasmata which are given off by the healthy human body, and which give rise to typhus and hospital gangrene, show that they proceed also from matter in a state of putrid fermentation. All those diseases, therefore, have a common cause,—*putrefying matter*. When the symptoms observed in those diseases are carefully analysed, it is found that this common cause produces common effects and identical anatomical lesions. For instance, bubos, anthrax, moist gangrene, petechiæ, gastro-intestinal and other symptoms, observed in persons attacked by plague, exist also in typhus, grave typhoid fever, yellow fever, and the dysentery of hot climates. I may add that some great physicians, perceiving a marked affinity between these diseases, have confounded them under the generic names of plague, pestilential, malignant, putrid, or typhus fevers. The great importance of the comparison I have made will be seen from those facts and others that I could bring forward.

Now remembering the medical axiom,—*Certain symptoms may vary, without changing the species of the disease*, I am led to establish identity of species in those diseases which will, I hope, soon be styled Parasitic. Putrefying solid or liquid food, when introduced into the digestive canal of a healthy man, or of a lower animal, causes the symptoms observed in those diseases. These results have been obtained in numerous and varied experiments made upon healthy animals with putrefying matters (emanations, inoculations, injection into the veins or into the digestive canal). Grave symptoms or death have been the result. Since I have proved that the gases and vapours proceeding from fermenting matter bear with them in large quantity spores and the reproductive bodies of microzoa, all these results can be easily explained, since, through the respiratory passages, as well as by the means I have just pointed out, infusoria penetrate into the organism, either as fully-developed or as reproductive bodies.

It is now admitted that in cases of typhus, smallpox, *sang de rate*, anthrax, moist gangrene, and malignant pustule, Bacteria and Vibriones exist in the blood. These same animalcules, as well as Monads and Cercomonas, are found also in the fœces of patients suffering from typhus, cholera, and dysentery. Some distinguished micrographists have proved this also.

These facts are of the highest importance, since I shall prove, subsequently, that not only is the body in its normal

state free from those minute organisms, but that, when in this state, it destroys them. I have made experiments on myself, in a state of health, in order to ascertain if a diet exclusively vegetable or animal influences the development of those infusoria in the fæces. These experiments, which gave negative results, have since acquired vast importance. Suffering, some months later, from a violent attack of cholera, I again studied those fæcal matters, eight days after the commencement of the attack. I then found in them, at the moment of their expulsion, myriads of Bacteria, and of Vibriones, linear and chained, many of the latter having seven rings. I found also *Spirillum volutans*, Monads, and *Cercomonas crassicauda*. This observation, when compared with those preceding, is important, but it becomes still more so by a third inquiry which I have made. Two months after the commencement of my disease, being entirely restored to health, I examined the excrements with a microscope, and found no infusoria. It was therefore to the cholera that their presence was due.

After an abundant perspiration, I collected matter on different parts of the skin, and proved the existence in it of spores analogous to those I have described in my memoir on the 'Nature of Miasmata,' a considerable number of Bacteria, and some small Vibriones. Having omitted, for a week, to cleanse my mouth, I found in its secretions an abundance of Bacteria, Vibriones, Spirillum, and Monads. Taking off a flannel vest, worn during four days, I had it washed while still warm and moist, in a small quantity of distilled water. I immediately examined the liquid under the microscope, and found in it the same species of microphytes and microzoa, whose existence on the skin I had already proved.

Blood taken, during life, from man and other animals suffering from typhus, or smallpox, and containing Bacteria and Vibriones, has been inoculated or injected into the veins of healthy dogs, sheep, and rabbits. Bacteria and Vibriones became multiplied in them, producing formidable symptoms, generally followed by death. Comparative experiments, made by MM. Coze and Feltz with blood taken from a healthy man, prove that under those conditions no increase of temperature nor disturbance is produced.

If the infusoria in putrefying matter be destroyed, as I have destroyed them for a long time past with different substances, not only is the fermentation abruptly stopped, but the matter is prevented from exciting it again in other bodies by emanation, by contact, or by inoculation. Instead of

being dangerous, as it was before the death of the infusoria, it becomes completely inoffensive.

The important application to therapeutics which these results have enabled me to make, may be seen in my work on 'Phenic Acid.'—*Comptes Rendus*, t. lxvii. No. 18.

IMPORTANT RESEARCHES ON THE AMERICAN CATTLE PLAGUE.

Dr. E. Harris, the medical officer of the Metropolitan Board of Health of New York, in a communication to Dr. W. Budd, of Clifton, makes some announcements of the highest interest in regard to the cattle plague, which has been introduced into the more eastern states by infected cattle from Texas. Among the points which appear to be established by these researches are :—1. That the disease is a true *contagium*, marked by many striking peculiarities in its mode of incubation and after evolution, but belonging strictly to the self-propagating order; and, 2. That this *contagium* is entirely new to the races of cattle which have lately become infected with it. But what is most interesting in Dr. Harris's communication is the statement that he and his coadjutors have satisfied themselves that the specific cause, or *materies morbi* of the plague, is a living organism of definite form and properties, which multiplies in the body of the infected animal, and, passing off with the excreta, spreads the plague by infecting the ground. Assuming that there is no fallacy in the observations, the data in favour of this view would seem to be much more precise and binding than in the case of any of the minute organisms which have from time to time been described as the cause of acute contagious disorders. Figures of the object, as seen in the substance of the liver, accompany Dr. Harris's letter, and are now before us. The detailed report of these observations, now in the press for immediate publication, by authority of the Metropolitan Board of Health, will be awaited with much interest by scientific men on this side the Atlantic.—*British Medical Journal.*

REPORT ON THE CATTLE OF SPAIN, WITH ESPECIAL REFERENCE TO THE METHODS ADOPTED FOR REARING THEM IN DIFFERENT DIVISIONS OF THE COUNTRY; THE DISEASES TO WHICH THEY ARE LIABLE, &c.

By Mr. Consul Graham Dunl.

(EXTRACTED FROM COMMERCIAL REPORTS TO THE FOREIGN OFFICE.)

Cattle, Horses, Sheep, &c.

During September, 1865, when the dread of cattle disease called the attention of the Government to the subject, a careful census was made of the cattle, &c., throughout Spain, the result of which I give in the following Table, which also gives the census during 1858 and 1859, and exhibits the increase.*

	1858.	1859.	1865.	Increase in 1865 over		
				1858.	1859.	Per cent.
Horses .	268,248	382,009	672,550	350,863	290,550	76
Mules . .	415,978	665,472	1,001,878	554,870	336,406	50
Asses . .	491,690	750,007	1,200,814	766,119	540,807	72
Cattle . .	1,380,861	1,869,148	2,904,598	1,255,863	1,035,450	35
Sheep . .	13,794,959	17,592,538	22,054,967	7,115,830	4,462,429	25
Goats . .	2,733,966	3,145,100	4,429,576	1,547,028	1,284,476	41
Pigs . .	1,018,383	1,608,203	4,264,817	3,057,824	2,656,614	165
Camels .	...	1,861	3,104	...	1,243	66
Total .	20,104,085	26,014,338	36,622,313	14,651,501	10,607,975	

It ought to be a reason of great thankfulness in Spain that the rinderpest has not attacked their cattle. There seems to have been no well authenticated case up to now (April, 1866). Were it to reach Spain it would probably sweep away the most of the cattle. There would be a great deal of talking, and local boards, each with its own views, would make stringent laws and regulations, many of them judicious; but the peasants would not obey them, and there would be no system

* A census was very carefully taken by the Government on the 24th September, 1865, showing the number of horses, cattle, sheep, &c., in Spain. On two former occasions a similar census has been taken, viz., in 1858, by the Ministry of Finance, and in 1859 by the Statistical Department.

in carrying them out. At Cordova there is a veterinary association, which has been established there for many years. Instruction is given in skilful treatment of cattle, &c., to all who attend their college. The chief professor there, Don Jose de Prado y Guillen, is a diligent and most intelligent student, full of earnest love of his art. He has written me an interesting memoir respecting his views upon the rinderpest (views formed on his experience of Spanish cattle), and also a notice regarding the treatment of the bovine race throughout the Peninsula, of which the following note is a partial translation, and, in effect, a *prècis*.

Notes on the Rinderpest.—The dreadful cattle plague which is ravaging England and Germany has not attacked the large herds of these animals in Spain. It never has done so in its present rinderpest form, for on consulting the numerous essays of our old Spanish veterinary surgeons we find that though intimately acquainted with all the Spanish cattle diseases, they do not either directly or indirectly tell of it, showing that they did not know it; but our modern veterinary authors have given good translations from German and Russian medical works on the subject, therefore we quite understand what it is, and can safely assert that the rinderpest has never yet been seen in any part of the Iberian peninsula. The cattle epidemics, which have raged sometime from 1709 till now, have all assumed quite a different character; and the absence of the present cattle plague from Spain is thus a most interesting subject and question, Why has it never visited us?

I fully believe that the chief reason is that we rarely, and in very small numbers, import any foreign cattle into Spain. There is comparatively little beef eaten throughout the country; more is produced than is consumed. Our exportation, especially from the north and Gallicia, is considerable, and, in truth, our cattle importation is *nil*. The Gallicia and Asturias cattle find their way to France and to England, but none come thence to us. I fully believe that, from the power of contagion which is so strong in the real rinderpest, if one ox with any trace of that disease on him had been imported into Spain, and had come into contact with cattle of this country, the epidemic would have spread, just as happened at Padua, in Italy, in 1711, from a diseased ox (coming from Dalmatia) being introduced into the stalls of Count Borromeo, and thus causing the fearful murrain, which at that time, almost ruined the pastoral wealth of the north of Italy. We are in hopes that the peculiar topographic character and configuration of our country may stand in the way of the pro-

duction of the disease in Spain. Up to this time this, in addition to non-importation of cattle, has been in our favour, and if we compare the local condition of the places where, according to the opinion of most veterinary writers, the rinderpest is spontaneously produced (*i.e.*, in the morasses and lagoons of Tartary and some parts of Central Europe), with the position and circumstances of our country, we shall find them to be in direct opposition to each other. Many medical writers have traced cholera-morbus to the fetid and poisonous effluvia from the swamps and sunderbunds of the Ganges, and thus we veterinary students are constrained to accuse the wide marshes of Russia-Poland and Hungary of being the birthplace of rinderpest. All the contagious cattle diseases known since 1709 have either spread from that focus of infection or been similar to the maladies often prevailing there. The governments and people of the rest of Europe should carefully direct their attention to this fact, and so much the more because hitherto it has seemed that the present disease is far more easy to prevent and keep off than to cure. Were the disease to break out in Spain, isolation of suspected cattle, and careful separation of healthy, suspected, and diseased cattle would be the first means that we should adopt; but the cattle of the three different categories ought to be kept at a distance from each other, not only separated. I am at present doubtful of the success of any means of cure if the rinderpest takes strong hold of an animal, that is, during the first period of its breaking out. In fact, we should try to treat it here as endemic, epidemic, and highly contagious, all at once, and at first we should certainly, in any locality, deal with it as incurable, and try to stamp it out. If it continued and spread we should be guided by circumstances, and by its greater or weaker virulence.

Note on Cattle Rearing in Spain.—Our system of cattle-rearing may be reduced to two fundamental principles:—first, the open-air system at all hours and seasons, and, secondly, the double system, viz., half the year housed, the other half in the open pastures. Constant stabling of cattle is never practised, not even in Gallicia, where they stall much more than here in Andalusia. The large herds of cows destined for breeding are kept (in the south of Spain) on the first system, open-air pasturing at all times. These animals never enter stables or places of shelter; they live continually in the pasture grounds, which are uncultivated meadows and hill-sides, covering a vast extent of country. They feed on the herbage and plants which are the natural produce of the earth, and their food thus depends on the seasons, on the scarcity or

abundance of the pasture, and on the fertility or barrenness of the soil they are on. Nothing is provided for them by man, either in winter or summer. If there be enough for them to graze on they live; if not, they die. These cattle have no dwellings or artificial places of shelter; they endure the rigour and the variations of the seasons entirely in the open-air. They are exposed to cold, frost, snow, and (in summer) to a burning sun, with no other protection than what a bush, tree, or rock can afford them.

During the autumn, winter, and spring months, they are generally kept in the pasture grounds of the Sierras, on the brows and spurs of the mountains, because these pasture grounds are more sheltered than those on the coast or table land. In the summer they go to the wide unfenced stubble lands of the plains and Vegas, near the coast, and wherever there is table land, if good watering places, especially running streams and rivers, are also found near. During the heats of summer they are most liable to common cattle ailments, and the cowherds require to be doubly careful in this season of the year. They make the cattle feed during the night, and early in the morning turn them into a species of fold or rough pen, where the animals lie down to chew the cud, and rest till about 9 or 10 a.m., at which hour they are again allowed to pasture. During the greatest heat of the day (12 to 4) they are never driven or allowed to go for food to a great distance; in July, August, and September, this would be attended with risk of spleen-congestion, sometimes very fatal in summer. During the other season there is no danger of this kind, and the only care taken is that they go from one district of pasturage to another, as plenty or scarcity dictate. This is a rude system, and although at first sight it appears economical, it is not so, but is expensive, and sometimes prejudicial to the cattle. Its only advantage is that no outlay of money is involved, except the cowherd's wages and the rent (or value) of the pasture grounds. Its difficulties and disadvantages are:—first, this system can only answer in the least-inhabited parts of Andalusia, where, from want of labourers, there is of necessity a wide extent of uncultivated land; and, secondly, by it the cattle are often obliged to endure great privations and want of food during drought and scanty seasons; they fall away in health, become weak and consumptive, *i.e.*, easily overpowered with any trifling malady (or accident), and sometimes die in great numbers, the owner thus suffering loss from want of precaution in procuring other food besides natural pasture. During the winter, also, the storms of wind and snow kill many valuable cattle; besides

this, by this system, the cows are not prolific, and they breed irregularly. The increase therefore is small (in comparison with that obtained by other systems), and it is calculated that only one-third part of the cows in a herd calve during the year. Thus the total number of heads of cattle produced under this open-air system is far from what could be expected. These cows are not employed in any other way, and never work, nor are they milked for yield of milk or butter, &c.; but it is also to be acknowledged that, unless in the height of summer and very depth of winter, these herds seem to suffer little from occasional disease or ordinary sickness. The system gives them a sort of hardihood and power of resisting privations—I may almost call it abstemiousness or Spanish sobriedad, which frequently stands them in good stead. It is a necessary consequence of the want or the sparseness of population in Spain, a fact too little considered by all Spaniards.

To a certain extent this open-air system is followed in the Castiles, La Mancha, Aragon, Navarre, &c., whilst in the Asturias, Gallicia, and part of Catalonia, where land and landed property is much divided and subdivided, and where the climate is sometimes very cold, this system would not do at all, and is not practised. Were it modified and improved in the south of Spain it might retain some of its crude and natural advantages; but, alas, we Andalusians are devoted to our primitive and accustomed routine, and thus we are punished, and cannot boast of half the fine herds of cattle and of pastoral wealth, which we might do if we were wiser.

Ever since our régime and form of Government was changed in 1833, when the large sales of the national and clerical properties placed a great many of the then pasture-grounds and uncultivated lands (which till then had been unalienable estates) into the hands of private individuals, and when impulse was given to private interests, and from the price of corn and grain, these lands began to be cultivated, the herds of cattle have not increased as they ought to have done, and as I hope they will do, as we improve our knowledge and our treatment of the different breeds of horned cattle.

We now come to the second system of rearing and treating cattle throughout Spain, viz., part of the year housed, and part in open pastures.

During winter, and indeed from the first days of autumn, the cattle intended for exportation or for work, are always housed at night in sheds or semi-open stalls. In Gallicia

they are regularly stabled whenever it is cold. In Andalusia the peasants obstinately adhere to making these cow-houses or sheds far too open. The animals derive certainly some shelter from the rigour of the atmosphere; but their food gets wet with rain, and often they refuse to eat it in consequence, and thus become ill and weak, and liable to disease. The peasants are stupid and obstinate about this, and give as their reason, that if there is a shelter immediately *above* the cattle (afforded by a roof) the sides cannot admit too much air. It is singular how they persist in this view.

In the middle of Spain, and in the northern provinces, the houses for cattle are, on the whole, well and carefully built, with windows and openings for air; but the animals never suffer from the rain or snow beating upon them or their food. These cattle are often worked, and they are much more attended to than the semi-wild herds in our beautiful province. It is supposed to improve the northern cattle (intended for exportation) to make them labour regularly and moderately at the plough and with the cart.

In the spring the cattle in most districts of Spain leave off going into the houses or sheds, and live and feed on the uncultivated portions of the large farms, a third portion of which is sown every year, the other two thirds remain uncultivated or "fallow," and there the oxen intended for labour and the market, &c., &c., graze. The rotation system, as regards "fallowing," is pursued with considerable regularity throughout Spain. After the harvests are reaped, the stubble lands, on which grow also some herbage and green weeds, afford abundant pasture, and the cattle graze these districts very advantageously. They produce largely the wheat-grass, *triticum repens*, which is considered nutritious and wholesome. This second system (mixed) of treating our cattle keeps them more directly under the management of the man under whose care they are. And thus it is only when there is abundance of food in the fields that they are not supplied with it in their stalls. The cattle thus brought up are, of course, many fewer in number than under the first detailed system; they suffer fewer privations, and are much finer looking; but most of the cattle in Spain *are born* under the wilder system of perpetual open-air pasture. I think that the second system is brought to most perfection in the provinces of Gallicia and Asturias. There they are also housed carefully during the heats of summer so as to avoid distress from flies and insects. The cattle are cleaned carefully and *groomed;* and are also clothed during the rigorous nights of cold winter. They are more prolific than in Andalusia; their milk is more abun-

dant and nourishing, and their flesh is esteemed even in England and at Madrid.*

Experiments made occasionally to cross the Spanish breed of cattle with the Durham have not hitherto been successful. But, in my opinion, improvements in obtaining a variety of breeds of cattle are greatly to be desired.

Professor Pràdo has thus offered his views as regards the absence, hitherto, of the rinderpest in Spain. I think that he, and all who study the subject, would object to the high feeding with oil cake, &c., as practised in England, for cattle in a southern country and climate. Objection might also be taken to the rich rank pasture often produced by the stimulating quality of manure. A Spanish farmer once told me that all *animal* manure injured the grass, in its wholesome quality, for the first two years after such manure was used, and that it inevitably imparted deleterious qualities to the herbage, and to the cattle who fed on it. "Too much animal manure," said he, "induces scrofula in the animals who eat the grass or vegetables forced by it; and also in those who eat the wheat grown on such lands!" This remark was gravely made by a reflecting, serious man, and it struck me as curious in these days of (in England) forcing our soils into "richness" by all manner of fearful abominations, instead of contenting ourselves with draining, irrigation, and the old-fashioned top-dressing of leaves and lime. There may be some common sense in the Spaniard's idea that the artificial produce of putrid animal manure will partake of its rottenness.

As to the cattle plague, there being no importation to speak of from other countries of either sheep or cattle, we may be permitted to hope that Spain will escape it. The general idea seems to be here that, if it does arrive, it ought *just at first,* to be met with the most vigorous and rigorous "stamping out," and that then isolation, and non-intercourse, and entire separation, are the best modes of combating the evil. A clever article appeared lately in a Seville paper on the origin of the rinderpest and its effects. It attributed the original disease in the Russian steppes to starvation, and poisonous inoculation by flies from the putrid bodies of the dead (starved) cattle; in Germany to the filthy state in which cattle are kept there—to stall-feeding and over-working, and to permitting the cattle to feed on decayed refuse of vegetables; in England to over-care and over-feeding, producing a habit of body which predisposes to infection of every kind;

* No "*artificial*" food, such as boiled roots or oil-cakes, is ever given to cattle in Spain.

and, like the Andalusian farmer before quoted, to "the rich food of English pastures reeking with animal manure."

These worthy Spaniards may be mistaken in this, and may set too much value on simple unstimulated pasture and food for cattle; but perhaps they may be right up to a certain point.

CATTLE TRAFFIC.

A SYSTEM of traffic which allows of the free movement of sound animals all over the kingdom does not necessarily exclude foreign stock from the privileged classes, but it admits them only on the guarantee being given of their sanitary condition; and this can only be asserted after the animals have undergone a period of detention, or quarantine, equivalent in duration to the longest time of incubation of any infectious disease to which they are liable. With the remembrance of cattle plague and sheep-pox, not to speak of other infectious maladies of foreign stock fresh in our minds, we cannot conceive that this condition will be deemed harsh or unnecessary; and yet it is evident that under its operation foreign stock would be virtually excluded from the circumstances of their position. Quarantine, except in the case of a few valuable animals., does not, to accept the importers' estimate of the system, answer in a pecuniary point of view. Equally, from our point of view, it would not be judicious, using the mildest term, to allow imported animals, the previous history of which is quite unknown, to come in contact with home stock, we being, at the same time, perfectly aware of the fact, that in their apparently healthy bodies there may lurk the germs of a disease which will become manifest only when it is too late to prevent disastrous consequences. Hence, failing to give the unnecessary evidence of freedom from infectious maladies, imported animals—which may possibly introduce disease, and which undeniably have, more often, perhaps, than can be now proved to demonstration, sown death broadcast among our herds and flocks—must not be admitted into a class composed only of those which are ascertainably free from a suspicion of infection.

The question that arises out of all this is, What shall be done with animals which fail to furnish the required evidence of perfect health? And this answer involves the considera-

tion of the whole system of regulations applicable to the cattle trade. According to the view which the breeders of home stock adopt the most ready and simple way out of the difficulty is to slaughter all imported animals by the water-side; in fact, to universally establish the system which now obtains at all the ports except the port of London. It is quite worth careful consideration whether those cattle only which come from infected countries, or countries of transit like Austria and Prussia, should all be slaughtered at one depôt, or at several; and also whether the exemptions in favour of cattle from France and Spain should be extended to animals from other countries which are not countries of transit, and where cattle plague is not naturally existent. We are met here, however, by the awkward possibility of other infectious diseases than cattle plague being introduced. Foot-and-mouth complaint, lung disease, and sheep-pox, are among the contingencies which farmers wish to avoid; and hence it can hardly be expected that they will abandon the idea of slaughter of all imported fat stock at the landing-places, or the plan of quarantine, which practically means exclusion, of store stock. There are many objections to the system of slaughter on the wharves. Temporarily, at least, it would lessen importation and derange trade; it would not absolutely prevent communication of infection by indirect means; and if cattle plague should break out in so limited and populous an area as a crowded foreign cattle market, with daily arrivals of fresh stock taking place, a very pretty mess the business would amount to.

The plan, however, has the merit of being free from complexity, and it is besides the only one which will satisfy the demands of the home breeder; any other arrangement, presumably, must involve complicated machinery, which is always liable to get out of order.

In some way which shall be decided upon, as open to the least objection, contact between imported and home-bred stock is, we will assume, to be effectually prevented; the second consideration, then, presents itself, viz., the unrestricted movement of all stock which can be certified to be free from infectious disease. At this point the essential difference in the position of home-bred stock, as compared with that of imported animals, becomes apparent. Foreign cattle reach our shores tainted with a suspicion which can only be removed by their residence here for a time, while cattle bred and fed in the country are constantly under observation. In respect of every homestead in the country it is, or can be, easily known whether or no the animals on the

farm are free from infectious disease, and this being the case, no danger can possibly arise from the unrestricted movement of all healthy stock being permitted. No distinction beyond what is absolutely demanded by difference of circumstances need, therefore, be established between foreign and English animals. In both cases let those which are infected or even suspected be safely restrained. While we take means to prevent contact between home-bred cattle and newly imported foreign stock on the legitimate plea of danger, let us consistently put a veto upon the admixture of cattle affected or infected with pleuro-pneumonia or foot-and-mouth disease with healthy animals in lairs, markets, or on the public roads. And to do this effectually the removal of live cattle from farms and premises where these diseases exist must be unconditionally prohibited, so long as there remains a risk of propagating the infection.

Such an arrangement would do what is demanded—place imported and home-bred animals on precisely the same level, by according to each the privilege of freedom when they are ascertained to be capable of exercising it without injury to the sanitary condition of their fellows, and by shutting up either or both within secure limits, when they are known to be dangerous or when their condition prevents the owner giving the necessary guarantee of their exemption from infection. A vast number of circumstances will have to be considered in arranging the details of a measure which shall embody the principle for which we contend, but the difficulties, so far as we understand them, are not insurmountable, and the object sought is of sufficient importance to justify the expenditure of time and trouble in view even of its possible attainment.

PROPOSED TESTIMONIAL TO PROFESSOR SHARPEY, F.R.S.

A PROPOSAL has originated amongst the old pupils of Professor Sharpey to present him with some "memorial" of their personal regard, and of their estimation of his devotion and services as a teacher.

Two meetings have been held at Sir Wm. Jenner's, and at a future meeting the precise form which the "memorial" is to take will be decided upon.

USE OF GLANDERED HORSES IN NIGHT CABS.

The Society for the Prevention of Cruelty to Animals has recently instituted proceedings against several cab and omnibus proprietors for driving glandered horses after nightfall in the London streets. The cruelty of the practice does not require to be enforced by comment, but its danger to human beings coming into contact with the horses cannot be too strongly insisted on. It is abundantly proved that the poison of glanders may be transmitted from the horse to man, from man back to the horse, and from one human being to another. It may, moreover, be introduced into the system by mere contact with the mucous surface, as well as by inoculation. Glandered horses, therefore, coughing and sneezing in the London streets, are an evil which at least demand the vigilance of the police as much as vagrant curs and hoops.—*Medical Times and Gazette.*

EPSOM SALTS.

M. Lalieu recommends the following means of disguising the abominable bitterness of this useful purgative :—Having dissolved an ounce of it in half a pint of water, boil a third of an ounce of ground coffee for a few minutes in the solution, and strain through linen. This is to be divided into two doses, to be taken a quarter of an hour apart from each other.—*Bull. de Thérap.*

Analysis of Continental Journals.

By W. Ernes, M.R.C.V.S., London.

Clinique Vétérinaire, Toulon, Feb., 1868.

A CASE OF TETANUS CURED BY AMMONIA.

By M. Allégre, Veterinary Surgeon at Calmar (Barses Alpes).

The subject of this case was a donkey of large size; the symptoms were general rigidity; the head, neck, and jaws moved with difficulty, the body and legs were in a state of complete immobility, and the animal was unable to take any nourishment. The treatment consisted of bleeding, frictions on the spine with camphorated liniment; setons were placed on the chest; decoction of poppies, opiates in enemas, &c., had no effect. The author was advised by a medical friend to try what he called a new remedy, viz., to make the animal swallow from eight to ten minims of volatile alkali in half a litre of water; this treatment had often succeeded in the human subject.

The first day of this treatment there was no amelioration; on the second there was a slight improvement; on the third the muscles were slightly relaxed, and the animal was able to swallow; on the fourth the patient could masticate; from that day the improvement continued, and the animal completely recovered.

TWO CASES OF CARBON.

By M. Barthelemy.

The subject of the disease was a mule about ten years old. The animal seemed to be slightly indisposed; did not feed well; the pulse was slightly increased; respiration regular. Rest was enjoined with half rations, but, however, he became gradually worse up to the fifth day, when the symptoms were most severe: discharge of a reddish colour from the nose had set in; the mucous membrane was of a yellow tinge; the lymphatic glands were also enlarged. At night these symptoms were much aggravated, the conjunctiva was more injected, the eyelids swollen, and some petechial spots were observed; the animal drank less than in the morning. The discharge had now become bloody, the nose and lips were swollen, the respiration was sibilant, the urine oily.

On the sixth day the symptoms had made rapid progress; the respiration was sonorous, the swelling of the face and glands had increased, the penis was pendulous; there was great debility, the discharge from the nose was more abundant and mixed with blood; the mucous membrane was studded with vesicoide tumours, which made the access of air difficult. At four in the afternoon the symptoms were still more alarming; at six the animal died.

Up to the third day the author thought he had to deal with an affection of the lungs of a slightly atonic type. On the fourth he found that it was the *début* of a very grave malady, diagnosed acute glanders, but the next day found he had to deal with a gangrenous affection of the mucous membrane, a rare disease in the south.

The cause of this malady was an enigma. The animal was in good condition and vigorous; the stable well ventilated, situated on rising ground; but not far from it there was some low ground somewhat marshy, from which mephitic miasmas were disengaged. Whether this was the cause of this rare and formidable malady the author leaves to his more experienced colleagues to decide.

A SECOND CASE, BY THE SAME.

A MULE, ten years old, was sent to the same practitioner with canker in both fore feet. On the fifth day the feet were better, and the animal was sent back with a view to continuing the treatment at home. The day after the animal had not eaten his rations, and was found to be slightly indisposed, but there was no apprehension of danger. In the evening some difficulty was perceived in voiding the urine, which was thick, dark in colour, and somewhat unctuous; the movements of the flanks were increased; the beatings of the heart strong and oppressed; the superior part of the neck was moist; the countenance anxious. These symptoms, with the exception of the local disease, recalled to memory those of the first mule, which led the author to suspect an attack of carbon; but on a re-examination there was nothing to justify this suspicion.

On the next day a tumour was discovered between the fore legs the size of two fists; this was crepitating and carbonaceous; there was complete prolapsus of the penis, pulse small and quick, tumultuous beating of the heart, the flanks agitated and deeply furrowed, urine voided with great difficulty and of oily consistence; the tumour was incised, deeply cauterized, and dressed with ammoniacal liniment; the antiseptic treatment which had been prescribed was continued,

but it was evident that it would be of little avail. The symptoms became more intense, and the animal died at six p.m.

The cause of death was soon discovered; the author was informed by the servant that the animal had been fed for some months on musty hay, and the malady was, therefore, to be attributed to the fungi, which are the result of badly made hay. The stable was spacious, and had openings on every side, except on the north, and was, therefore, well ventilated and healthy.

M. Barthelemy had a presentiment that more of the animals, thirteen in number, would fall a sacrifice, as they had been fed on the same forage. This presentiment was unfortunately realised, the proprietor losing eight mules, either from carbon or other affections of the digestive organs or the lungs, all assuming adynamic types.

Journal des Vétérinaires du Midi.

HÆMATURIA IN THE OX.

By M. J. Canvet, Vétérinaire a Narbonne.

This malady appeared at the end of last summer amongst a lot of oxen which had been worked very hard in subsoil ploughing. The malady broke out a few days after the work had been completed. The animals, notwithstanding the hard work, had every appearance of being in good health, had during part of the day been depastured on some meadows which had been mowed some two months before; where, among the new grass, a great number of *ranunculi* and some few reeds and rushes grew. Of those who have written on this subject, many have thought that hæmaturia was to be attributed to the noxious effect of the ranunculi. It may be that these plants produce the effect attributable to them. Meanwhile, in analysing the symptoms of poisoning by ranunculi, and the cadaveric lesions when followed by death, it is not shown that those of hæmaturia have been observed, while traces of intense inflammation of the digestive organs terminating in gangrene were always found. The pasture feeding was only diurnal, the animals being stabled at night, and receiving a ration of dry forage. The drinking water was provided from the river; when this was turbid from the rain, the thirst of the

animals was assuaged from a well; the fluid could not be considered wholesome, it being retained in an alluvial soil mixed with organic matter, the water of which was of a somewhat dark colour indicative of its origin. The animals also drank while at pasture from the ditches which surrounded the meadows, the water of which being stagnant, contained organic matter which is known to be detrimental to health. But to these conditions must be added others, which are as essential, and perhaps more important, viz., the geological constitution of the soil, which is compact, and largely mixed with clay, making the passage of the water very difficult, the marshy nature of the surface, the neighbourhood of a waste pond on the confines of the estate, the emanations in daytime, and the humidity of the nights, constitute particular conditions in those districts which impart to maladies of the human subject a peculiar fatality. It was in the midst of these conditions that the malady manifested itself. Three animals were first attacked with the following symptoms: rapid loss of strength, slow and unsteady movements, frequently lying down, staring coat, tightness, dryness and redness of the skin, sensibility of the loins, loss of appetite, suspension of rumination, defæcation scanty, mucous membranes pale, or of a reddish yellow, pulse frequent and oppressed, urine very dark; in cows there was los of milk, and the udder became shrivelled. When the progress of the malady is not arrested the weakness increases, the lying down becomes more frequent, alternations of heat and cold on the skin, the cold predominating, tremors appear at the shoulders and thighs, defæcation becomes more unfrequent, and dry fæces are expelled with difficulty. The urine is mixed with blood, the prostration is more intense, the body becomes intensely cold, and the urine of an extremely dark colour. The animals sink under the general prostration after three or four days' illness, unless they recover by a judicious treatment. The convalescence is generally protracted.

The Autopsy.—This is in accordance with the symptoms: the kidneys show traces of inflammation in various degrees, and instead of increased vascularity ramollissement, redness, &c. The other organs are almost normal: one could not but be struck with the contrast in a malady so expressive in the symptoms, with so little to be observed in the morbid lesions.

A CASE OF RABIES IN A MARE.

By M. Laux, Vétérinaire à Cruzy.

If these cases are rare amongst herbivorous animals, it seems to be because the malady is not spontaneous in them, and that the rabid dog attacks but rarely other animals than those of his own species. The mare, the subject of this case, according to the information, is an example of the correctness of this opinion. On the 20th of May, 1867, the son of the proprietor was returning from one of their estates with the mare in a four-wheel vehicle, when he perceived about two hundred metres ahead a dog, the attitude and quiet demeanour of which did not indicate anything unusual, and it seems that had not the mare provoked the dog by giving him a kick, the dog would have passed on without further notice; but this aggression on the part of the mare caused a retaliation. On examining the mare after the dog had disappeared, it was found that she had received two little wounds, one on the external ali of the nostril and the other on the inner of the same part, indicating that they had both been inflicted by the same bite. The author was sent for to attend the mare, and only two hours elapsed before the wounds were effectually cauterised, but the sequel proved that it was too late. *Symptoms.*—From the 20th of May to the 9th of June the mare continued her services without showing any signs of derangement. On the 9th of June, some stiffness in the limbs and prostration were observed; the appetite, nevertheless, remained good, and the mare was as usual in her habits and demeanour, nothing led the owner to foresee what was to happen two days after. On the 10th the appetite decreased; the patient was continually biting the manger, which it almost devoured, but took little notice of the hay in the rack. The stiffness, which had been confined to the limbs, now extended to the body, but was more marked on the neck. With great difficulty she was able to walk a few paces when first coming out of the stable, but afterwards the stiffness relaxed somewhat, and she was enabled to move more freely; nevertheless, she was unable to drink at the river on account of the stiffness of the neck preventing her lowering the head. The pulse was full and hard; the mouth red and inflamed; and though she refused all solid food she still ate her mashes. On the 11th the symptoms were much more aggravated. At the first visit she was found to be more dejected. She rested her head on the manger, had eaten nothing during the night, became excited at the least noise or movement made

by the bystanders who were attracted through curiosity; this brought on an acute attack, while otherwise she remained in a comatose state from which even persons who were accustomed to come in and out of the stable did not rouse her; partial tremblings were observed, which, gradually becoming more general, announced the commencement of a paroxysm, the intensity and duration of which was in proportion to the persistence of the cause which produced it. In these cases the patient pawed the ground, was agitated, neighed against its usual habits, the eyes were wild and fixed, partial sweats covered the body; slimy mucus escaped from the mouth; she showed an inclination to bite. Her attention is specially directed to persons going in and out of the stable, and, it may be observed, the greater the number the more the exasperation; to such an extent did this occur that there would have been danger to the persons in attendance, had the curious not been expelled from the stable. The paroxysms were subordinated to the different impressions the patient received, and it sufficed to remove the cause which produced them to restore the animal to comparative calmness, so much so that it was even possible to approach it so as to examine the pulse. This was the state of the mare on the 11th; that is, the third day of the attack; towards the evening, and during the night of the same day, the patient became much worse; there was but little remission between the paroxysms, even in the absence of any of the existing causes above mentioned. The state of exasperation was thus permanent. When, though almost certain of the nature of the disease, which we had now watched for some days, to still further confirm the diagnosis, we decided on letting the patient loose in the stable, which would also enable us to study its actions and demeanour, but before this could be done she suddenly broke by a side movement both reins by which she was attached, and thereby was in the very position wished. Free she became calm, and remained so when not disturbed by any unusual noise or the presence of strangers or persons she was unaccustomed to. Was this change the effect of her suddenly obtained liberty, or would it have taken place without it? We think the former was the cause of the calm which succeeded her liberation. The author has no doubt whatever that the malady which has been described was a true case of rabies. For sanitary reasons no *post-mortem* examination was made on the mare when she was killed.

EPIZOOTIC AMONGST FOWLS IN THE DEPARTMENT OF GIRONDE.

By M. Dupont, Bordeaux.

For about fifteen years the fowls in the department of Gironde have been visited by an affection which carries off yearly a great number of them. This malady from its commencement assumed the character of an epizootic which has not yet been described. In 1854-5, it destroyed nearly all the fowls in several villages hygienically the most favorably situated in the department, and has since visited all the districts, and carried off the fowls of many farmyards. It differs essentially both in symptoms and lesions from the epizootic which prevailed in 1851 in the north of France, and which was the subject of a communication to the Academy of Medicine, by the then Director of the Veterinary School of Alfort, M. Renault.

Left to itself, this malady is very destructive. Its duration is from five to eight days. It does not attack at once all the fowls of a farmyard, but at short intervals, one by one, and selects generally the best fowls. It is very contagious. Isolation and disinfection at the beginning often stop its course. The continuance on the premises of a diseased or a dead fowl only for one day suffices to propagate the malady. It makes its appearance almost periodically in the spring in the environs of Bordeaux, in places where it has previously prevailed.

Symptoms.—It attack is sudden, a little dulness is perceived, the locomotion of the bird is slower, but this is hardly perceptible the first day; it soon increases, however, to a real difficulty. Thus, at the commencement the bird can still run and fly, less fast, it is true, than the healthy ones, but the next day it is unable to do either; the habits of the birds become greatly modified, they isolate themselves from the others, do not seek for food, do not roost, the sight is altered, the voice hoarse and short, the respiration becomes slightly croupy; if we now examine the inside of the beak we are struck with the wan appearance of the tongue; if we lift up this organ, by slightly drawing it out, we perceive on the sides of the dorsum, at its base, some small spots of a greyish colour shaded with black; examined by a lens, these appear like a granular eruption, or a simple hypertrophy of the papillary follicles. The paleness of the tongue is a strong contrast with the

mucous membranes, which are hardly modified in their physical characters. On the third day all the symptoms are greatly aggravated, the eyes are inordinately dilated, amaurotic, and half covered by mucus adhering to the lids; the nasal openings are obstructed by dried mucous secretions, the beak is dirty, locomotion uncertain and automatic, the crest pendulous, either discoloured or purple. The spots on the tongue appear like ordinary sized warts, of a greyish colour; these little bodies are found covered with membranous fragments bearing some analogy to the secretion of croup. The whole of the mucous membrane is now discoloured and wan, like the tongue. The patient is prostrate. The morbid productions soon invade the whole of the organs of deglutition, they are of an unusual size, which renders them immovable, completely preventing deglutition, by nearly closing the opening of the pharynx and larynx; asphyxia has become imminent. Thus, from the second day, the alterations of the mucous membrane of the tongue predominate over the other symptoms, which are evidently only the consequence of the first. These lesions completely distinguish this affection from the epizootic observed in the north since 1851.

In the *autopsy* on the number of subjects I have examined I have never found anything which resembled the morbid appearances so accurately described by M. Renault, and which led this learned pathologist to describe the malady as the cholera of fowls. The lesions which we have already described affect the bucco-laryngeal and pharyngeal mucous membrane, and consecutively all the muscles of the tongue. The mucous membrane is found to be pale, thickened, infiltrated, covered with a sort of gummy varnish and fragments of false membranes. The fibres of the external muscles are discoloured and softened. The epidermis which covers the papilla and follicles is elevated. The fibres of the outer muscles show less alteration than those of the internal. The hypertrophied parts of the papillæ and follicles resemble granular vegetations; they are without any consistence, and unprovided with epithelium. The œsophagus is wrinkled, and of a pale silvery colour; this alteration extends through the whole of the digestive organs. The crop only contained a few grains of sand; the ventricle, gizzard, and intestines are empty; the larynx discoloured and covered with thick mucus; the lungs pale, but without alteration. The other organs show no alterations, with the exception of the liver, which is slightly atrophied.

Diagnosis.—The seat of the malady is in the buccal,

pharyngeal, laryngeal, and lingual mucous membrane. The character and succession of the symptoms, with the nature of the secretions, and the duration of the malady, have led me to designate it as *Croupous angina*.

The croup, which is considered as a special affection of the human species, has its principal seat in the air-passages; if the contagious nature of it were less problematic, would it not suffice to approximate it to the malady which we have described.

The pip, considered as a disease of the gallinaceæ, has no analogy with it. The other affections of poultry bear still less relation to this malady, which resembles, evidently, the diphtheria of Bretonneau, the angina pseudo-membranous of the ancients, and which prevails sometimes epidemically in the human subject.

Treatment.—At the commencement of the attack, and before the development of the papillary hypertrophy, the sponging of the local mucous membrane with an alcholic watery mixture of iodine is to be recommended. After the appearance of the hypertrophy of the follicles, the amputation of the tip of the tongue by means of crooked scissors, with the immediate cauterization with nitrate of silver, are recommended. These operations are to be repeated if required, followed by the administration of a few drops of the solution of chlorate of potash several times a day, and, as a tonic, a few drops of quinine wine, and bread crumbs for diet. Prophylactic measures include sequestration and the speedy removal of the dead, disinfection of the henroosts and court yards where the fowls are kept.

Etiology.—The causes which annually determine about March or April the appearance of this affection in the department of the Gironde seem to be very obscure; it occurs under such different conditions of soil, position of the localities, methods of breeding, hygiene, and alimentation. Its manifestations have presented, and constantly present, peculiarities often fantastical, but always inexplicable. It attacks indifferently all the poultry yards, those of the rich and the fancier, who possess the finest and best breeds, and are placed under the most favorable hygienic conditions, these are devastated as well as those of the poor and the farmer. The high and elevated grounds are visited as well as the low-lying villages and marshy districts—none escape. For the last fifteen years it has periodically, at least once a year, visited every poultry yard where it had once been. Only in those places where hygiene and science intervene, its ravages have not been so great, and in several poultry yards the affection is half conquered.

PRESENTATION OF A TESTIMONIAL TO PROFESSOR VARNELL.

In our last number it was announced that a testimonial, consisting of a silver tea-urn and a purse of £100, had been sent to Norfolk for presentation to Professor Varnell on his retirement from the active duties of his profession. We have now the pleasure to publish Mr. Varnell's reply.

To the Committee and Subscribers to the Testimonial Fund.

Gentlemen,

In acknowledging the receipt of the splendid testimonial which you have kindly forwarded to me I beg most sincerely, and with feelings of gratitude, to tender my thanks.

I have also to thank the chairman, secretary, treasurer, and the committee, for undertaking a task which, though arduous, yet, I trust, has not been a disagreeable one. To the subscribers for their great kindness in contributing in the way they have done towards so munificent a gift I beg to offer my most grateful thanks, and to assure them that their generosity will be remembered by me to the latest hour of my life.

It is with feelings of pride that I notice on the list of subscribers names of gentlemen who formerly were my pupils, and to whom it was my greatest delight to impart what knowledge I could, and inculcate in them such principles as I thought best calculated to enhance their interests and uphold the status of the profession. This effort to do my duty as far as I was able seems not to have been forgotten by them. I also notice the names of ladies, who I beg will accept my special thanks.

The beautiful piece of plate you have presented me with will be treasured up by me as one of the most precious things I possess, and not to be parted with so long as I live, and when I have finished my day on this earth I trust it will be retained by some one of my family who will prize it, not only for its intrinsic value, but on account of the source from whence it originally came.

The inscription, beautifully emblazoned upon parchment, and

most tastefully framed, on which the names of the committee and subscribers appear, will occupy the best place I can give it in my humble abode, where, in my declining years, I can often look at it, and be refreshed with the thought that there at least is testimony that my humble efforts to do my duty were not altogether unappreciated.

I am reminded, however, that the attainment of our most ambitious desires, or the choicest gifts which can be bestowed upon us, is often marred by events which, while they do not lessen the value of the gift, or detract from the recipient's pleasure, yet, as in this instance, cloud the brightness that otherwise would be produced. One of such events I must allude to, which will be remembered with sorrow by every member of the profession; I refer to the death of our esteemed friend Professor Morton, who, I have reason to know, took an early and active part in arranging that a testimonial should be presented to me on my retiring from the Royal Veterinary College. But, alas! he was not permitted to live to witness this, to me, flattering expression of your kindness carried out. Through the sad event of his death your committee lost his valuable co-operation, the profession one of its brightest ornaments, and his immediate acquaintances a warm-hearted and kind friend. But sad as this event was, a far, far sadder one has since befallen me, viz. the death of my wife, which will cast a gloom over the rest part of my life, be it long or short. I feel constrained to allude to the loss of my wife because she was so pleased and interested in the honour you were about to confer upon me; I, therefore, may be pardoned for so doing.

Your committee very kindly requested me to name the piece of plate which I should prefer. In this matter I wished to consult my wife, knowing that whatever might be her choice I should be pleased. She wished it to be a *silver tea-urn* of such a pattern as would match a silver tea and coffee service I had the honour of receiving from the students of the college a few years since. In this choice your committee acquiesced, but, to my sorrow, my good wife was removed from me by death before your valuable testimonial was presented. I have thus mentioned two events calculated to throw a dark cloud over my path of life; but I must not continue further to express myself in this way. You will reasonably ask if the cloud has no brightness above or behind it? Yes, thanks to you, my friends. Your kindness gives it a silver margin which makes me look forward for brighter days; but whether I shall ever realise this or not who can tell; in my present state of mind I

have but little hope in this world for such a result. I feel quite unable to allude as I could wish to events connected with my college career, or to express fully my desires for the future of the profession. I will, however, state very briefly that I sincerely hope its members will not relax their efforts to obtain a higher professional education, and a more rigid test of the fitness of a pupil to receive his *diploma* than has hitherto been instituted.

More knowledge and more science are needed to satisfy the public and displace the empiric. In these remarks I am confident that many members in the profession will agree with me, and to such I would say, cease not to agitate this question until the desired object is attained—let one and all cry out "Excelsior."

In concluding my brief reply, which but faintly expresses my feelings of gratitude for the great honour you have done me in presenting to me this beautiful and valuable testimonial, let me assure you that, although wholly retired from the profession, I shall, nevertheless, watch its progress with anxiety, and as I pass through the few short years allotted to me should I discover that its progress is in accordance with the times, and its members are happy and prosperous, I shall be pleased and thankful—thankful to those especially who were instrumental in effecting its advancement.

I am, &c.,

GEORGE VARNELL.

Beech House, Belton, Suffolk;
February, 1869.

THE EXAMINATION QUESTION AND THE ROYAL COLLEGE OF VETERINARY SURGEONS.

A SPECIAL MEETING OF THE COUNCIL was held Wednesday, February 24th, 1869.

The President in the chair.

There were also present Professors Simonds and Brown, Principal Veterinary-Surgeon Wilkinson, Assistant-Professor Pritchard, Messrs. Broad, J. C. Broad, Ernes, Fleming, Greaves, Hunt, Harrison, Lawson, Moon, Robinson, and Thacker.

The Minutes of the last meeting were read and confirmed.

The Examination Committee brought up its Report upon the subject of the present system of examination for the diploma of the college. The committee reported that after a careful consideration of the question they were of opinion—

1. That the present system of examination is deficient.

2. That practical examinations on the living and dead subject are necessary.

3. That the examinations should be oral, written, and practical.

4. That the examinations should only take place once a year, and be divided into three periods, on different days, at such intervals as the Council might determine.

5. The committee suggest that the reorganization of the examining board, with a view to the appointment of veterinary surgeons in the place of the medical examiners, is worthy of the consideration of the Council.

A very animated discussion ensued.

The general opinion was in favour of a preliminary examination of candidates for admission to the college, and the adoption of practical examinations.

Ultimately the discussion was adjourned to the next meeting of the Council.

THE LIVERPOOL VETERINARY MEDICAL ASSOCIATION.

THE quarterly meeting of the association was held in the Medical Institution, on the evening of Friday, February the 12th, Mr. Greaves, of Manchester, President, in the chair.

The following gentlemen were present:—Messrs. G. Heyes, Proctor, Harwood, Morgan, Wilson, Duff, Ackroyd, Liverpool; P. Taylor, Gibson, Nottage, Manchester; Storrar, Chester; Whittle, Worsley; Cartwright, Whitchurch; Walley, West Derby; Dobie, Birkenhead; Roberts, Oswestry; W. C. Lawson, Woolton; Halsall, Southport; and the Secretary.

After tea (which was provided by the President) the minutes of the previous meeting were read.

Mr. Cartwright took objection to the statement contained therein, relative to some cases communicated to the association by him at their former meeting, it being stated that they were cases of "poisoning of young stock by acorns," such not being his expressed opinion. After an alteration of the minutes, agreeable to Mr. Cartwright's wish, they were confirmed.

Mr. Morgan, in proposing a donation of £25 from the association to the Benevolent Fund of the Defence Society, said it could not but be gratifying to the members to find that, although the annual subscription to the association had been reduced one half, they were able to spare a tolerable good sum to assist in endowing a society the benevolent object of which commended itself to every one without any remark from him. He adverted to the necessity of this branch of the society possessing an adequate fund before it could become practically efficient. He compared its small beginning with that of some other institutions of similar character, and felt confident in anticipating for it a like success in its truly philanthropic purpose.

Mr. Gilbert Heyes seconded the proposition, which was carried unanimously.

Mr. Greaves, Treasurer to the fund, suitably acknowledged the donation, and explained to the meeting that the challenge recently issued by the President of the society (Mr. P. Taylor), to give £10 if nine other members of the profession would also subscribe a like sum, had been accepted by five veterinary surgeons, so that there remained but four others to secure a very handsome sum to the fund.

Mr. G. Heyes said he had great pleasure in accepting Mr. P. Taylor's challenge for so excellent a purpose, and hoped the complement of donors would soon be made up.

The President then delivered his inaugural address.

GENTLEMEN,—In delivering an address before the members of the Liverpool Veterinary Medical Association, I feel that it is necessary, in the first place, to state that I esteem it no light honour to be permitted to occupy the chair that has been so worthily filled by my predecessors, and to preside over an association of veterinary surgeons of the city of Liverpool; and though I am conscious that my claim to this high position is much inferior to that of others whom I could name, I recognise in my election the expression of a conviction that I shall exercise my humble abilities for the well-being of this association. Although this is the first inaugural address delivered before you, I confess there is but little matter I can advance that has not been, in one form or other, put forth in addresses to other associations; therefore I need not go over the ground which has been so ably and so successfully traversed before.

The value and usefulness of these associations are admitted everywhere by practical and experienced men. They have made immense progress in all quarters of late years: they require no eulogy from me; they have now acquired the force of accepted historical truth; the controversy, if ever there was any worthy of the name, has long since been exhausted on both sides. But although nineteen out of every twenty members of our profession yield a willing assent to their utility, there is, and ever will be, a certain per centage who object to come amongst us. There is no shutting our eyes to the fact that there is an unmistakeable and a leaden apathy amongst the members of our profession, and something is still wanting in order to secure, if it is attainable, the full measure of success. I do not say this is impossible—I do not say it will require the voice of the charmer to conjure up a mysterious influence, in order to cause every member of the profession to become a member of a veterinary medical association; because, if such was the condition upon which success depended, I for one should at once despair of their permanency. We wish to see things as they really are in our profession. We wish to be real, to look only at realities, and by meeting together, interchange thoughts and ideas. By having more frequent and closer intercourse with each other, we form new estimates of ourselves and of mankind; we stimulate each other to attend more earnestly to what appertains to our own interests, and by adopting everything that is an improvement, we by such means render ourselves more useful members of society. Upon our present mode of treating the various diseases in our patients there are those who say, "What's the good of study, or attending these meetings; there is nothing got by it." Such men deserve, and that most richly, to be ostracised. The progress of our science is referable to its inherent vitality, its power of convincing men that our knowledge, our method of treatment, and its results are unquestionably far in advance of those who have gone before us. We want our progress to be both seen and felt; we wish to leave legible and enduring footprints upon the sands of time;

already we can see unmistakeable evidence of laudable aspirations and of progress in professional knowledge. I shall now more especially refer to that noble and enduring monument—the National Veterinary Benevolent Society, and secondly to the treatment of tetanus, laminitis, and canker, three of the most dreadful maladies we are called upon to contend with. Is not this society an earnest of much more that associations can do? Thus it may be said that already have these associations held a beacon aloft to light the profession in the path of progress. Let us endeavour to give our profession that impulse which will carry it on for ever. Allow me, in all earnestness, to impress this truth upon your minds, that our day of opportunity will soon be passed. "Let us live whilst we live," by promulgating higher and broader views of duty; for, be it remembered, that whilst we are associating together for this purpose we are ourselves receiving (almost unconsciously) impressions for our own benefit. Our object and resolve should be to disseminate information broadcast—to indoctrinate the profession. No knowledge is really worthless—no honest search for it in vain. It is the man who pushes energetically and cheerfully forward that reaps the reward of a well-spent life. Let us be anxious to so live as to be missed when we die. One energetic attempt is worth a thousand aspirations. We should count time by beats. He lives most who does most, thinks most and acts best. The man who will not execute his resolutions when they are fresh upon him can have no hope for them afterwards; they will be lost, dissipated, and stifled, in the hurry and scurry of the world, or swamped in the slough of indolence.

The man who keeps himself aloof from these associations must be a man of perverted sympathies. He is imprisoned within himself by reason of his egotism. Like an animal, he stands aloof; he is solitary in any company, and prefers keeping himself to himself. However much we may regret the amount of mind-power which is, as it were, palsied and lost, still he is *himself the greatest loser thereby*. His predilection to exclusiveness deprives him of access to those means of acquiring that peculiar knowledge which, of all knowledge, is the most useful, and which is alone derived from the school of experience; he misses the greatest opportunity ever offered to him of improvement and utility; he contents himself with the same work, the same materials (it may be they are antiquated) to work with and to work upon; there is a sameness of impression in every recurring case, the same thought comes back again upon him; the same treatment is adopted year after year; all his calculations and investigations are instituted and revolved in silence; no companionship, or only very limited with his professional brethren, with whom to interchange thought and refresh memory. There is no effort to get out of the old time-worn groove. The motives which generally actuate men in keeping themselves aloof are often found in the dread of committing themselves before others. In others it is attributable to an instinctive love of the art of concealment. In others, again, it is referable to a naturally unsocial nature, a pure indolence, a

total absence of interest, either in their own or their profession's progress. Then, again, there are others who exclude themselves from sordid selfishness; they conclude because they produce no tangible cash returns at once they are of no use. Now, of this last characteristic trait it may be said that selfishness is poverty; it is the most utter destitution of a human being; it can bring nothing to his relief; it often adds soreness to his sorrows; it sharpens his pain; it aggravates all the losses he is liable to endure. Nature recoils from the miser, who caresses mammon with one hand, while death plucks him by the other; and when goaded to extremes by increased avaricious and penurious habits he often turns destroyer, and inflicts the last blow upon himself. Men of this class generally remain such to the end of the chapter.

"The primrose on the river's bank
A yellow flower is to him,
And it is nothing more."

It may be argued by some that I am taking too prominent a part, am engaged too much in these associations; to such I may reply that I do take a deep interest, and ever have taken a deep interest, in their success, because I believe sincerely that they present opportunities more favorable to the advancement of our profession, and, therefore, increasing its usefulness in society, than anything that has ever occurred before. It is because I am desirous that myself and my fellow veterinary surgeons should become better informed, get clearer views of our science, see more brightly into the obscure things, and by these means work out the attainment of our most cherished objects. I feel no shame in saying it is one of the proudest feelings that possess me to know that these associations are becoming more popular and more numerous, numbering now about fourteen distinct associations. At this moment also my friend Mr. F. F. Collis is at work in establishing one in Dublin. England has her eight or nine, Scotland her four or five. Edinburgh has one, Glasgow has one, but London, alas! is still silent. However, it is most gratifying to find that they are doing much good in a variety of ways, and are assuming the proportions of a national institution. Yet it often fills my mind with sadness to find that there are a few men who, instead of hailing them as a boon, attempt to sneer them down, throwing the wet blanket upon our efforts, trying to stem the stream which is intended to contribute to, to fertilise, and nourish the profession; for of these associations it may be said—

They all to one grand point will tend,
As by some natural law will move,
Each in its own converging groove,
To one grand point, to one grand end.

A man is the happier for life for being frequently amongst genial spirits, for having agreeable and excellent companions, and for

having enjoyed many intervals of conscious gladness amongst innocent pleasures. We cherish the memory of these things because the simple remembrance of past happiness scatters its sweet influences on the worn and beaten path of our daily life; it seems to cast its halo around us wherever we go, in trial or suffering, and in joy. It would seem to have a power in mitigating labour, soothing care, and giving a keener relish to delight; it touches the heroic springs in our nature with a noble sentiment, kindling our hearts, and lifting our imaginations, and hovering alike over the couch of health and the sick pillow to bless and cheer, to animate and console. Even the trials and sorrows of life become less a burden because their weight seems to be shared by willing shoulders, and even death itself is not so terrible, because, as we approach the confines of that mysterious gulf, we are accompanied, even there, by the sweet endearing reflection that we have the tender and affectionate solicitude and sympathy of many devoted and sincere friends, who seem to say, as one of yore,

> "Yet sorrow not, he softly said,
> As one who sorrows in despair;
> Think of him not as one that's dead,
> But living where the angels are."

I distinctly wish it to be borne in mind that there yet remains an immense unexplored field to invite the cultivating efforts of the young and scientific veterinary surgeon. I have always wished most earnestly to excite the enthusiasm of the young, as well as to enlist the co-operation of those more experienced. A sentiment, a habit of feeling, once communicated to another mind, is gone, it is beyond recall; if it bore the stamp of goodness and usefulness it is blessing man, and owned by heaven. The immediate and visible effects may soon be spent, its remote ones who shall calculate! The oak which waves in our forests to-day owns its form to the acorn which dropped from its remote ancestor, under whose shadow the Druids worshipped. Human life extends beyond the threescore years and ten which bounds its visible existence here. The spirit is removed into another region, the body crumbles into dust, the very name is forgotten upon earth, but living and working still is the influence generated by the man. The characters of the dead are inwrought into those of the living, the generation below the sod formed that which now dwells and acts upon the earth, the existing generation is moulding that which is to succeed it, and distant posterity will inherit the characteristics which we infuse into our children to-day.

I have not yet touched upon veterinary politics; there is not much time to enter into that subject, but I must glance at it. It appears there are some persons in Scotland who are still desirous to obtain for Edinburgh a separate charter; they intend to apply to Parliament again. Let us hope, for the sake and well-being of our profession, that the attempt to divide so small a body will

again be unattended with success. I have some reason to believe, however, the attempt will not be persisted in.

It is with great satisfaction I see that the preliminary (or, more properly speaking, the initiatory) examination of the youth as he presents himself at the college for admittance has been instituted in each of the colleges, and is carried out now at the Royal Veterinary College, London, and at Glasgow Veterinary College, in a very fair and satisfactory manner. Professor Williams announced at the annual dinner that he had come from Edinburgh to arrange terms with the London college, but it is to be regretted that all the schools or colleges do not carry this out in concert, because, in the event of one college rejecting a candidate consequent upon the grossly defective state of his education, one of the other schools might receive him with open arms—hence the danger of rivalship.

Again, it is urged by some that our schools should be endowed by Government, be supported by the Government, as they are on the continent, and that the professors be paid by Government. Now, my opinions and views are not in favour of this plan; I think, with Professor Williams and other professors, that each college should support itself. Let each stand or fall according to its own merits; if it cannot stand, why, then, let it fall. Private enterprise calls forth all the energies of man, and evokes his highest principles. I believe that nearly all Government endowments tend to produce independence, indifference, and extravagance. Its tendency is to weaken individual effort, individual interest, and individual exertion; therefore I say, paraphrasing Campbell,

> Our profession needs no bulwarks,
> No towers along the steeps;
> Its march is onward, midst disease
> And science still our motto keeps.

But there is another question of vast—yea, indeed, it is of the last importance to our professional well-being—viz. the education of the future veterinary surgeon. Now I wish it to be distinctly understood that in the present state of things neither we, the members of the Council of the Royal College of Veterinary Surgeons, nor the Court of Examiners, have any power upon or over the degree of education possessed by the youth when he presents himself at college, or the sort of education taught him at any of the teaching schools, or colleges. They, the colleges, are private or distinct establishments, wholly and entirely separate from the Royal College of Veterinary Surgeons. We have the power, and we are the only body who have the legitimate power to elect a Board of Examiners, to examine a candidate when he presents himself, with a view to the obtainment of his diploma, and we are the only body legalised to grant diplomas on veterinary medicine and surgery in Great Britain.

It will be perceived by you that we are a divided head, an irresponsible head. If you go to the colleges and complain that numbers of young men emerge from these institutions wholly incompetent

to practise the veterinary art, you are at once told by the professors that they have all along admitted that they cannot teach a youth the practical knowledge of his profession fully in two sessions, the thing is impossible, the fault does not lie with them. You may then go to the Council and Examining Board, and complain to them that numbers of young men emerge from out of their hands with a diploma who are wholly incompetent to practise the veterinary art; here you are at once told that neither Council nor Examiners have any voice in the matter of examining the youth as to his fitness or capacity, in respect to his education, as he enters the college; neither have they anything to do with the sort of teaching at the colleges, that the fault does not lie with them. Thus, you see, as things are now, nobody is to blame, and thus matters go on. The youth is placed in a false position, and the public is led to place their trust often upon a broken reed.

Gentlemen, the cry everywhere is—it is pronounced loud and deep, and I fully and most heartily coincide with it—that there should be only one head, and that head to be held responsible for any and all shortcomings or defects in the system of educating and teaching the veterinary student.

I believe there is a perfect unanimity of opinion amongst the members of this Association upon this point; it is, I am convinced, the same amongst the members of the Lancashire Association, the Yorkshire Association, the Midland Counties Association, the West of England Association, the North of England Association, and also the Eastern Counties Association, viz. if it is a fact that the Council have not any power in these matters it should possess the power.

1stly. The Council should have the power to fix what should be the minimum of education possessed by the youth when he presents himself to enter the college.

2ndly. The Council should appoint the initiatory examiners.

3rdly. The Council should have the power of a general supervision over the teaching of the student while in the college, the manner and nature of the teaching, and of securing his presence at every lecture, and also of giving him every opportunity to see every examination and every operation. I do not say the Council should have power to interfere in the internal business of the institution in its character of a commercial enterprise.

4thly. The Council should possess the power to appoint all the professors as well as the examiners. In short, the duties of the Council should comprehend the whole system of education and examination of the veterinary student. And then the public and the parents of [the youths who are now or who will hereafter be at the colleges would have more confidence in us, would know exactly whom to complain to, and who are the parties who are accountable and responsible, and to whom they may look to supply a remedy.

Let the examiners be elected for five or ten years, instead of for life, as they are now. Let the Board of Examiners be reconstructed, and be composed of none but veterinary surgeons. The services of the medical element will be ever remembered with feelings

of gratitude, but the time has now arrived when our profession may with safety be left to itself. I believe we can find many quite competent to examine upon physiology, chemistry, and materia medica. We have many now, and should soon have more, who are educated scientific men, ambitious and aspiring, who would soon become fully competent to perform the duty.

But how is this to be brought about? I see no way to it but this: the whole of the above and other matters deemed desirable should be incorporated in a Bill to be embodied in an Act of Parliament. Not only must the veterinary profession be united, but we must have the professors of each of the colleges and the governors of the colleges with us. They must all be parties to the obtainment of the Bill, and also in the carrying of it out. It will now be seen why I associate in my mind education and examination. And I fully believe, if the various associations named above and others also will petition the Council and colleges, and agitate the question properly and persistently, these things can be accomplished.

I have reason to believe that the Highland and Agricultural Society of Scotland have decided to discontinue their examining Board. Now, I am one of those who believe that the education of the youth, however high it may otherwise be, if that education has been accomplished without giving him an opportunity of seeing practice, and receiving a practical knowledge in his youth, is a great mistake. Have we not proof upon proof that a young man may receive an excellent, yea, a most refined education at school, attend college, pass a most creditable examination, gain his diploma —here let me observe if the candidate answers every question put to him by the examiner correctly the Board is obliged to pass him and give him his diploma, which sets forth that he is competent to practise the veterinary art (understand me aright, it is not sufficient that the examiner shall suspect or conjecture that the candidate is deficient on some subject not examined upon)—and, alas! as soon as he comes into practice, it is found that he cannot even tell which leg a horse is lame of. Do not blame the examiners, but the system; the best things to be learned are things that cannot be examined upon. This is the case with numbers, yea, nearly all who have not seen practice. How can it be expected to be otherwise? The thing is simply disgraceful, and wants a radical alteration. The experienced and shrewd examiner can in the first half-dozen questions gauge the capacity and efficiency of the candidate. Have we not been over and over again told by the professors that it is utterly impossible to impart that degree of practical knowledge at college in two sessions which is necessary to ensure the making of a competent veterinary surgeon?

As to extending the time to three or four years at college, I am by no means an enthusiastic approver of that course; after the second session everything there is simply routine. I have known educated students, at college five or six years, who would have cut only a very sorry figure in practice if left to themselves. I maintain that the education in the world falls short of producing a

useful veterinary surgeon if his practical training has been neglected or omitted in his youth. Our motto must be, "Practice with Science."

I hope and trust these associations will not allow the question to die, but I want this and each of the other veterinary medical associations to co-operate with the Yorkshire Veterinary Medical Society in petitioning the Council to take into consideration the question of incorporating a practical test in their examination for a diploma; and also petitioning each of the colleges to enforce the apprenticeship system, or an approximation to it. In Scotland apprenticeships are almost unknown. I want these associations to speak out and to keep agitating until this is satisfactorily established. This is a point of the greatest importance to the future well-being of our profession. Only think of a youth being taught veterinary surgery where there are no patients to be seen!

We have an Examination Committee of the Council of the Royal College of Veterinary Surgeons; but although I am upon this committee, I cannot disassociate in mind examination from education. I maintain it is futile and incongruous to institute a code of rules or subjects to be examined upon for the guidance of the examiners unless at the same time at the colleges the professors teach the students upon such subjects. It is quite proper that the Council take the initiative. It is quite true that the adoption of such a course may tend to spur on the teachers at the colleges, become a sort of pressure from without, and a justification for them to press onwards.

At one of the examinations in December last three candidates only out of twelve passed. If the number of scientific subjects to be examined upon be increased, and the list be made still more severe, how many candidates, I would ask, could get through? I would have the subject of examination and education merged into one committee; let the principal of each college form part of such committee, and by all means have a voice in the formation of the Boards of Examiners, go hand in hand in the work—they are members of Council and have a legitimate right to a voice in it; and above all other things, first and foremost, I would have the practical test at the examination, and the practical education of the youth carried out. Is it not a well-known fact that many young men enter our veterinary schools fresh from the counter, the office, the desk, or it may be from the highest scholastic institution, without any previous knowledge whatever of the practical duties which they may be called upon hereafter to perform, whilst others again are equally ignorant of everything but equine practice; as students they may be all that can be desired, but the true test remains to be applied by the public. When having obtained his diploma the young "vet." settles down in some town or village to practice, perhaps in the face of much opposition, it is then that the tug of war begins. Can we, I ask, expect, or reasonably suppose that fifteen months' training at a veterinary college is sufficient to enable the student to satisfactorily discharge the grave duties and responsibilities

of a veterinary surgeon? Let the failures of many give the answer. Again, is he *de facto* what the diploma declares him to be, fully competent to practise the art and science of veterinary medicine and surgery? Let the still small voice of conscience give the answer. Again, whose services are most sought after, and ergo, whose in which the most confidence is placed—the practical man, ignorant though he be, or the fifteen-month student of veterinary science who writes M.R.C.V.S. at the end of his name? Let a discerning public give the answer. Why, gentlemen, we know full well, and most reluctantly confess, that this is no overdrawn picture, but a simple statement of facts which our daily observation and experience alike confirm; were I to state the contrary it would be a violation of truth, a perversion of facts, and an insult to common sense. At a meeting composed exclusively of veterinary surgeons, it is both a duty and a privilege for me to speak frankly and without reservation my honest convictions, and if I am in error I am open to conviction, and will cheerfully retract what is shown to be wrong; but if, on the contrary, I am correct, then I respectfully invite your co-operation and assistance to remove existing evils, in the manner I have suggested in a former part of this paper, which, if rigidly adhered to and faithfully carried out, will render our future veterinary surgeons more worthy of support, and also enable them more successfully to combat empiricism, which on all sides abounds, and ultimately to claim from the State that protection which is given to their professional brethren in other countries, and which they are also entitled to as members of a liberal and enlightened profession. From a brief summary of my opinions, published in the pages of the *Veterinarian*, on the training of youth for the veterinary profession, you will observe—1st. That I am in favour of a substantial English education, to which a knowledge of French and Latin will form a valuable addition; 2ndly. That I strongly insist on the necessity of two or three years' practical training under a veterinary surgeon of eminence and extensive practice; 3rdly. The usual curriculum of study at some one of the recognised veterinary colleges; and lastly, a practical test in the final examination. These are convictions developed by experience. They are the questions which await solution. Gentlemen, in conclusion, let me add our prospects are very hopeful, our cause is good, but to each of you I would say—

> "This above all: To thine own self be true,
> And it must follow, as the night the day,
> Thou canst not then be false to any man."

The President said the question upon the education of the veterinary student was one of the subjects selected for discussion, and he therefore wished the consideration of Mr. Walley's paper should again receive the attention of the members.

Mr. P. Taylor, after eulogising the President's assiduity in grappling with the several obstructions that interfere with the advancement of the profession, deprecated the supineness of the Government

in acknowledging the services of the veterinary surgeon, and instanced the deplorable losses sustained during the late visitation of cattle plague, which would have been reduced to a minimum had veterinary knowledge been recognised and its co-operation secured at the outset. He should like to see veterinary schools in England, Scotland, and Ireland, placed upon an equal and sound basis, having one common head—the Council—representatives of the whole profession in the United Kingdom, in which should be vested every authority of governance, the appointment of examiners, and control of the teachers. He considered that the veterinary student should have a sound English education, and that in lieu of the acquisition of modern languages and proficiency in classics, he should be certified by a respectable veterinary surgeon to be qualified to practise his art.

Mr. Cartwright advocated the continuation of a classical education with an apprenticeship to a veterinary surgeon, and that it would be well for a pupil to serve one half his time, and then pass one session at College, so that during the remainder of his apprenticeship he might learn to apply principles to his practice.

Mr. Walley thought the suggestions he had offered for discussion at a previous meeting of this association had been buried in oblivion, and was glad to hear them revived by the President on this occasion. In commenting upon the remarks made upon his former paper by Mr. Hunting in the *Veterinarian*, he thought that his arguments for a practical education were very considerably supported by the fact that the prizes awarded at the college for proficiency in the science of veterinary surgery, in by far the majority of instances, were gained by students who had seen the most practice.

Mr. Proctor coincided with Mr. Walley's views, and considered the advantages to be gained by the possession of practical knowledge cannot be equalled by any amount of classical education.

Mr. Morgan said the true difficulty to the solution of the question appeared to him to be how the practical part was to be taught. Enforcing the apprenticeship system would not do; it had been tried in the medical profession, and failed in its result. He thought if all the schools were placed on an equal footing, under one common head, and a thorough practical examination at the end of the pupilage instituted, each set of professors would do their utmost to qualify their students for such an ordeal. He should like to see botany introduced amongst their other studies. He also thought that all the examiners, except, perhaps, those on chemistry, should be members of the veterinary profession. He did not wish that these reforms should take place immediately, so as to place any person at a disadvantage, but would give one or two years' notice that such changes would be enforced.

Mr. P. Taylor agreed in the main with the statements expressed by Mr. Morgan, but thought the time had *now* arrived for some beneficial changes to come into operation. The profession owed a duty to the public, and sacrifice of the private interests of the few

should be made subservient to the more urgent necessities for general benefit. He was of opinion that the professors should not in any way be mixed up with the Board of Examiners, but give their unaided attention to the education of the student. He would withdraw the suggestion he had previously made with regard to an apprenticeship being enforced, with the proviso that, if a student on admission at the college could not produce a certificate of practical efficiency from a veterinary surgeon, he should be required to attend an additional session and receive special practical instruction.

Mr. Walley deprecated the method now adopted at many of the colleges of teaching the practical duties. He considered the pupils should be required to perform all the minor operations and other general manipulations upon the infirmary patients there.

Mr. Gibson endorsed the former speaker's opinions, but considered that the working of the proposed beneficial changes would depend upon the character of the parliamentary bill which had to be tacked on to the Charter. Students at the College of Surgeons were obliged to "walk the hospitals," become practically acquainted with the duties due to their patients, thus doing away with the necessity of an apprenticeship. Compared with the mode of teaching adopted at the Continental veterinary schools ours was very deficient. He suggested that a memorial be presented to the Governors of the College to invest the Council with increased powers, that the Council thus armed should send a visiting committee to see that the students are efficiently taught. On the subject of literary education he advocated one of high class, supporting his argument by comparisons in favour of foreign veterinary literature to that of this country. He considered the time employed in testing the proficiency of candidates for the diploma very insufficient.

The President said the Charter in its present state was of very little use; it did not give necessary control to those who had the greatest interest in the well-being of the profession, yet he should not like the voices of the Professors to be silenced on the educational question, but he wished to conciliate them and smooth the path for them and the Council to tread together.

The President of the Liverpool Microscopical Society having kindly invited the members to view some objects of anatomical interest which were being then demonstrated in the theatre of the institution, an adjournment was made. The members were gratified by seeing some good specimens of dental and osseous tissues.

On reassembling,

Mr. W. C. Lawson introduced the subject of breakdown, and exhibited the fore legs of an aged horse used for harness purposes. He stated that the horse, whilst at walking exercise on turf, with a light weight upon his back, suddenly fell, and upon examination it was found that comminuted fracture of both sesamoid bones in each foreleg had taken place. Mr. Lawson thought it was a very unusual case, and one deserving to be brought before the association; he could give no previous history of the case likely to elucidate the

existence of any predisposing cause, except that as the members could see the feet had been much neglected and allowed to grow very long.

Mr. Wilson thought that in many cases of breakdown mismanagement of the feet was a chief cause, the toes rarely being sufficiently shortened.

Mr. Roberts related a case of true breakdown in the thoroughbred horse Nuneaton, for which he fired him with a flat-iron, the result being very satisfactory.

Mr. Heyes thought, from the contracted appearance of the feet, it was very probable the horse was the subject of disease in the navicular joint. He thought it would be interesting and instructive to ascertain whether such was the case.

(The President desired preparations of the feet to be made and exhibited at the next meeting, Mr. Wilson having volunteered to dissect one and Mr. Lawson the other.)

In reply to a question from Mr. Roberts, *Mr. Lawson* stated the horse had short, groggy action; and to one by the President that he had not been neurotomized.

The President said it was a case of much interest, and one from which some practical knowledge should be gained. In his opinion the fracture occurred during a forward slip on the grass.

The Secretary thought unconscious movement had something to do with it; if the flexor muscles of the limb did not contract at the proper moment, an increased strain would be thrown upon the sesamoideal ligaments, the integrity of which being greater than that of the attached bones, fracture of the latter would result.

Mr. Proctor considered the extent of leverage to the ligaments being so much increased by the abnormal condition of the feet was sufficient to determine the fracture.

After according a vote of thanks to the President and Mr. Lawson the meeting dissolved.

Richard Reynolds,
Hon. Sec.

EDINBURGH VETERINARY MEDICAL ASSOCIATION.

At a meeting of this association, held February 10th, 1869, *Mr. Gerrard*, student, in alluding to the death of Prof. Strangeways, said—

Mr. President and Gentlemen, since we were last assembled in this place, changeful Death has snatched from earth a generous, noble-minded, and a large-hearted soul, whose energies were looked upon as far from being spent, and whose peculiar powers and culture, added to his generous, manly nature, had given a singular interest to, and cast a bright halo around, his Alma Mater, the loss of which, I am afraid, will not soon, if ever, be replaced.

It becomes us, therefore, his sorrowing students, on this our first occasion of meeting together as members of this association, of which he was so distinguished a President, and to the chair of which he was always so cordially welcomed, to record the deep sense of the loss sustained by his untimely and premature removal from us, as well as to convey to his bereaved partner and sorrowing relatives our manifesto of the esteem and respect in which he was held by us as our teacher, our trusted, tried, and acknowledged friend.

It is with no "fantastic sorrow" that such a loss must be mourned, the heart must thrill with pain when such a bereavement compels us to utter the solemn requiem of sorrow, for the sudden abstraction of a tried and valued teacher and friend.

Gentlemen, I am bold to say that, in the person of the late Prof. Strangeways, all these things met and harmonised; and who is there amongst us, or who that has ever listened to his teaching and enjoyed his friendship, that did not find in him one or all of them? and I think it may be safely affirmed that he left this earth without an enemy.

He had about him the essential elements of greatness, a quality at no time so superfluously plentiful in this world as to be easily mistaken; its characteristics are too well marked, and too conspicuously evident, to be erroneously attributed with such singular unanimity and enthusiasm to any one who had not, in an undeniable manner, gained his position in the very face of deprecation. We do not mean that greatness which is measured merely by the *object* accomplished without regard to the manner of its accomplishment. "Greatness," says the talented Arthur Helps, "is not in the circumstances, but in the man," and it possesses these as its prime and all-important qualities, "openness of nature to admit the light of reason and courage to pursue it."

The honest performance of duty is the noblest heroism, the truest manliness. In the mighty strife of time we have each to bear our

part, and if it be well and bravely done, whatsoever be the form therefore, it is sacred and noble.

Truly, honestly and well, did our lamented teacher bear his. With him veterinary science has lost one of her brightest ornaments, a respected and devoted teacher, a teacher whom all that ever listened to must respect; one in whom the humility of the student was firmly and wisely blended with the dignity of the teacher; whose familiarity and conduct at once attracted and commanded our reverence and esteem, and we shall best put to its true uses the present lesson of death if we can cast the lustre of his example upon those who are now "toiling o'er life's stormy main," so that in the voyage it lights no longer, his life may be communicative of heart and hope of encouragement, and, if need be, of warning; for thus only, as generation presses on generation, is the progress of humanity secured, and the grave becomes a teacher of charities and hopes, which the pulsing haste of life makes us too ready to forget or disbelieve.

With these remarks, gentlemen, I beg to propose that the following letter of condolence be transmitted to Mrs. Strangeways, and a copy thereof inserted in the minutes of the association:

"Mrs. Thos. Strangeways.

"Madam,—We, the members of the Edinburgh Veterinary Medical Association, in meeting convened, desire to convey to you our expression of heartfelt sympathy with, and condolence in, this your sudden bereavement, in the loss of your dear departed husband, our President; and whilst thus offering to you our tribute of regard and affection to his memory, would also beg to assure you that though parted from each other in this life, he will for ever live in our affections; and we sincerely pray that the God of all grace and consolation may comfort, support, and bless you, and enable you to bear humbly and meekly the dispensations of His gracious providence."

Mr. Fraser seconded Mr. Gerrard's proposition, which was unanimously agreed to.

W. G. Schofield,
Secretary.

NORTH OF SCOTLAND VETERINARY MEDICAL ASSOCIATION.

The annual meeting of this association was held in the Mechanics' Hall Buildings, Aberdeen, on Wednesday, the 27th January, the President, Mr. Dewar, in the chair. There was a fair attendance of members present.

The Treasurer, Mr. Thomson, submitted his report, which showed a satisfactory balance to the credit of the society.

The President afterwards delivered the following valedictory address :

Gentlemen,—This being the first year of our existence as an association, the question naturally arises, Have we made any progress in the knowledge of our profession? It may well be answered that the first year of life requires great care to maintain a healthy organization—an organization which requires to be kept in perfect harmony for the developing and completing of a healthy structure. It is very gratifying to know that a large number of experienced practitioners have joined this association, forming a large body of veterinary gentlemen, who, I have no doubt, are well qualified to make researches and investigations into the various sciences of which the veterinary art is composed.

Gentlemen, we may reflect on how the past season has affected agriculture, as the veterinary surgeon and the agriculturist are closely connected. It belongs to us to look into the effects which climate, soil, and feeding have upon our domestic animals. The past summer has been a remarkably dry one, and to the farmer will be memorable for scarcity of food for cattle, both in summer and winter. No specific disease has appeared in my practice worthy of your notice which I could attribute to the dry season, unless I include a great number of horses which were affected with what is termed grass-staggers. It is also an interesting inquiry to veterinary surgeons generally, more especially to those in country practice, to observe whether the diseases of cattle have increased or decreased with the increasing knowledge the agriculturist has acquired of improving their respective breeds. Another inquiry—Has veterinary science kept pace with the rapid march of agriculture? You are aware that misunderstandings, both disagreeable and injurious to our profession, have arisen between the agricultural community and the veterinary body; and I believe we must trace a portion, and a considerable portion of it, to the neglect of that division of our art which is most connected with the interests of the farmer; and it is in a great measure, I believe, in consequence of this that the empiric is not eradicated from our country, and that veterinary science is now being taught in some of our agricultural colleges.

Gentlemen, it is my own opinion that a knowledge of the breed-

ing, rearing, and mode of management of our domestic animals on the farm would be of more benefit to veterinary science than all the knowledge that can be obtained at the blacksmith's forge.

Gentlemen, I would beg to remark that we ought all to be well acquainted with the anatomy, physiology, and important organic and functional utility of the horse's foot, and also how to make and apply a shoe. But what I mean to direct your attention to is this, that veterinary science will never rise so long as it is *bartered* over the anvil. I maintain that horse-shoeing is a trade—let it stand upon itself. Veterinary science is a profession, and upon its own merits let it stand, as I have no doubt it will, could we but give it fair play. I may be allowed to mention that the more familiar we are with the habits, breeding, and rearing of our domestic animals, when in health, the better we are enabled to form a correct diagnosis when called upon to treat them under disease; and the more knowledge we have of their habits and mode of management while in health, the more shall we be esteemed by the farmer. Although it may appear somewhat contradictory, I have always found the more a farmer is scientifically acquainted with our profession, the sooner he applies for the aid of the veterinary surgeon, and the greater satisfaction he will have in attending his stock—considerably more than with the man who relies on everybody's nostrum.

Gentlemen, a great deal has been written in the *Veterinarian* about the education of the veterinary surgeon. I need not and will not detain you upon that subject. I may be allowed to state that we are all aware it would be well for our profession could we have our minds stored with the knowledge of the different sciences, that we might also be able, when required, to talk more fluently and familiarly with those who have been favoured with a higher education than has been bestowed upon some of us. We must confess that out of our professional knowledge are formed the weapons with which we contend against disease. But we must never forget that our success depends, not so much on our weapons as upon the skill with which we use them. The weight of our armour, or the size of our weapons, may prove an encumbrance to us, and so it is with knowledge. Professional knowledge is necessary—a man is good for nothing without it, but it is not everything; something beyond this is required—skill to use it, and with no class is it more required than with the veterinary surgeon.

Gentlemen, as the term of my office as your President now expires, I hope you will accept of my humble thanks for the kind and indulgent manner in which you have acted towards me during the time I have been in that position. My colleagues in office have my warmest thanks for their able support, and for their harmonious discharge of their duties in connection with this society.

Gentlemen, I thank you; and I hope every effort will be attended with success and prosperity, in promoting the interests of this association.

Mr. Dewar then tendered his sincere thanks to the members of

this association for the courtesy they had always shown him during his official year, and it now devolved upon the association to elect his successor.

Mr. Mellis, Inverurie, in rising to propose a vote of thanks to Mr. Dewar, said he was sure that all would agree that he had most faithfully discharged the duties which had devolved upon him, and he (Mr. Mellis) would propose that Mr. Dewar be re-elected President.

Mr. Hay, of Ellon, said that it gave him very great pleasure in seconding Mr. Mellis's motion, as he felt satisfied there was none in that hall had the good of the profession and this association more at heart than Mr. Dewar.

The motion was unanimously agreed to.

Mr. Cassie, New Machar, proposed that the whole of the office-bearers and Council should be re-elected, which was seconded by *Mr. Masson*, Kintore, and agreed to.

After which the *President* called on *Mr. Cassie* to read the following paper on "Pleuro-pneumonia."

Mr. President and Gentlemen.—In selecting pleuro-pneumonia for the subject of an essay to lay before you to-day I have not been prompted by the notion that I had anything new to say on the subject, or that I had been particularly successful in treating the complaint, or that I considered myself better able to deal with it than any of yourselves. I selected it solely because it is a disease of a very formidable character, one that has wrought fearful havoc in farmer's herds, and one which we should all endeavour by any means to banish from the British nation, if not from every other. Veterinarians have, I think, in the past, been wasting their strength in trying to fight single-handed this rapacious foe, which every now and then appears, and with resistless fury, defies their strength and destroys many of their employer's stock. When such has so often happened in, I presume, the experience of most members of our profession, we are bound as a class to combine our strength, to unite our skill, in order that, if possible, we may face the foe with greater success. So little have veterinary surgeons as yet done in preventing loss to stock-owners from pleuro, that many of them think we know nothing more about the disease than they do themselves, and so are now proposing to seek liberty from government "to stamp it out," as our Aberdeen farmers lately did the rinderpest. I do not intend just now to express an opinion for or against such a course, only I would repeat, that veterinarians ought to bestir themselves and unitedly renew their efforts to investigate the disease; they are surely as competent to say whether the poleaxe be its best remedy as any other class of men in the kingdom. I may be wrong, but I venture to say that, influential at head quarters though the farmers be, they will ask in vain for their famous killing cure if our profession do not first recommend the practice. There may be no "great lights" among the members of the association we have formed in this northern region, still there are

among us men of long experience, who may fitly be called veterans in the war with this cattle scourge. Well, when these have all given their large donations, and the younger members contributed their little mites, we shall perhaps be possessed of a fund of knowledge regarding the disease that will go far to aid in effecting its ultimate extirpation.

In the few remarks I mean further to offer on the complaint, I intend to glance very shortly at its history, character, symptoms, pathology, post-mortem appearances, and treatment.

As to its history, I may remark, although it only appeared in Great Britain about the year 1841 or 1842, the disease was known on the continent for centuries previous to that date. Most authors who pretend to know, say that it is a native of the steppes of Russia, and that it has been transmitted to the western countries by diseased animals moving in that direction. Professor Gamgee says that it can be traced to England in 1842 by affected animals brought from Holland; and that, before two years had elapsed, it had found its way by the same means to Inverness, and several other places in Scotland.

As regards the character of the disease, I have no hesitation in saying that it is one of a very contagious nature. And so far as my experience goes, it seems in this country to be propagated chiefly by contagion. It attacks cattle of all ages, but is most fatal among cows, more especially among those lately calved. Indeed, I do not remember ever having seen a cow labouring under the complaint at that time recover. Affected cows that are in calf usually slip them during convalescence. All animals exposed to contagion are not affected by the disease, and six weeks often pass before the disease manifests itself. I have known it break out on a farm a second time several months after it had apparently subsided. It is more fatal in close ill-ventilated byres than in roomy airy ones. Once affected animals are free from the disease ever after.

Pleuro-pneumonia is often very insidious in its attack, and so the early symptoms of it are sometimes not well marked. In general the animal becomes careless of food, leaves some, has a staring coat, slightly costive bowels, somewhat quickened breathing, perhaps the characteristic cough, occasional shivering fits, and, if a cow, less milk. In a few days most of these symptoms get confirmed, and the animal is decidedly ill, all food is refused, the breathing is laboured, the breath has a bad smell, the head is extended, the nostrils flap, the elbows are turned out, the hind legs are placed awkwardly, and they generally knuckle forward at the pasterns.

On closer examination the loins are found to be weak, and the intercostal spaces tender; a distinct rubbing noise is detected when the ear is applied to the chest, besides unnatural sounds in different parts of the trachea and lungs. In the early stages of the disease, this consists only of a dry wheezing sort of noise in the former, which gets deeper as the ear is moved nearer the chest. In the latter, at some parts, the natural murmur is simply louder, at others

a crackling gurgling kind of sound is heard, or perhaps regions are detected emitting no sound at all. These abnormal symptoms may at first be found in one lung only, and when only one is affected it is generally the right. When this is the case the sound in the healthy one is louder than natural. As the disease progresses, the consolidation of the lung or lungs increases, and the sound in them diminishes; the breathing in consequence gets more difficult, and the cough more distressing. A dull heavy sound is now emitted when the sides are struck, the pulse mounts up to 100, or even 120 a minute, the skin sticks to the ribs, the paunch becomes tympanitic, perhaps diarrhœa follows, and the poor beast, after having fought against the disease for one, two, and sometimes three weeks, at last falls a victim to it. Much more might be noticed under this head, but I feel that I should only be wasting your time were I to continue describing what the great majority of you have doubtless too often noticed for yourselves. I shall therefore desist, and touch for a minute on the pathology and *post-mortem* of the disease. In regard to the former, I would say that a specific poison would seem to be introduced into the system probably by inhalation. After a time that poison produces a specific abnormal action in all the organic structures of the lungs, and also of the membrane covering them and lining the cavity they are contained in. In consequence of this, inflammation is established, the parenchyma of the lungs is congested and lymph extravasated into their interlobular tissue and bronchial tubes, also upon the surfaces of both pleuræ, from which serum is likewise effused. The lymph thrown out on the pleura after a time undergoes a kind of organization, and forms those ragged adhesions which in this disease are seen so often to connect the lungs and trunk. In the lungs themselves, if death do not stop the process, the lymph is often converted into a kind of pus, which occasionally at some places collects and forms abscesses, while at others it gets consolidated in the interstices, and so gives the lungs that peculiar marble-like appearance they generally present when cut into after death. Indeed, so great is the disorganization usually met with in the lungs of animals which die of this disease, that when we consider it in combination with the quantity of serum sometimes found in their chests, the extent to which their lungs are swollen, and the weight extravasation and congestion have produced in them, one cannot help wondering how breathing could have been performed at all by such a ruined apparatus.

In the treatment of pleuro-pneumonia the veterinary surgeon has not only to cure the sick but also to try and save the healthy. In seeking to accomplish the former, I have the sick always placed by themselves in the most suitable quarters I can find about the premises; and while I remember, I may remark, that I never bleed a beast I believe to be labouring under this disease. My first object is to excite the skin, kidneys, and bowels, to increased action. To effect the former I order the animal to be "packed," that is, to have the body moistened with water, after which a wet sheet is to be applied to the same, and then the animal is to be covered with plenty of dry

woollen clothing. The clothes are kept on for a quarter of an hour or twenty minutes after the skin gets well warmed, which is generally within half an hour after the application. This effected the clothes are removed, the patient well hand-rubbed and then wrapped up in a dry rug. Previous to the packing (which, the strength of the animal allowing, I order at intervals of three days for three times) I give in water by the mouth 3 oz. sulphite of soda, or 2 drs. Condy's disinfecting fluid. I have not had an opportunity of trying carbolic acid in this complaint, but I believe, from what is said of it, that it would be a very suitable medicine to give at this time. The bowels and kidneys I act upon by small doses of salts and nitre given daily. I give sedatives to keep the accompanying fever in check, and of these have used digitalis and camphor, tartar emetic and nitre, calomel and opium, liquor acetate of ammonia, hydrocyanic acid, hemlock, aconite, &c. Of all these I prefer aconite, and give of Fleming's tincture doses not exceeding ten drops for a cow every three hours, reducing the frequency when circumstances permit. In all cases I irritate the sides of the chest, and for this purpose have used setons, blisters, and stimulating embrocations. A blister of bin-iodide of mercury I think answers as well as any. When the disease is somewhat subdued, or when weakness supervenes, stimulants and tonics are necessary. Of the former I have given aromatic spirits of ammonia, nitrous ether, tincture of cayenne, whisky toddy, &c.; sulphuric acid, sulphate of iron, and arsenic, I have used for the latter. Easily digested food should only be allowed for some time after the patient begins to eat. During the disease sick animals should be fed on linseed meal gruel prepared with milk, and have hay tea, or, if they refuse that, water to drink.

So much for treatment; now a word as to prevention, and then I have done. Having removed the sick from among the healthy as soon as possible, get the latter in winter put outside, and the byres well fumigated with chloride of lime, or other disinfectant, daily for several days in succession, paying particular attention to the stalls of those removed. I have tried Prof. Gamgee's sulphate of iron and coriander seed powders for the unaffected, with, I thought, good results. I think all cattle which are in good condition should, with the owner's consent, be slaughtered on the premises where they are fed, as soon as the slightest symptoms of the disease are observed. Not a few of them eat and ruminate for a day or two after they are known to be affected. If these were killed when in that stage their carcases might be eaten without any bad effects. I do not believe any more danger would arise from eating such, than there would from eating an animal whose leg had been broken, and a day or two elapsed before a butcher was got to kill it. When I say this I do not mean the disposing of such carcases should in any case be left to the discretion of interested parties. It should only be permitted under the authority of competent inspectors appointed by Government, a couple of whom would, I believe, serve the whole district our association represents. The

internal organs of animals thus killed should all be buried, and their hides and tallow thoroughly disinfected before they were removed from the place of slaughter. No living animal should be allowed to leave an infected place for at least two months after the disease had subsided. Any one taking a diseased beast to a fair, or wilfully giving false information to the authorities regarding diseased beasts, should be subjected to heavy penalties. No breeding animal should be permitted (unless by special license) to come from foreign countries where the disease is indigenous. Fat foreign cattle should only be allowed to land at certain ports, and there they should be slaughtered.

Were some such measures as these enforced by law, I am persuaded pleuro-pneumonia would soon be greatly diminished in, if not entirely banished from, the British Isles.

With best thanks, gentlemen, for the patient hearing you have given me. I shall now sit down and listen to you, but before I do so, let me add that while I have no wish that any of you should refrain from freely expressing your minds on what I have said, let all seek to bring some practical result out of our discussion; without that no benefit will be obtained for ourselves or for others. Perhaps it would be conducive to such an object were each speaker to suppose he were required to answer the following questions:

Whence came the disease, and what is its nature? Can it be successfully treated, and how? By what means can Britain be cleared of it, and how can it be kept clear?

An animated discussion took place. It was the unanimous opinion of the association that it was very difficult in the first case of any new outbreak to distinguish between sporadic and epizootic pleuro-pneumonia.

It was also agreed that when pleuro-pneumonia appears in a stock the lean animals affected with it should be treated, but that fat and well-conditioned ones should be slaughtered immediately on the disease showing itself in them.

It was further considered impossible to eradicate the disease from the country while the owners of affected stocks were allowed to take such to markets, or remove them from their premises alive, a system which has been too often practised. And it was considered that no breeding animal of the *bovine race* should be imported into the country unless under certain restrictions, and that foreign fat stock should be killed at the port of landing.

A vote of thanks having been recorded to the President, the members adjourned to Reid's Royal Restaurant, where they partook of an excellent dinner provided for the occasion.

GEORGE ROBERTSON,
Honorary Secretary.

LANCASHIRE VETERINARY MEDICAL ASSOCIATION.

The above association held its annual dinner at the Clarence Hotel, Manchester, on Thursday, the 4th February, A. L. Gibson, Esq., President, in the chair. There were present the following:—Messrs. P. Taylor; James Brooks; W. J. Challinor; Leather, Liverpool; Morgan, Liverpool; Greaves; Haycock, Whittle; Howell; M. A. Naylor, Wakefield; W. Barrett, New York; Broughton, Leeds; Cuthbert; J. Taylor; J. Lawson, sen., W. Taylor, Stockport; Woods, Wigan.

Letters of apology were read from the following:—Carless, Stafford; Ellis, Liverpool; Storar, Chester; Darwell, Northwich; Bridge, Bury; Smith, Ormskirk; Professor Williams, Edinburgh; Elam, Liverpool; Lawson, Bolton; Carter, Bradford; Cox, Knutsford; Owles, 6th Enniskillen Dragoons; Reynolds, Liverpool; Professor Varnell; and Assistant-Professor Pritchard.

Mr. Bostock, of Pendleton, was proposed as a member of the association by *J. Taylor, Esq.*, seconded by *Mr. W. J. Challinor.*

The *President* then read his inaugural address:

Gentlemen,—As year after year rolls by it becomes unquestionably a more difficult task for each succeeding President to select a subject for the customary annual address. Indeed, I have found it rather a difficult task to select something which has not been exhausted in previous addresses.

Our profession makes such slow progress, that one is obliged, to a great extent, to treat more or less the same subjects, only perhaps, expressing different opinions, and scattering a few new ideas in arguments. However, be this as it may, there is some satisfaction in knowing that we are progressing, if it is but slowly; and we must undoubtedly walk before we run. I don't think it is at all necessary for me to review the commencement and progress of our profession up to the present time, at least not to any length, as it has been done so frequently, that it would only be occupying your time, in my opinion, uselessly.

Therefore I propose addressing you for a short time upon those subjects which interest us all at the present time, and which concern the future welfare of our profession, not only here, but everywhere. In the first place, then, the foremost proposition of all, and, I believe, the most important, is, our Veterinary Medical Bill, which I believe is soon to be again presented to Parliament.

I feel (as I am sure that each and every one of you will feel) that, should we be successful in gaining this acknowledgment from Government, it will be one of the greatest strides our profession has ever made—if not the greatest. The question arises, How are we to carry it, and how much shall we try to obtain? As regards the

first portion of the question, I would reply, We must carry out, to the very letter, our motto—"Vis Unita Fortior." We must try and rouse every member of the profession, great and small, throughout the kingdom into action. This at first would appear in many instances to be comparatively useless; but I am of opinion that a great deal might be done by every practitioner, both in town and country, taking the matter up and introducing it to the notice of not only the various members of Parliament personally in their district, but to every person of influence; and by this means you have a chance of arguing the matter, which would be of far greater service than handing circulars about the Houses of Parliament. There are numbers in our profession who could speak personally with both the nobility, members of Parliament, and gentry of the country.

I feel confident, if the matter were taken up in this way, and carried through the land, we should stand a very much better chance of obtaining our desires and realising our wishes.

Now, with respect to the Bill itself, there has been a good deal of controversy upon the matter of exemption from "juries." How is it, I would ask, that the Pharmaceutical Society has carried this point? By leaving it out of the Bill, or not asking for it? Certainly not. They combined and worked together until they obtained it, and it is now law. I spoke to one of our chemists the other day, and he was perfectly astounded when I told him we were not exempt from juries. In fact, he could not believe it until he referred to the exemptions. What difference would it make to the nation, the exemption of some two or three thousand individuals, who have really and truly as much right to that exemption as any of the other learned professions? I cannot but feel confident, if this were properly inserted, and we were determined to fight for it, we should eventually obtain it, in spite of the legal opinions which I believe have been taken. There are those who argue that it is seldom we are called; but I can tell you, for one, that in my short career in Manchester, I have served several times on coroner's juries, and been often asked to serve, as also upon the juries of both assizes and sessions; and I only got off through being styled surgeon on the register; but, independently of all this, it is a great loss of time to get off at all, let alone the doubt under which you are always labouring. Picture to yourselves being summoned on a jury of assizes, for instance—perhaps have to attend there more or less for a fortnight or three weeks—and will say you have a number of very severe cases on your hands, not only at home, but elsewhere. Would you not feel very uncomfortable? I look upon it, gentlemen, as a matter that ought to receive a great deal of attention, and one which most decidedly should be introduced in the Bill. I am sure if the feeling of the profession were taken throughout the country there would be a large majority in favour of such a clause being introduced, especially from the large towns, where juries are frequently required. Our friend Mr. Thomas Greaves, in a letter to the *Veterinarian* of March, 1866, says, "We don't want

or ask for exemption from juries and the house-tax, &c., because it was through that we lost the Bill before." But I should rather think that we lost it through asking for too much, especially the exemption from taxes and sundry collateral circumstances, and under different conditions, rather than merely the exemption from juries.

The Phamaceutical Society have just obtained a bill very similar to the one we are trying to obtain, and which I believe might be of some service for our guidance, especially in relation to the fourth clause, upon which there has been so much written and so much discussion.

Every person who is not upon the register of the Pharmaceutical Society, before the passing of the Act of July 31st, 1868, will have to undergo a modified examination, and produce certificates as to character and the length of time he has been practising as a dispensing chemist; and should he pass such examination to the satisfaction of the board of examiners, he will be admitted upon the payment of the usual fees, &c., as a member of the body corporate, and registered accordingly. None who are not registered will be allowed to use the name or qualification of dispensing chemist, or any term implying or of the same signification, under sundry penalties, &c.

In my opinion this applies exactly to our fourth clause, and is the best solution of it. By following this plan we should obtain the more intellectual portion of those parties who are practising without diplomas, and thereby add to our numbers, to fight against right down empiricism; and not only that, but put a considerable amount into our coffers.

Judging from some of the letters written to the *Veterinarian* during the last two or three years by parties of the above class upon this subject, there are many who would willingly pay a fee, and undergo a modified examination, and produce certificates of competency from influential men by whom they have been employed, if it did not occupy much time and entail a great expense.

By this means you would offer them such a position they could never otherwise have hoped to obtain. I think by treating the matter in this way, all those who are at all anxious to practice honorably, would gladly avail themselves of such an opportunity. And those who are not, we are a great deal better without, as they would only be a drag on our advancement, and a disgrace to us as a profession. Indeed, I believe the latter class would be in a minority, and would die a natural death. Should we not adopt some means of this sort I think it would be a gross injustice to the members of the profession who have spent large sums of money in their education, &c., to allow all those who have chosen to style themselves veterinary surgeons, &c., before the obtainment of the Charter, and thereby legalize the said title, which would be a falsehood and a deception. If the Bill were to pass as it was presented the last time, what do we gain? Nothing. Just let us analyse the six clauses:—1st, the name; 2nd, the time at which it was to take effect; 3rd, relates to the title of Veterinary Surgeon

&c., and the penalty for using such title without legal qualification; 4th, admits any one who chooses to style himself Veterinary Surgeon before the obtainment of the Charter into the profession; 5th, the manner in which the penalties are to be recovered in the three kingdoms; and 6th, the application of penalties when obtained. I ask again, what there is in it? Nothing; and if we cannot frame a better Bill than this, let us be without altogether. Indeed, its very emptiness will always blast it in the eyes of any legislature. My idea is this—firstly, we have our Charter of Incorporation, which entitles those who choose to go through a certain course of study and final examination, to legally style themselves Members of the Royal College of Veterinary Surgeons, but does not prevent or provide any punishment for those who choose dishonestly to adopt the same title, without the necessary labour to obtain the same. The Act is as it were a patch on the Charter, which says only such as have undergone certain preparation, &c., shall call themselves Veterinary Surgeons; on the face of this, the Act you would have had says you shall all adopt the title if you have only done so before the obtainment of the Charter. I fancy I hear some say they are only left as they were. But I beg leave to differ from this, and call your attention to Clause 4, "Provided, nevertheless, that the said Act shall not affect any person who shall have assumed the title of Veterinary Surgeon previous to the obtainment of the Charter." By this I say you legalise the title. No doubt they will be getting old, and you say they will soon die out. Granted, but you do not make any provision for the more intellectual body of men to whom I have before alluded, and have had the advantage of an education, though unable to obtain the diploma, simply from the loss of time and money it would entail, and who I am sure would willingly embrace the proposition I have already spoken of. The same would apply to gentlemen holding the certificate of the Highland Society of Scotland. This leads me to the Charter question. I need hardly say that I am of opinion that there should be but one Charter, and one head of any profession from which all schools should receive the same diploma, and to which all should be to a certain extent responsible. That is to say, in matter relating to the general welfare of the profession at large. If this were so we should then be able to lay down something like rules and regulations for the education of our pupils. For instance, preliminary educational examinations, and proper terms of apprenticeship, before entering any school, or else to serve a term of years at some school authorised by the said head college. Every school would be perfectly independent as regards the actual arrangements, &c., just as they are now. Another thing, it would do away with a great deal of that ill feeling which at present exists.

There has been a good deal said about Prof. Dick's munificent bequest, as one great reason why Scotland should have a Charter of her own. Now, really (though acknowledging at the same time the noble bequest), I cannot see how it should influence the matter, or why it should be brought forward in the argument, as I am sure it

would lead to nothing but discord and enmity between the two institutions. Again, the bequest was left for the establishment of a veterinary school and its endowments, an establishment for the education of the pupil, to enable him to pass his final examinations, whether at the Board of Examiners of the Royal College sitting in Edinburgh, or the Board of the Highland Society, whichever it might please the candidate to present himself. Now, as long as the pupil can obtain the same diploma in Edinburgh that he can in London, it is all that is required. Then why want an independent Charter? They say, if there is but one diploma it would be an injustice to the Edinburgh College. This, I think, most of you will deny, inasmuch as the student from that college would just have the same chance as the students from any other college. And as for the one Charter closing the Edinburgh Veterinary College, my opinion is, that it will open the doors wider and wider every year as they advance with the times, and provide (which I understand they are doing) great temptations for students to go there, in the form of degrees, and extra courses of study, and greater means for the obtainment of all kinds of knowledge. Again, they are being ably assisted by the University of Edinburgh, which is a great step in the right direction, and if it is not followed very closely by London, Edinburgh will get the palm, whether she has her own Charter or not. There is another great thing in her favour, and that is a very essential one, viz. it is cheaper living there, and when any one can get the same thing at a less cost, depend upon it they will do so. Therefore I say, to talk about the doors of the Edinburgh school closing, it is simply absurd. In fact, I am sure the profession at large would never allow such a thing to take place if it was only to be kept open as a monument, and in affectionate remembrance of its great and good founder.

It has been said that we want to have a monopoly in England; this I deny most emphatically, and say that those gentlemen who have fought against the double Charter, and will fight again when required, have done their duty to the best of their ability and conscience, and I am sure had nothing but the welfare and prosperity of our profession at heart.

The next matter I wish to bring before your notice is the "forge," and its relation to the profession. In touching upon this subject I know I am treading on delicate ground, upon which there is a great diversity of opinion. Though I do not know of a subject apertaining to our profession upon which there is not a great diversity of opinion, indeed it would puzzle any one to find such a thing. However, if we all agreed there would be no argument, so, perhaps, Pope is correct, who says,—

"Whatever is, is right."

I have been endeavouring for some time past to find out some argument why the forge should be separated from the profession, and I think I have succeeded to a certain extent, at least to my own satisfaction, and I hope for yours also. In the first place, I would

ask, How did the forge ever become associated with the profession? The answer is, it never did. The profession became associated with the forge. The primary condition of the veterinary surgeon was a smith, possessing a little more brain and observation than those around him, and hence we so often hear ourselves called farriers. Indeed, that was the name by which we were known in the army until the last few years. I do not know, I am sure, whether I am too sensitive or not, but I must say I do not like that title, and frequently cannot help calling people to order for making use of it, though I suppose the actual farrier might say to me as the quack said to the doctor, "If it had not been for such as me there would never have been such as you," and I think with about the same truth. However, be that as it may, it is beyond dispute there is now a wide difference between us. To return to the subject. From this clever and industrious smith's perseverance he gets on until he has sufficient medical business to fully occupy his time, which leads him to engage some one else to do the manual labour, while he is going about the country attending to what we will call his practice, and some of them undoubtedly were practices, such as a good many of us would be glad to possess now. From him the groom picks up sundry smatterings of knowledge, &c., and thinks he will start upon his own account. So he commences, and also thrives upon physic. Now, from these two members of society a great number of our profession have risen, if we only trace them far enough back in their pedigree. Our forefathers through their providence, care, and attention, were enabled to give us the advantage of education, not only commercial and classical, but also the benefit of their long and extensive experience, which had taken them many years of close observation and study to acquire. Their labours have to a certain extent been crowned with success. We are now an acknowledged profession, which, as I stated before, essentially alters our position with respect to our association with the smith. We ought, if we do not, constitute one of the learned professions, and if we do but maintain our position, and hold up our heads, I am sure we shall be sooner or later. You will say what has all this to do with the forge? Simply this, I have endeavoured in a concise manner to show you the phases through which the profession has passed and what it is arriving at. The time has come when our profession must be upheld as such, and I contend that as long as ever it is associated with the forge it will never be recognised as it ought to be, or its members attain that position in society to which they are justly entitled.

I must now endeavour to prove my assertion, as I know there are many who argue that no one is so fit to have a forge as the veterinary surgeon. I would ask those gentlemen of that opinion, how much they have to do with their forge in the actual operation of shoeing? Do they make the shoes? Do they see one half of their shoes made? Could they make a shoe if required, and really fit it themselves when made? Does their presence, walking about the shoeing shed with their hands behind them charm the nails the doorman or

knocker-on is driving, and prevent pricking, &c.? How many are there who could take the hammer and drive the nails himself without injuring the foot some time or other (just as the common workman does), in spite of the great knowledge he possesses of the structures, &c.? I am afraid, indeed I am sure, the large majority would have to answer the whole of these questions negatively. Then they say we are there to direct how everything ought to be done. Granted. And how often are your directions really required in the regular course of every day shoeing? And how are your directions followed and carried out if they do not coincide with the man's own ideas, unless you stand over him and see them properly obeyed? Very seldom indeed. I contend that shoeing is entirely a mechanical operation, and only requires practice. I really believe that if you educated a smith to thoroughly understand the nature and structure of the organ placed in his hands, you would undoubtedly make him a worse workman. There is no doubt his ignorance is bliss. He knows if the nail goes in a certain direction he pricks and lames the animal, and that in due course it will suppurate, &c., if not attended to, and to the best of his ability he strives to avoid the accident. What more could you require of him, even if you made him a veterinary surgeon entirely? Nothing. Therefore I say the veterinary surgeon should take his own position and the smith his.

Where is your great expenditure caused? *In your forge.* Where are you robbed and annoyed most? *In your forge.* Where are you associated with the lowest of the low, and unavoidably so at times? *In your forge.* Where does your profit come from? Not *from your forge.* Then why, I ask, gentlemen, be hampered with such a monstrous evil? You may say why don't I set the example, and close my forge? Simply because I think it is incumbent upon those who are at the head, as it were, of our profession in the various towns in which forges are kept to first set the example; and I know this—I should be one of the first to follow. I contend, and always have done, and always shall, that the association with the forge is a drag upon the upward tendency of our profession in the scale of society. How much better would it be if, instead of being obliged to direct a lot of ignorant people, and try to get them to render unto you what is yours in common honesty, you could sit down in your leisure moments, improve your mind, and keep up with the times in knowledge, &c., and thereby fit yourself more perfectly, not only for your profession, but also for that position in society to which, I think, we are justly entitled, and which I hope to live to see the profession claim.

I feel persuaded that these opinions are gaining ground every day. There is a good case in point in the Messrs. Mavor, of London, who at one time, perhaps, had one of the largest shoeing businesses in the kingdom. How have they managed to divide themselves from the forge? By nothing but a determination to no longer be kept back from a position to which they were entitled, and which they could not obtain as long as they were associated

with shoeing horses. Upon this point Mr. William Mavor once told me a remarkable instance, which, trivial as it was, made him, I believe, at first think of giving up the forge. Indeed, he said then, and that is eight years ago, that should certainly close his forges as soon as possible; and I am proud to see he has executed his determination. The instance above alluded to was the following:—A friend of Mr. Mavor's was once speaking to a young lady, and in the conversation spoke frequently of him; and at last the said young lady inquired who this Mr. Mavor was. She was told that she must know him, as her papa was a friend of his, &c. However, she could not recollect the name at all; so the gentleman said, "You really must know him; he is the eminent veterinary surgeon in Park Lane."—"Oh! that Mr. Mavor. *He shoes* papa's horses!"—"No," the gentleman said, "he is not a shoeing smith, but a veterinary surgeon and a gentleman." Now, it is evident, as Mr. Mavor said, that the said young lady could not reconcile shoeing papa's horses with the character of a gentleman. There is no doubt at all in my mind the sooner we all follow Messrs. Mavor's example the better. It will, indeed, be a proud and happy day for me, should I live to see it, when every forge attached to veterinary establishments is closed, and the veterinary surgeon rises to his proper position in the social scale.

While in the vicinity of the forge I may just allude to the fact that there are now two new principles of shoeing before the public; but I am sorry I am not in a position to really give an opinion upon them.

As far as I understand, I think the French system will take well in the hunting-field; but I must say I should doubt it on our high roads. The American plan I don't think much of, as far as I can judge; but, as I said at the commencement, I am really not in a position to give you either a thorough description of the methods, nor to express a strong opinion either way. I only thought it was incumbent upon me just to allude to this matter.

Having so far touched upon what I consider the great questions of the day, I must now pass on to notice briefly what we have already done towards the advancement and good of our profession. First of all comes the Veterinary Medical Associations, which I think now have become fixed institutions, and which everyone will admit have not only benefited the various individuals connected with them, but also the whole body of our profession; and I am proud they are spreading far and wide; and it must be very gratifying to our friend Mr. T. Greaves, who is the father of them, to see them flourishing as they are, in spite of all the cold water thrown on them at the outset. There is no doubt we owe him a great debt of gratitude, not only as the founder of these associations, but also for his indefatigable exertions in keeping them together. Look at the good our association has done in Manchester. Where are all those petty jealousies and cold shoulderings gone to which were so common amongst us? Vanished, I am proud to say, or as nearly as possible; and through what? The Lancashire Veterinary Medical Association,

and nothing else, could possibly have done it. I sincerely hope to see not only our society, but all go on and prosper and work well together; and I am sure we shall eventually gain all that we desire. From these associations have sprung, perhaps, the noblest institution or society which our profession ever established. I allude to the Benevolent Fund, which I am sure you will be delighted to hear is progressing most admirably, and is in a fair way of becoming a lasting monument to the credit of the present generation; and I only hope to see the fund increase year after year, until some day we shall be called upon to witness the laying of a foundation-stone of some building for the relief of distress of the families of our poorer and less fortunate professional brethren, and to which we can point with pride and satisfaction, and feel that our efforts have indeed been crowned with success.

With respect to the Defence Fund, that, I am glad to say, has already done some service, and am also pleased to relate it is in a flourishing condition, and will before very long, I believe, hand over a handsome sum to the Benevolent Fund; so that those who thought the Defence Fund was a selfish measure, &c., will see that they have been much mistaken, and that the object of that society was not to plot and carry out anything either against the profession or public at large, but merely to obtain justice in cases which were brought into the various courts of law, and then in such cases only as were considered really and truly deserving the support of the said society. I think everyone must acknowledge it is a praiseworthy office to prevent any man being imposed upon; and I feel sure that after those gentlemen who were against this society have seen its working will admit it has done its duty well, and carried out so far, to the very letter, the office for which it was formed. And I sincerely hope to see both it and all our associations increase, not only in prosperity, but also in the good services rendered year by year, so that when we are called away we may leave something behind which will show we have not altogether lived for ourselves alone. In conclusion, I beg to thank you most sincerely for your kind attention, and hope that all our best wishes for the honour and welfare of our profession may be realised.

A vote of thanks was proposed to the President by *J. Greaves, Esq.*, seconded by *M. Naylor, Esq.*, President of the Yorkshire Association.

After dinner, *Mr. W. J. Challinor* related three cases. The first one was of a bay mare, which was injured in the shoulder by a piece of timber eighteen inches long, which penetrated into the right lung.

The second referred to the discovery of a hair-pin in the right ventricle of the heart.

The third was a case of disease of the heart in a bay horse five years old, associated with plugging of the posterior aorta.

Messrs. Greaves, Haycock, Taylor, and *Lawson* took part in the discussion.

Mr. Morgan read a letter from a friend upon disease of the heart in a black mare six years old.

Messrs. Haycock and *Taylor* alluded to a case of heart disease.

Mr. Lawson mentioned a case of a valuable heifer, which constantly strained in consequence of the existence of a large tumour in the uterus.

Mr. Haycock dwelt on the importance of taking the pulse in cases of examination.

Mr. P. Taylor brought an interesting case of fracture of the ulna before the meeting:

He was requested by Mr. C. Shiers to go to Stratford and examine his blood mare's fore limb for lameness. On his arrival he found the mare exceedingly lame of the right fore limb. He carefully examined the limb, and ascertained the cause of lameness to be fracture of the ulna. Mr. Taylor informed the owner that the mare was also suffering from a poison. He inquired what poison. The answer was, "Glanders poison." The mare, by being kept perfectly quiet, and upon sawdust, and the limb being kept fomented with cold water, was, in the space of ten weeks, able to walk into Manchester to Mr. Shier's town stables. Mr. Taylor attended her more or less until November 19th; then she died from glanders. A dissection of the limb was made, and a *transverse* fracture of the ulna detected, about two inches below the olecranon. This case was rather peculiar from the extension of the transverse fracture throughout the strongest part of the ulna. In most cases the ulna has been fractured obliquely. There was an appearance of every effort being made by nature to unite the fractured bone, but not successfully, the osseous tissue being soft and spongy.

Mr. Greaves also read an interesting paper entitled "The Grass-sod:"

The somewhat singular heading of this case may excite a smile; but the case being one of those mysterious yet deeply instructive ones which occasionally come under the notice of the veterinary surgeon, I feel sure its relation cannot fail to be interesting. Some time during last summer I was requested by a friend of mine, a veterinary surgeon, to see a carriage-horse, which was then very low and weak. He had been ailing a long time, but at no time did there appear to be any active organic disease going on.

The horse had no cough, the pulse was natural, the breathing was also natural, and the breath sweet; bowels were acting regularly and satisfactorily; no diabetes; but still the horse ate little, and at times loathed all food. He was, as it is called, "miposing," and had no inclination to eat, drink, or exercise himself, though he carried his head well up and looked pretty lively. He had been ill six months, and had become almost a skeleton, being so weak that he could not be exercised. His teeth had been examined, and mild physic, alterative medicine, quantities of antacids, courses of mine-

ral and vegetable tonics had been administered; but all in vain. The horse's diet had been completely changed; sometimes he had grass; soft food, such as boiled barley, linseed, Swede turnips, carrots, cut and long sweet hay, clover; at other times hard beans and oats, barley, &c.; but all was of no avail. We diagnosed the case to be one of protracted disordered state of the lining membrane of the stomach and bowels, chronic disease of the liver, possibly some chronic disease in the mesenteric glands, or abscesses in the spleen. Of course this was all conjecture. We prognosticated unfavorably.

About this time the groom turned the horse out into a paddock, and while there he was observed to go to a bare place and begin to lick the ground. The next time the veterinary surgeon went there the groom told him this, and also stated that he did not allow the animal to continue to lick the earth, thinking it would do him harm. The veterinary surgeon was struck by the circumstance, and at once turned it to account; he ordered that a grass sod should be cut, brought to the horse, and turned upside down in the manger. The animal instantly seized it and ate it with avidity. Another and another grass sod was cut and given to him, which he ate ravenously. The day after, and for two or three days, he had one or two sods a day; but his craving seemed to be subsiding, and his natural appetite returned, until, as the groom said, the horse could eat corn as fast as he could carry it to him. The animal from that moment rapidly recovered his flesh and strength, and to this hour is in as good health and in as good condition as any horse in the whole establishment.

Mr. Wood, veterinary surgeon, of Wigan, can corroborate the case in every particular.

Mr. Brooks will favour the society with two papers at the next meeting.

ALFRED CHALLINOR, *Secretary.*

YORKSHIRE VETERINARY MEDICAL SOCIETY.

The sixth annual meeting was held at the Queen's Hotel, Leeds, on Friday, the 29th January. The president, Mr. M. E. Naylor, in the chair. The following members were also present, viz.:—Messrs. T. Greaves (Manchester), Nicholson (Womersley), Anderton (Skipton), Bale (Otley), Fallding (Wakefield), G. Smith (Darton), Taylor (Wetherby), Patterson (Dewsbury), Walker (Bradford), James and John Freeman (Hull), Josiah Freeman (Keyingham), Faulkner (Wetherby), Dray, Cuthbert, Broughton, and Fearnley (Leeds).

Messrs. Faulkner, jun., and A. Keeble were also present as visitors.

Letters of apology for non-attendance were received from Mr. W. Field, jun., P.R.C.V.S; Professors Simonds and Williams; Messrs. P. Taylor, A. Lawson, and G. Morgan; also from the following members:—Messrs. Chas. Secker, D. M. Taggart, J. S. Carter, B. R. Kirk, Thos. Pratt, Jas. Howell, and John Fryer.

The minutes of the last meeting were read and confirmed.

Mr. Thos. Secker, Ripon, member, resigned.

Mr. R. W. Murdoch, Harrogate, was unanimously elected a member.

Mr. Josh. Freeman (in the absence of his father) proposed, and *Mr. Nicholson* seconded, the motion, "That all the meetings of this Society be held in Leeds;" the principal argument in favour of the motion being that the town of Leeds is so much easier of access by railway than other towns in the county. Carried *mem. con.*

Mr. Nicholson proposed, and *Mr. Dray* seconded, the motion, "That the meeting commence at 12 o'clock noon." Carried.

Mr. Fearnley suggested that a room in Leeds might be rented for the use of the Society, wherein a library, museum, &c., might be formed. *Messrs. Dray* and *Broughton*, though fully concurring in Mr. Fearnley's ideas, thought that the annual income of the Society would not be sufficient to carry out this useful project.

Mr. Cuthbert gave notice that at the next meeting he should propose, "That a donation of £50 from this Society Fund be given to the Benevolent Fund of the N. V. B. and M. D. Society.

Mr. Fearnley then gave a short *résumé* of his paper upon the "Examination of Horses as to Soundness;" the adjourned discussion was continued by *Messrs. Cuthbert, Broughton, Nicholson, Greaves, Anderton, Josh. Freeman, Walker, Bale,* and Dray. *Mr. Fearnley* then replied to the various speakers, and thanked the members for their cordial vote of thanks for his useful paper.

The *President* then read his inaugural address, which referred principally to the education of the veterinary pupil.

Gentlemen,—Allow me to congratulate you upon the completion

of another year of united good feeling and progress. For though perhaps we fall short of what we were expected to do, yet there have been good practical papers produced by many of our members, and those have been ably discussed; so that we all must have felt benefited by such continued interchange of ideas; by which we shall have gained a better opinion of each other, and a more elevated view of the objects of our study. For be assured that it is only by such intercourse that we can expect to gain satisfactory results. Remember the fable of the "Bundle of Sticks."

We have a worthy object to accomplish, namely, the elevation of our profession.

Why should *we* be placed with the groom and the smith? We ought to take as good a position in the social scale as the other liberal professions. I myself see no reason why we should not stand on a level with medical men.

Our education *ought* to be as good as theirs. For if we thoroughly understand all the requirements of our profession our intellectual training must be equally varied and extensive.

The study of our patients is much more difficult. Medical men have the advantage of the sufferer's description of his feelings. We can only be guided by our own observation of symptoms, and those in different animals so unlike as often to perplex the most acute observer, and yet, by minute discrimination, we are enabled to give as correct a diagnosis as the medical practitioner can with the aid of his questioning.

This, gentlemen, leads me to the great question for the day,—the scholastic training of veterinary pupils.

You have, I am sure, seen much that has been most ably written on this subject by many members of our body, so that it is unnecessary for me to say more than that we all have agreed on the need of a preliminary literary examination, but are scarcely agreed as to what that is to be.

Now, as I some time ago proposed a certain test for those about to become veterinary pupils, I venture again to bring that proposition before you on the present occasion, there being so many here who are deeply interested in the welfare of our profession. And I hope that they will now give full utterance to their views, and decide upon something that may be a starting point for our future advance in the social scale.

Gentlemen, in this room I formerly proposed, and again venture to repeat it, "That all veterinary pupils ought to pass the middle-class examination of one of our universities."

I do the more strongly urge this, because the examination is conducted by gentlemen of high standing in the intellectual world, and it is one in which there is no possibility of unfairness to the pupil.

I would further add, that the examination be that for "senior students," which takes young men from sixteen to eighteen years of age, that the pupil must not merely have a certificate of satisfying the examiners, but he must have been placed in one of the classes, and if he have obtained honours so much the better.

Having passed this trial with credit, I should prefer the pupil's going for a year to the Agricultural College,* where they could make themselves good botanists and zoologists, and become more intimately acquainted with domestic animals. Then they must have three sessions at one of the veterinary schools, viz. three winters and a summer, where the teaching should be progressive, so that the last year should be particularly devoted to practice in treatment of disease and operations, in which the examiners ought to be perfectly satisfied that the pupil has attained proficiency.

I am convinced that much of which we have to complain is the fault of members of the profession who have not been careful to fit themselves to maintain their proper position.

And now, gentlemen, I have trespassed long enough upon your time. Allow me to thank you for your patient hearing.

Let us be true to ourselves and the world will do us justice.

The dinner-hour, three o'clock, having now arrived, the members adjourned, and having partaken of the excellent repast served up by Mr. Gofton, *The Chairman* proposed the usual loyal toasts, which were loyally received. The chairman then, in lieu of the usual list of veterinary toasts, invited the members "to discuss the best means of educating the veterinary student, with a view of improving his position in society by his professional and literary acquirements." After a long discussion, in which nearly the whole of the members joined, the following resolution, proposed by *Mr. Broughton*, seconded by *Mr. John Freeman*, was unanimously agreed to:—"That we the undersigned, members of the Yorkshire Veterinary Medical Society, are unanimously of opinion that it is requisite and exceedingly desirable that a young gentleman before entering the Veterinary Schools should have served three years' apprenticeship with a member of the college, and should also pass a fitting educational test; likewise a practical test in his examination for the diploma." That this resolution be presented to the council of the Royal College of Veterinary Surgeons.

The next meeting of the society will be held in April, when Mr. Cuthbert will introduce a paper for discussion.

WM. BROUGHTON, *Hon. Sec.*

* Many people may be startled at the idea of a year at the Agricultural College, but a glance at the prospectus will show, that the expense would be less than that of a respectable apprenticeship, and the advantages much greater. The pupils would obtain much better scientific instruction, and a more varied acquaintance with domesticated animals; at the same time that they are training in habits of order and regularity far superior to those that even the most conscientous practitioner can give, interrupted as he must be by the calls of business. Then the free use of library, museum, and laboratory, are incalculable advantages. The apprenticeship system cannot supply much that is needful; questions that will daily arise in the course of acquiring the preliminary knowledge cannot always be answered, and the pupil, discouraged by his difficulties, toils for two or three years in acquiring less information than he could easily obtain in one year at the Agricultural College.

Veterinary Jurisprudence.

EDINBURGH VETERINARY COLLEGE.

FRIDAY, JANUARY 29TH.

M'BRIDE *v.* WILLIAMS AND DALZELL.

THIS case was tried in December last, before the Lord President and a jury, on the following issue:

"Whether, between 4th and 18th March, 1868, both inclusive, the letter in the schedule annexed was written and sent by the defenders to the pursuer; and whether a copy thereof was sent by the defenders to Mr. Fletcher Norton Menzies, secretary of the Highland and Agricultural Society; and whether the defenders, by said letter, did falsely and calumniously represent to the secretary and directors of the said Highland and Agricultural Society, or to the said secretary or directors, that the pursuer was incapable of discharging the duties of the said Chair of Cattle Pathology in a proper and efficient manner, and that such was the unanimous opinion of the members of the Edinburgh Veterinary College Council—to the loss, injury, and damage of the pursuer?" Damages laid at £5000.

Then followed the letter complained of. In the course of the trial certain witnesses were examined, upon the evidence of whom it appeared that the defenders made the statements contained in the said letter, in the performance of their duty as members of the Council of the said Veterinary College, and were therefore protected from any liability for damages for making the said statements, unless it were proved that the statements were made maliciously. The pursuer then proceeded to adduce evidence to instruct malice on the part of the defenders. For the defenders it was objected to the competency of the evidence and line of examination so taken by the pursuer, on the ground that the pursuer was not entitled, under the issue, to prove malice on the part of the defenders. The Lord President refused to give effect to this contention, and allowed the questions and line of examination to proceed.

The jury returned a verdict for the pursuer, assessing the damages at £500. The defenders have presented a bill of exceptions to the ruling of the Court, and also contended that the verdict was contrary to evidence.

To-day the Court refused the bill of exceptions, holding that the pursuer was duly entitled to prove malice to rebut the case of privilege which did not appear on the face of the record, but was disclosed at the trial; but they held that the verdict must be set aside, there not only being a want of sufficient evidence, but there

being positively no evidence at all to support the charge of malice against the defenders.

Lord Ardmillan.—On the other part of the case, I shall not detain your lordships by saying more than that it must be viewed with reference to the question of malice. Unless malice is made out, the privilege which was instructed is conclusive against the pursuer's case, and we have to ask ourselves upon the evidence whether there is sufficient proof of malice to support the verdict. I have read the evidence from beginning to end again and again, and I have come to be clearly of opinion that there is not only no sufficient evidence, but literally no evidence of malice that is worthy of consideration in this case. It is one of the clearest cases I have seen, in which an attempt to prove malice has totally failed. I do not go into the particulars of the evidence, because I am of opinion that a new trial should be granted, because I think that on the question of malice this verdict cannot stand, for there is no malice to support the verdict.

Lord Deas—I am of the same opinion, both on the exception and upon the question, whether there should be a new trial in respect that this verdict is contrary to evidence.

The other judges concurred.

Counsel for Pursuer—Solicitor-General and Mr. Thoms. Agents—Lindsay and Paterson, W.S.

Counsel for Defenders—Lord Advocate and Mr. Rettie. Agent M. Macgregor, S.S.C.—*North British Agriculturist.*

CATTLE TRANSIT BY RAILWAY.

GLASGOW AND SOUTH-WESTERN RAILWAY COMPANY *v.* RAIN.

On the 11th March, William Rain, cattle dealer, went to the railway station at Castle-Douglas, and made arrangements for having a fifteen-foot-waggon ready for trucking thirteen of his cattle at Bridge of Dee Station on the following day, for conveyance to Norwich. On the following day Rain and M'Michan, from whom Rain had bought the cattle, trucked the cattle. When the truck arrived at Stafford it was found that three of the cattle had fallen down in the truck, one of them being dead, and another so much injured that it had to be killed. Rain brought this action against the defenders for the value of these two cattle, alleging that their death was owing to the gross fault or negligence of the defenders. The defenders denied that the death of the cattle had occurred through any fault on the part of them or their servants, and contended that the pursuer, having signed certain conditions of carriage, whereby he undertook the "whole risk of loss, injury, damage, delays, and other contingencies, in loading, unloading, conveyance, or otherwise, except such as shall arise from the gross

negligence or default of the railway company or their servants," they were free from liability. The pursuer, in reply, contended that the conditions of carriage were not just or reasonable.

The sheriff (Hector), adhering substantially to the judgment of his substitute (Dunbar), held the defenders liable.

To-day, the Court unanimously reversed, and assoilzed the railway company. They held that Rain, who had experience in these matters, having chosen to put his thirteen cattle into one truck, must be held to have taken on himself the responsibility of the overcrowding during the transit. That overcrowding was evidently the cause of the death of the cattle. No other cause had been suggested, except want of food and water, but clearly it was not the duty of the railway company to provide food and water if the owner of the cattle did not choose either to do that or to send some one to see that the cattle were specially cared for. On principles of common law, the railway were undoubtedly not liable. There was no negligence proved on their part. As to the reasonableness of the contract, that was, in the circumstances, quite reasonable. The pursuer, by choosing out a truck, put himself into the position of a man who sent, not goods to be loaded into a truck, but a truck already loaded, and in these circumstances the defenders were quite entitled to provide that they should not be liable for risks of loading, &c.

Counsel for Advocators—Solicitor-General and Mr. Johnstone. Agents—Gibson-Craig, Dalziel, and Brodies, W.S.

Counsel for Respondent—Mr. Gordon and Mr. Scott. Agent—W. S. Stuart, S.S.C.—*North British Agriculturist.*

PROSECUTION UNDER THE CONTAGIOUS DISEASES ACT.

At the Guildhall on Saturday, before the Mayor and a full bench of Magistrates, J. L. Lubbock, Esq., of Catfield Hall, was summoned on the information of Nicholas Bone, for exposing for sale in the Norwich Cattle Market a bullock affected with pleuro-pneumonia.

Mr. E. Tillett prosecuted; and Mr. J. C. Chittock appeared for the defendant.

Mr. Tillett said the information was laid under the 49th section of the Contagious Diseases Act, 30 and 31 Vic., cap. 105, which enacts, that any person exposing for sale, in a market or fair, cattle affected with pleuro-pneumonia, unless he shows to the satisfaction of the justices that he did not know that the cattle were so affected, and that he could not with reasonable diligence have obtained such information, shall be liable to the penalties under this Act. The facts of the case were, that Mr. Smith, the appointed inspector of live stock brought into the Norwich Cattle Market was following his usual occupation on the 16th of January last, when he saw the

bullock, which appeared to him to be suffering from pleuro-pneumonia. He (Mr. Tillett) should be able to show, beyond all doubt, that the bullock belonged to Mr. Lubbock, and that it was suffering from pleuro-pneumonia. Mr. Lubbock had acted in this matter with considerable fairness, but the Market Committee had felt themselves bound, seeing that a beast suffering from this disease was brought into the Cattle Market, to summon the owner. Mr. Tillett then called

Wm. Smith, who deposed—I am a member of the College of Veterinary Surgeons, and reside in this city. I was in the Cattle Market on Saturday, the 16th of January. I saw a bullock which appeared to me to be suffering from some disease. I examined the animal and found it was suffering from pleuro-pneumonia. I asked several persons to whom it belonged, and ultimately I ascertained that it belonged to Mr. Lubbock.

Mr. Chittock said that to save trouble he would at once admit that the bullock belonged to Mr. Lubbock.

Examination continued—I saw the bullock when it was killed. I am able to say positively that it was then suffering from pleuro-pneumonia. It would depend upon the period of time at which it was seen whether anybody could say with certainty that the animal was affected. If a veterinary surgeon, or a farmer having experience of pleuro-pneumonia, had seen the animal on Thursday or Wednesday, I believe he could have ascertained that the beast was affected.

By *Mr. Sultzer.*—I depend most on the *post-mortem* examination.

Cross-examined by *Mr. Chittock.*—I formed my opinion from the appearance of the animal before it was killed. When it was killed I examined the lungs. I do not depend more on the appearance of the animal after it was killed than on its appearance before. I believe the disease might have been discovered on the Thursday. I do not think that was the earliest period at which I should have been able to detect the disease; but, perhaps, a person not so well acquainted with the disease might not have discovered it earlier. One of the symptoms is a peculiar shortness of breath—peculiar almost to the disease. An animal suffering from pleuro-pneumonia might have been driven to Norwich market at the rate of three or four miles an hour. Sometimes there is a difficulty of breathing, and sometimes not. When both lungs are affected, I should say there would be a difficulty in walking. I should not expect to find much difference in the appearance of the skin. Whether it becomes tighter depends upon the duration and intensity of the disease. Tightness of the skin is not always a symptom, except, perhaps, in protracted cases. Constipation is a symptom in the earlier stages of pleuro-pneumonia; diarrhœa in the later. The urine is not always of a high colour. The symptoms depend very much upon circumstances. Animals sometimes hang their heads down, and sometimes not. That would depend a good deal on whether one or both lungs are affected. Their backs are sometimes arched, not always. All these symptoms are sometimes found in pleuro-pneumonia. We always find a short cough and quickness in

breathing. These are the leading symptoms that are always present. I should not think this beast had been affected many days. It might possibly have been affected twelve or fourteen, and the disease arrested, and afterwards resumed. I have seen the lungs as heavy and consolidated when the disease has continued only three or four days. One lung was entirely consolidated.

Re-examined.—I have no doubt but that any man who understood the disease would have discovered it on the Wednesday or Thursday.

Mr. Chittock then addressed the bench for the defence. He remarked that he had materially shortened the case by admitting that the beast belonged to his client, who, when some communication was made to him by Mr. Mendham, at once said the animal was his, but that he was not aware that it was suffering from pleuro-pneumonia when he sent it to Norwich. Under the section of the act which Mr. Tillet had read, it was to be observed that the defendant was to be deemed guilty unless he shows to the satisfaction of the justices that he did not know that the animal was affected, and could not with reasonable diligence have obtained such knowledge. If the defendant were permitted to give evidence, he would at once state that he had not such knowledge, but as he could not do this, he would call a veterinary surgeon, who examined the beast the day before it came to Norwich. *Mr. Chittock* having stated the facts deposed to by Mr. Lacey, as given below, proceeded to say that he was not going to question Mr. Smith's evidence as to the state of the beast after it was killed. Mr. Smith stated that it was in an early stage of the complaint, and that he thought it might have been suffering three or four days. The question, however, was whether the veterinarian surgeon who examined the beast before it was sent to Norwich really formed the opinion that the animal was suffering, as he would state, from some affection of the liver. After hearing the evidence he was about to adduce, he (Mr. Chittock) believed the bench would say that Mr. Lubbock did all that any reasonable man could be expected to do, and that he did not know that the beast was affected with pleuro-pneumonia, and that he could not with reasonable diligence have obtained such knowledge. Mr. Lubbock was one of the magistrates for that division of the county in which Mr. Lacey was one of the inspectors appointed under the Cattle Plague Act, and he had reason to believe that Mr. Lacey was a competent man, he having practised for a number of years. Mr. Lacey did not discover the disease, and he (Mr. Chittock) should be able to show that Mr. Lubbock had no means of knowing that the beast was affected with it.

Robert Lacey deposed—I have practised as a veterinary surgeon for the last thirty years, and live at Stalham. I was one of the inspectors appointed under the orders relating to the cattle plague, in the district in which Mr. Lubbock acts as a magistrate. I have been employed by Mr. Lubbock ever since he has been at Catfield Hall. He went there last Michaelmas two years. I was first called in to see his bullock on Tuesday, the 22nd of December. I consi-

dered it was suffering from a liver disease, and treated it accordingly until the 27th of December. On that day it was perfectly recovered. I attended the same beast again on Friday, the 15th of January. I examined it particularly, and formed an opinion that in all probability it had an abscess on the liver. I did not observe any symptoms of pleuro-pneumonia. I have seen hundreds and hundreds of cases of pleuro-pneumonia, but was unable to discover any symptoms of it in this beast. I informed Mr. Lubbock of the result of my examination of this beast. I told him that I thought he had better sell it, as in all probability it would be unprofitable to keep. On the 27th of December Mr. Lubbock turned out that beast amongst his others. When I recommended Mr. Lubbock to sell the beast, I think he asked if I was perfectly sure that it was not suffering from pleuro-pneumonia. I told him that I was. That was on the Friday—the day the beast was sent to Norwich. Mr. Lubbock inquired of me if I was certain that it was not suffering from any contagious disease, as, if it were, he would not send it away; and I told him he might send it wherever he pleased, as there was no danger.

Cross-examined—I am not a member of the Royal College of Veterinary Surgeons. I was in the room when Mr. Smith gave his evidence. The beast may have been suffering from pleuro-pneumonia on the Friday, but I don't believe Mr. Smith, or any other professional man, could have detected it.

Re-examined—Perhaps the long journey to Norwich might have developed the disease. I do not believe any bullock, suffering from pleuro-pneumonia, could have walked four miles an hour for four hours.

The Mayor intimated that the Bench considered that Mr. Lubbock used all the diligence in his power, and although there was no doubt that the animal was suffering from pleuro-pneumonia, they exonerated Mr. Lubbock from all blame.—*Norwich Mercury*.

PARLIAMENTARY INTELLIGENCE.

Lord Robert Montagu has obtained leave to bring in a Bill to amend and perpetuate the Acts relating to contagious or infectious diseases among cattle and other animals. An animated discussion ensued on the motion, in which, besides the seconder—Mr. Selwin Ibbetson—Mr. Headlam, Mr. Dent, Mr. Bruce, and Sir J. Elphinstone took part. It would seem that this very necessary measure is likely to be warmly debated in its future stages.

The following is the Bill alluded to :

A Bill to amend and perpetuate the Acts relating to contagious or infectious Diseases among Cattle and other Animals; and for other Purposes.

Be it enacted by the Queen's most Excellent Majesty, by and with the advice and consent of the Lords Spiritual and Temporal, and Commons, in this present Parliament assembled, and by the authority of the same, as follows:

1. This Act may be cited as The Contagious Diseases (Animals) Act, 1869.

2. This Act shall not extend to Ireland.

3. This Act shall be read as one Act with The Contagious Diseases Animals Acts (described in section three of The Contagious Diseases (Animals) Act, 1867), as far as they remain in force after the passing of this Act, which Acts are in this Act referred to as the former Acts; and for that purpose the term "this Act" where used in any of the former Acts shall be construed to include the present Act, and where used in this Act shall be construed to include each of the former Acts, unless there is something in the subject or context inconsistent wtth that construction; and the former Acts and this Act may be cited together as The Contagious Diseases (Animals) Acts.

4. The former Acts as far as they are in force at the passing of this Act shall be and the same are hereby made perpetual, subject to the provisions of this Act.

5. Foreign animals shall not be landed in Great Britain except at ports from time to time prescribed in that behalf by the Privy Council, in accordance with section forty-six of The Contagious Diseases (Animals) Act, 1867.

6. All foreign animals landed as aforesaid shall be landed within the part or parts of the port defined in that behalf by the Privy Council, and according to such regulations as the Privy Council from time to time prescribe, and shall within such time as the Privy Council appoint be taken to a place or places approved by the Privy Council adjoining or near to the place or places of landing, and shall not be removed thence alive, and in the meantime shall be kept separate from all animals not being foreign animals, and all animals from time to time within any place so approved shall be dealt with as foreign animals; provided that the Privy Council may, if they think fit, with respect to any foreign animals landed at any port, suspend for a period or periods not exceeding in any case in the whole three years from the passing of this Act the operation of this section as far as it relates to separation.

7. In addition to the Provisions of section forty-seven of The Contagious Diseases (Animals) Act, 1867, and other provisions of the former Acts relative to powers of a local authority respecting

disposal of foreign animals, the following provisions shall have effect:

(1.) For the purpose of the acquisition of places for the landing, reception, sale, and slaughter of foreign animals, section seventy-five of The Local Government Act, 1858, shall apply and have effect as if the local authority were a local board acting under The Local Government Act, 1858, and the purposes of The Contagious Diseases (Animals) Acts were purposes of that Act; save that the advertisements and notices requisite under the last-mentioned section may be published and served in any two consecutive months instead of only in the months therein specified; and the powers for the acquisition of sites referred to in or conferred by this section may be exercised by a local authority with respect to lands either within or without their district:

(2.) The Markets and Fairs Clauses Act, 1847, shall be deemed to be incorporated with section forty-seven of The Contagious Diseases (Animals) Act, 1867; and for the purposes of the application and construction of The Markets and Fairs Clauses Act, 1847, in conjunction with that section, any place provided by a local authority under that section shall be deemed a market, and that section shall be deemed the special Act, and the prescribed limits shall be deemed to be the limits of the lands acquired for the purposes of that section, and byelaws shall be approved by the Privy Council, which approval shall be sufficient without any other approval or any allowance thereof (notice of application for such approval being nevertheless given, and proposed byelaws being published before application for approval, in like manner as under that Act notice of application for allowance, and publication before that application, are required to be made):

(3.) Money received by a local authority from charges made by them under section forty-seven of The Contagious Diseases (Animals) Act, 1867, shall be carried to a separate account, and shall be applied in payment of interest on money borrowed for the purpose of that section, and in repayment of the principal thereof, and subject thereto towards expenses incurred by the local authority in the execution of The Contagious Diseases (Animals) Acts:

(4.) The provisions of this section shall, as far as they are applicable, have effect in respect of any place for the time being provided by a local authority under section forty-seven of The Contagious Diseases (Animals) Acts, 1867, whether the same has been provided before the passing of this Act, or is from time to time provided after the passing of this Act.

8. A local authority on exercising for the purposes of this Act the borrowing powers vested in them under sections twenty-two, twenty-three, and twenty-four of the Cattle Diseases Prevention Act, 1866, and under The Cattle Diseases Prevention Amendment Act, 1866, may give as security for repayment of money borrowed with interest (either together with the local rate, if any, or separately therefrom) the charges which they are authorized by section forty-seven of The Contagious Diseases (Animals) Act, 1867, to make for the use of places provided by them thereunder, and any estates, revenues, or funds belonging to them and not otherwise appropriated by law.

9. Nothing in this Act shall prevent the Privy Council from approving of more places than one within the district of a local authority as places for the landing, reception, sale, and slaughter of foreign animals, or any one or more of those purposes; but the Privy Council shall not approve of any place as a place for the landing, reception, sale, or slaughter of foreign animals, unless either the same is provided by the Local Authority or the approval of the Privy Council with respect to the same is applied for by the Local Authority.

10. At any time after the passing of this Act the Privy Council may, by notice in writing addressed to a local authority, require that local authority to provide within a time specified in the notice, not being in any case less than one year or more than three years after the delivery of the notice, a separate place or separate places for the landing, reception, sale, and slaughter of foreign animals, or for any one or more of those purposes, and thereupon that local authority shall, within that time, provide a separate place or separate places accordingly, to the satisfaction of the Privy Council; and if the local authority fails to do so within the time specified in the notice, or within such enlarged time, if any, as the Privy Council may from time to time allow (which allowance the Privy Council are hereby authorized to make, provided that such time shall in no case exceed, in the whole, three years from the passing of this Act), the Privy Council may certify the same to the Board of Trade.

11. On a certificate being made under this Act the Board of Trade shall, in lieu of the local authority, have all the powers vested in the local authority under The Contagious Diseases (Animals) Act in relation to disposal of foreign animals, including the power of making charges for the use of places provided for the reception, sale, and slaughter thereof, and the power of borrowing from the Public Works Loan Commissioners conferred by section four of The Cattle Diseases Prevention Amendment Act, 1866, but without the restriction imposed by that section on the borrowing powers of local authorities with reference to the amount of rate.

12. Notwithstanding anything in this Act, the Privy Council may, from time to time, exempt from the provisions of this Act, or any of them, classes of foreign animals, or foreign animals imported from specified countries in which no cattle plague has existed for

three years; and nothing in this Act shall interfere with the authority of Her Majesty in Council or of the Privy Council to make regulations for subjecting foreign animals to quarantine and for allowing animals subjected to quarantine to be removed alive beyond the limits of the port of landing.

13. This Act shall have full effect notwithstanding anything contained in any former Act, public, local, or private, and notwithstanding any charter, franchise, prescription, or right whatsoever.

14. Nothing in this Act shall invalidate or interfere with the operation of any order made before the passing of this Act by the Privy Council under the authority of section forty-six of The Contagious Diseases (Animals) Act, 1867, and every such order shall continue to operate and may be revoked or altered as if this Act had not been passed.

IMPORTATION OF FOREIGN SHEEP AND CATTLE.

Mr. Headlam asked whether the Government intended to take any steps to remove the obstacles that now impeded the importation of foreign cattle and sheep.

Mr. W. E. Forster replied that he would first state to the House the exact position in which the importation of sheep was now placed. On Friday last an order in Council had been issued, and would take effect on Friday next, revoking an order issued on the 20th of August last; and consequently importation of sheep would be placed in the same position as before last August; that was, unless sheep arrived in the same vessel as foreign cattle, they might be landed at any port; and if on examination they were found healthy, they might be removed or sold without restriction. If imported in vessels with foreign cattle, they would be subject to the same regulations as foreign cattle. When that order was issued, in August last, the sheep-pox was raging in Holstein, Schleswig, and in parts of Holland—countries from which they imported sheep. Since then the Government had received official information that the sheep-pox was extremely limited in Northern Germany, and had disappeared from Holland, and did not exist in countries from which they generally imported sheep. It was believed to exist in Italy and Russia, but that was comparatively unimportant, as the importation of sheep from those countries was very small. Since October, 1868, no case of sheep-pox has been detected in any foreign sheep coming to this country; and, taking into account the fact that in North Germany the Government regulations were very stringent, and that a cordon was drawn round the infected places, and also the fact that the importation of sheep had been largely diminished during the operation of that order, they felt that the

restriction ought no longer to be maintained. Taking the period from the 1st September, 1868, up to the present date, and comparing it with the period from the 1st September, 1867, to the second week of 1868, he found that in the latter period there was an importation of 175,421, and in the former 97,927. They were informed that this result was mainly owing to the restriction, and they could not lose sight of the fact that mutton was rising in price. (Hear, hear.) He might mention that the Government had had an opportunity of looking into the bill of the noble lord opposite (Lord R. Montagu), and that they could not adopt the arrangements of that measure. Believing, however, that legislation was necessary, it was the intention of the Government to bring in a bill which would deal with animals suffering from other contagious diseases besides the rinderpest.

ORDER OF COUNCIL RELATIVE TO THE IMPORTATION OF FOREIGN SHEEP.

At the Council Chamber, Whitehall, the 19th day of February, 1869. By the Lords of Her Majesty's most Honorable Privy Council.

Present—Lord President, Mr. Secretary Bruce, Mr. Forster.

The Lords of Her Majesty's Most Honorable Privy Council, by virtue and in exercise of the powers in them vested under The Contagious Diseases (Animals) Acts, and of every other power enabling them in this behalf, do hereby revoke their Orders, bearing date the 20th day of August, one thousand eight hundred and sixty-eight, and the nineteenth day of October, one thousand eight hundred and sixty-eight, relating to sheep brought to Great Britain which come from the Continent of Europe; provided that nothing herein shall be deemed to invalidate or make unlawful anything done under the said Orders before the date of this revocation, or interfere with the institution or prosecution of any proceeding in respect of any offence committed against, or any penalty incurred under, the said Orders, or either of them.

This revocation shall take effect on Friday, the twenty-sixth day of February, one thousand eight hundred and sixty-nine.

(Signed) ARTHUR HELPS.

OBITUARY.

Professor Thomas Strangeways died at Glengyle Terrace, Edinburgh, on Saturday, February 6th, aged forty-four, deeply regretted.

He was born in the city of Durham, 6th November, 1824. His father, Mr. John Strangeways, officer of Inland Revenue, survives him. Professor Strangeways received his education under the Rev. A. Wood, D.D., Hilton, near Sunderland, and afterwards served his apprenticeship with Mr. Smith, a chemist and druggist of Alnwick. Subsequently he became assistant to Mr. Davidson, apothecary in the same town.

At the commencement of the session 1855-6 he entered the Veterinary College of Edinburgh as a student under the late Professor Dick, and at the end of the first session, he gained the senior prize in materia medica for a 'Thesis on Opium.' He was highly complimented for this paper by the late Dr. T. Lindley Kemp, then the Professor of Chemistry and Materia Medica in the College. At the end of the next session, 1866-7, he presented himself for examination, and obtained the diploma of the Highland and Agricultural Society, and also the prize for the best examination in chemistry.

A very interesting circumstance in connection with this examination may be noticed. The Highland and Agricultural Society, in addition to the prizes given for the best examination on special subjects connected with veterinary science, are accustomed to award a prize to the student who passes the best examination in all branches of the science. On the occasion of the examination referred to, the students selected for competition for this prize were —the late Thomas Strangeways, James M'Call, James Law, W. A. Field, and W. Williams. The latter was awarded the prize. All these gentlemen, except Mr. Field, became teachers or professors—Mr. M'Call, in Glasgow; Mr. Law at the State Veterinary College, New York; Mr. Williams and the late Mr. Strangeways, at the Edinburgh Veterinary College.

At the beginning of the following session, 1857-8, Mr. Strangeways was appointed Demonstrator of Anatomy at the Edinburgh Veterinary College. This office he held for one session only; and thereafter at the request of some of his professional brethren, commenced practice at Otley, Yorkshire. Before leaving the Edinburgh College, he was presented with a handsome testimonial by the students. He remained in Otley for about eighteen months, when in November, 1859, the Chair of Anatomy having become vacant by the resignation of Mr. M'Call (who had occupied it for the two preceding sessions), Mr. Strangeways received an invitation from the late Professor Dick to fill the chair. He accepted the offer, and continued to discharge the duties of the professorship up to the date of his death.

From his kindness of disposition and gentlemanly bearing he was generally respected; and having a thorough knowledge of his subject, and the happy gift of imparting that knowledge to others, he was a great favorite with the students, who, to show their high appreciation of him, insisted upon bearing his coffin, shoulder high, in front of the hearse, from his house to his last resting place, Newington Cemetery.

Headaches and indifferent health lessened his activity, and prevented his doing so much professional work as he might otherwise have undertaken.

On the occasion of the rinderpest breaking out in Scotland he was appointed Commissioner for Edinburgh, when he discharged the duties devolving upon him to the satisfaction of all parties.

He took a considerable amount of trouble in making *post-mortem* examinations of infected cattle. The result of these were published, but without acknowledgment at the time, in Dr. Smart's book on the cattle plague.

His contributions to veterinary science, although not numerous, always commanded respect among the faculty. They also gained for him the honorary degree of LL.D.

The latest discovery made by him was the existence of a small supplementary muscle in the eye of the ass. His paper on the subject was published in the 'Journal of Anatomy,' edited by Professor Turner.

He had for some time been preparing for publication a 'Text-Book of Veterinary Anatomy,' and it is believed the manuscript is almost complete.

In addition to the death of Professor Strangeways we have to record the death of Mr. G. T. Baldwin, M.R.C.V.S., Fakenham, Norfolk, who died January 26th, in the fifty-second year of his age. His diploma bears date June 29th, 1835.

Also of Mr. Joseph Coates, M.R.C.V.S., Stoke Newington, in the twenty-seventh year of his age. His diploma bears date April 27th, 1865.

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Communications and Cases.

THE MICROSCOPE IN VETERINARY MEDICINE.

By Professor Brown.

(*Continued from p.* 77.)

Disease of the Osseous Tissue of a Goat presenting the general character of "Mollites Ossium."

Bone, like other structures of the animal body, is liable to certain changes, the result of abnormal conditions. In the animals which the veterinary surgeon has especially under his care, alterations of bony structure are very frequent; but, perhaps, owing in some degree to the physical character of the tissue, the various modifications have not been minutely investigated. Development of bone in excess in many situations is well known to us under the term "Exostosis." Enlargement of particular portions of the skeleton has been occasionally met with and described as "Hyperostosis." Loss of vitality not uncommonly happens to certain of the bones, and is distinguished as "Necrosis." Decay of bony texture is designated "Caries." Brittleness from deficiency of animal matter is called simply "Fragilitas ossium," and an unnatural softness from deficiency of earthy constituents is known as "Mollities ossium." All these terms relate to the obvious physical condition of the morbid parts, and with the amount of knowledge which is to be gained by a mere eye inspection of them, we have been generally content, notwithstanding that the few examinations which have

been made have revealed quite unusual and, in many respects, very remarkable changes of structure, very little light has been thrown upon the cause of the changes which have been observed, and, indeed, from the limited number of inspections which have been made, it would be unsafe to attempt to establish any general conclusions as to the character of the structural alterations which occur in many instances of disease of the bony system. Instructive subjects for inquiry present themselves in exostosis, hyperostosis, necrosis, caries, fragilitus ossium, and mollitus ossium; at present, we are concerned with the latter disease in particular. A remarkable instance of enlargement and weakening, as it may be called, of the bony structure is recorded in the 'Veterinary Record' for 1849. The horse which was affected with the disease was a miller's horse, under the care of Mr. Shave, M.R.C.V.S., of Chelmsford. Mr. Shave, in relating the history of the case, stated that the horse was brought to his infirmary with an enlargement of the submaxillary bones. The disease continued to advance in spite of treatment, and in six months from the time of first being examined by Mr. Shave the horse was destroyed as incurable. A *post-mortem* examination was made, and the skeleton of the head, which was the part most affected, was presented before the members of the Veterinary Medical Association.

Altogether, the aspect of the diseased part was very remarkable. The whole head was uniformly and even symmetrically enlarged to nearly twice its natural size. The bones everywhere presented a porous or spongy appearance, quite unlike the dense structure of the normal bone. Other portions of the skeleton were obtained, and it was then discovered that scarcely a bone of the animal's body was free from a similar diseased condition complicated in the bones of the extremities, with extensive ulceration of the articular surfaces. It unfortunately happened that no microscopic examination of the parts was made at the time; but Professor Varnell having retained a portion of the jawbone, was in 1860 induced to investigate its structure, and discovered that "the Haversian canals were dilated, and their surrounding lamellæ extremely thin." The cause of the dilatation it was at that distance of time impossible perhaps to determine.

Other instances of enlargement and softening of the bones was recorded by Professor Varnell in the *Veterinarian* for September, 1860. The disease is described as resembling in many respects Mollities ossium, Rachitis, Osteoporosis, and fatty degeneration of bone; the last term seems to be most accordant with the microscopic appearances which are

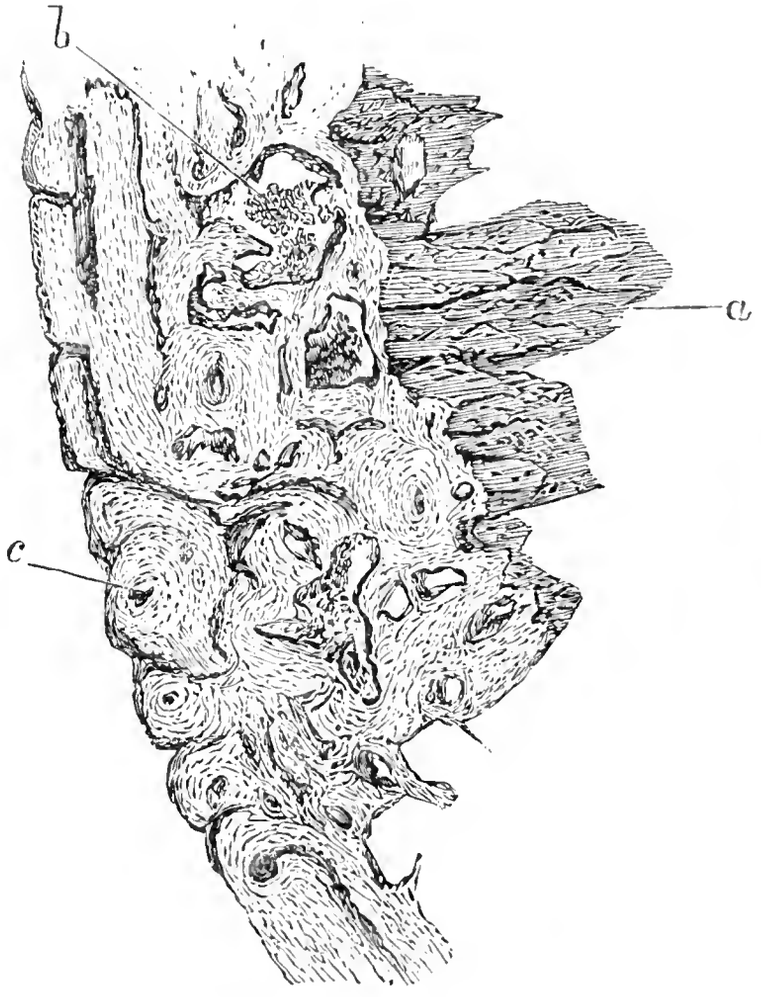
depicted in the illustrations accompanying Mr. Varnell's memoir. In the portions of the long bones which were examined, the Haversian canals were found to be of the ordinary size; but in various parts of the intervening bony tissue there were cavities filled with fat. A section of the lower jaw presented a totally different appearance, the osseous tissue being compressed to a remarkable degree in consequence of the extraordinary dilatation of the Haversian canals, which in respect of their size more nearly resembled the bony structure, while the condensed osseous tissue might have been mistaken for the Haversian canals. Neither in the case reported by Mr. Shave nor in the instances recorded by Mr. Varnell was the cause of the disease discovered. Nothing in the breeding or management of the horses threw the least light upon the origin of a most mysterious affection. The main facts of the case appear to be that several horses belonging to a large farmer and miller in Berkshire, one by one suffered from stiffness of movement, increasing to extreme lameness; and, finally, such constitutional irritation as to cause death. The disease endured for many months, and was confined to male horses and to one farm, none of the mares or fillies being attacked, and all the animals in the next farm escaping entirely. Most of the diseased horses were bred by the owner, and all those which were attacked as well as those which remained healthy, were fed and in every particular treated in the same way.

Since Professor Varnell's elaborate memoir on this subject was published in the *Veterinarian,* no similar case of osseous disease has been met with, until a few months ago a goat was admitted to the College infirmary suffering from an obscure disease, principally indicated by loss of power of the masticatory muscles and general prostration. An examination of the head led to the conviction that the lower jaw was fractured at the symphysis, as the two sides could be moved easily and independently of each other, and the animal had lost the power of closing the mouth. It was not thought desirable to attempt any treatment, and the animal was accordingly destroyed.

Post-mortem examination of the carcase revealed no abnormal condition of the organs, but when the flesh was removed from the skeleton all the bones were observed to be unnaturally yielding. The ribs could be bent until their ends were in contact without fracture occurring, and the bones of the head readily yielded to firm pressure of the finger. All the facial bones could be cut with a knife without difficulty, and even the most dense of the long bones bent under pressure. Portions of the lower jaw and also of

the metatarsal bones were selected for microscopical examination. In the first, the cancellated structure was abnormally abundant, and so far encroached upon the shell of the bone that it was reduced to an exceedingly thin plate; the structure, however, was healthy. The more dense metatarsal bones presented a very peculiar appearance, a transverse section showing the Haversian canals in various unusual forms. In some parts of the bone they were merely dilated; in other places they were elongated, giving to the object the aspect of an oblique or longitudinal section, and in places it appeared as if several of the canals had become connected by the obliteration of their walls, forming considerable cavities. Some of the canals remained healthy. In the dilated canals a quantity of yellow granular fat was observed. All these appearances are depicted in the accompanying illustration.

Fig. 11.



Transverse section of the metatarsal bone of a goat affected with mollities ossium. *a*. Cancellated structure. *b*. Enlarged Haversian canal. *c*. Normal Haversian canal. Magnified 25 diameters.

The lacunæ examined under a magnifying power of 200 diameters did not appear to be abnormal; in most parts of the bone, however, the canaliculi were obliterated.

The bones were not enlarged excepting the lower jaw; but there is every reason to believe that if the animal had lived, and the disease had continued to progress, the osseous tissue would have assumed the character which was so apparent in the instances recorded by Mr. Shave and Professor Varnell. Inquiry into the history of the case did not lead to the discovery of any circumstances which would account for the origin of the affection. The goat was a female one year and three months old, and had been bred by a dairyman at Kingsland. The dam remained in his possession and gave no instance of disease. The sire belonged to a dairyman at Haggerstone, and was also in good health. When the goat was three months old it was sent to a dairyman at Hackney, in whose possession it remained in good health, until it was about thirteen months old. Soon after it reached the age of twelve months it produced two kids, a male and a female, both of which sucked until the time of the removal of the mother to the Veterinary College.

A fortnight after parturition the goat gave evidence of illness by a difficulty of mastication, or as it was described by the dropping of the lower jaw; the power to masticate food was soon entirely lost, and the animal was kept on cooked and liquid food, which it contrived to suck down without closing the mouth. Mr. Priestman's attention was called to the case, in consequence of the symptoms becoming more severe; and by his direction the animal was sent to the college. It is altogether remarkable that three examples of an unusual disease of the osseous system should have occurred at long intervals in different animals, the affection being in every instance distinguished by the same general characters; the cause of disease in each case was equally obscure.

LAMINITIS AND ITS TREATMENT.

By G. Fleming, Royal Engineers.

I am extremely sorry that Mr. T. D. Broad should have commented so brusquely in the last number of the *Veterinarian* on the few remarks I made on Laminitis and its treatment in February's issue. I was not for a moment aware that in stating my experience of the malady, which in several

respects corroborated the opinions expressed in his essay, and in calling attention to the able, and almost exhaustive, articles on the subject, from two eminent French veterinary authorities, articles which Mr. Broad was evidently unacquainted with, I could give offence or draw down upon myself the terrible designation of "inexperienced theorist." Had I thought such a reward likely to be forthcoming, my few notes would most certainly have been consigned to the waste-paper basket, and a rigid silence been observed. It is difficult, however, to forget that our profession is, or rather ought to be, a "science" and not an "art" as it has so long been in this country. When the time arrives for which all true progressionists are striving, and we can say that we are students of a science like that of human medicine, then I feel convinced to be called a "theorist," or to be found "theorizing," will not carry with it the discredit that now appears to be attached to any one who ventures to explain the why and wherefore of disease and its treatment. We will then have got a step beyond blind empiricism, which does a thing, finds perhaps it answers, and perhaps it doesn't, but cannot tell why success or failure should follow; and we will have stolen a march upon the farrier and cow-leech.

I make these remarks solely because it is somewhat the fashion in our profession, as at present constituted, when it is desired to be particularly severe on any one, to designate him a "theorist," and to demolish him altogether to add "inexperienced." If he can ever hold up his head again among those who abhor "theory" and style themselves "practical," he is a bold man. Not being desirous of meriting the appellation of either a mere theorist, or an utterly inexperienced veterinary surgeon, but, if possible, to claim the middle rank, I beg to be allowed to notice Mr. Broad's comments, though in the most amicable and peace-loving, or rather science-loving, manner, and to explain myself if need be.

Let me, then, first ask Mr. Broad if ever he has employed turpentine frictions to the body of a horse affected with laminitis? If he has not, then better authorities in veterinary science than either of us have, and recommend them. Therefore, if we condemn them without trying their recommendation, I suppose we are theorizing. For my own part, I would rather use turpentine than the whip; and surely if its effects passed off in twenty minutes the friction could be repeated; but if it be true that the animal rapidly begins to move easier after progression is once established, then a re-

petition of the stimulant may not be required. The majority of Mr. Broad's cases of laminitis must have been particularly mild ones if merely *showing* them the whip made them move. I have seen a good deal of punishment inflicted in making an animal with somewhat acutely inflamed feet travel half a mile to a stream. When we have tried the turpentine then we may be able to decide which is the best.

It must be a source of discredit to myself, perhaps, but one of congratulation for the horses I have had in charge for more than eight years, as well as to the advantage of the public service, that I have had no cases of laminitis *to treat;* though I have *seen* a number treated. An army veterinary surgeon, unfortunately for his "practical" reputation, is expected to be more skilled in prevention than cure; and it appears I have been more successful in this respect than was judicious. By careful attention to the shoeing of my horses, and allowing their frogs to come in contact with the ground as nature intended, but which I understand Mr. Broad does not believe in, my experience in the treatment of laminitis is likely to be extremely limited, so far as my own regiment is concerned.

On active service, however, it is not always so easy to carry out preventive measures, especially when the care of animals is entrusted to a mixed crew of all nations, and when they are shod by what are called native farriers.

Such was the case in the example I gave of my experience in China in 1860, when I had more cases of laminitis in six weeks than in all probability Mr. Broad has had since that period. I have already described my simple method of treatment; but I am not particularly anxious for an extensive experience of this kind. One case of disease well and leisurely observed was worth the whole seen in China, where there was scarcely time, and certainly not much inclination, to watch the result of treatment in individual cases from hour to hour. That case I briefly noticed in my remarks. If my experience of laminitis for many years before entering the army in larger towns than Bath, and subsequently during two campaigns, on shipboard and on shore, as well as its treatment under the most adverse circumstances, will not entitle me to a very humble opinion among the "practical" men who have lived at home all their lives, then I confess I have been "theorizing."

The cases Mr. Broad affords as examples of sole pressure are, I must confess, very telling ones. I am not sure that I ever read anything to equal them in the pages of the

Veterinarian. Two horses, all of whose feet were affected with laminitis, were being treated by a neighbouring M.R.C.V.S., who had carried out Mr. Broad's system of treatment in every respect, except in having special shoes put on, *and were travelled fifteen miles with inflamed feet. They were excessively lame, all the soles of both horses being sunken, and blood oozing from the toes of the fore feet of one of the horses.* This certainly gives one an idea of war time during peace. I cannot, however, understand why the horses became lame in the hind feet when put in loose boxes and made to stand upon sawdust. Were the hind feet inflamed previous to the terrible journey of fifteen miles, and were the false leathers put on to protect the soles? were they inflamed in consequence of having to support all the weight, in addition to propelling the animals during the journey, and the subsequent ordeal of moving and supporting the increased weight of the two and three pound bar shoes on the fore feet? or were they really inflamed in consequence of a little sawdust having lodged on the ground surface of the leather soles? I understand they were inflamed before the journey. Can we wonder they were under-run afterwards, and would any theorist blame the sawdust?

I have explained the *rationale* of my treatment, and the reason why I allow the horse to sustain his weight on soles and frog. I have also given examples of my success by this rational method, founded, as all science is founded, on theory and practice. Will Mr. Broad explain to us the theory of his two and three pound bar shoes nailed to acutely inflamed feet, and which are covered, besides, with leather soles? Though he looks upon the use of Cherry's footpads and Japanese (not Chinese) straw shoes as more ideal than real, yet I believe in them, and have given my reasons for doing so. Those who understand the pathology of laminitis will, perhaps, agree with me; at any rate, the success attending my alliance of theory with practice will induce me to continue my mode of treating laminitis, should I ever again have the opportunity, until my theorizing devises something better.

In the mean time, I hope many of the younger members of the veterinary profession in this country may not be frightened from theorizing by Mr. Broad's letter. The only matter for regret, perhaps, in the history of veterinary medicine in Britain is, that we have had so few theorists—so few thinking men. The bee or beaver-like routine of every-day experience has not been much enlivened by thought; for all theorists must be thinkers, and thinkers of the proper kind, not dreamers; men of ideas capable of observing facts.

"All natural science," says the Botanist Mayer, "and, indeed, science of every kind, is to be referred to the mingling together of two distinct sources, the observation of facts, and speculation upon the facts observed." How much speculation can the veterinary profession in England show? I hope Mr. Broad may explain the use of his heavy shoes and leather soles in laminitis; and also whether the journey, the subsequent exertion, or the sawdust, or neither produced inflammation of the hind feet in the examples he affords us.

Mr. Broad's and my experience differ as to the treatment of what he terms "sunken soles." As he speaks merely from experience, I would like to explain to him theoretically how sunken soles should be treated, and afterwards give him practical examples; but this I find would, in the present stages of our discussion, be out of place. I need, therefore, only say, that when he next visits Chatham, I will show him a horse that, in 1865, was about to be destroyed for convex soles, the result of laminitis, and that I bought merely for the purpose of experiment. For six months he could not leave his loose box. At the end of that time he had tips put on, and was conveyed to a low lying meadow for three months, was then shod with shoes plane on the foot surface and put to work; and for the last three months has been travelling sometimes twenty and thirty miles two and three times a week over the worst roads in the country, the crust of his now concave soles protected *à la Charlier*,—a victim of theorizing.

Before closing this letter, allow me to make a correction in my former one. I said that in shoeing, throwing the whole weight and strain on the wall and laminæ by paring the sole and frog, was the chief excitant of laminitis. I should have written chief predisposant.

THE CATTLE PLAGUE IN SPAIN.

By the Same.

In the interesting "Report on the Cattle of Spain," drawn up by Mr. Consul General Dunlop, and which appeared in the last month's issue of the *Veterinarian*, there is a *précis* of some notes on the rinderpest, from the pen of Don José de Prado y Guillen, Chief Professor at the Veterinary School of Cordova, that merits some notice. The whole report is worthy of careful perusal, as it is not often we can learn so much regarding the management of cattle in that country, or of the maladies to which they are liable; but the attention of

the veterinary surgeon will be chiefly directed to what Don José has stated in reference to the bovine scourge that has lately caused us so much loss and inconvenience.

Spain has certainly been wonderfully preserved from the deadly visitations of this malady. When nearly the whole of Europe was suffering from successive invasions during the last century, Spain may be said to have escaped; and in this century she has been equally fortunate. In her records, we read of epizooties among horses, and wide-spread "distempers" which affected man and beast alike; but the horned creatures, always most predisposed to general maladies, appear to have suffered but little from the contagions that decimated the herds of neighbouring countries. Don José satisfactorily accounts for this happy exemption of the Spanish cattle: "I fully believe that the chief reason is, that we rarely, and in very small numbers, import any foreign cattle into Spain. There is comparatively little beef eaten throughout the country; more is produced than is consumed. Our exportation, especially from the north and Gallicia, is considerable, and, in truth, our cattle importation is *nil*. The Gallicia and Asturias cattle find their way to France and to England, but none come thence to us. . . . . We are in hopes that the peculiar topographic character and configuration of our country may stand in the way of the production of the disease in Spain."

Though the commercial relations between other countries and Spain have been largely increased since the introduction of railways and steamboats, yet so long as she exports and does not import cattle, it must be a very rare accident that will bring this plague to her shores. No better proof could be given of the manner in which that disease is spread, from its generating focus or foci, or of the fact that it cannot arise spontaneously beyond its birth-place in the Steppes. But Don José, in accurately pointing out the reason for the exemption of the cattle in Spain from this disease, has not, I think, been so accurate with regard to its history. Has the malady ever appeared in Spain? Our colleague says no. "The dreadful cattle plague, which is ravaging England and Germany, has not attacked the large herds of these animals. It has never done so in its present rinderpest form, for on consulting the numerous essays of our old Spanish veterinary surgeons, we find, that though intimately acquainted with all the Spanish cattle diseases, they do not either directly or indirectly tell of it, showing that they did not know it. . . . . The cattle epidemics which have raged some time from 1709 till now, have all assumed quite a different character; and the

absence of the present cattle plague from Spain is thus a most interesting subject and question." . . . I fully believe that, from the power of contagion which is so strong in the real rinderpest, if one ox with any trace of that disease on him had been imported into Spain, and had come into contact with cattle of this country, the epidemic would have spread, just as happened at Padua, in Italy, in 1711. I trust Don José will credit me with the best motives, if I draw his attention to one (though, I am led to believe, not the first by three or four) visitation of the rinderpest in Spain, which, by some means or other, he has overlooked. I am the more anxious to do this, because it will be seen towards the termination of Mr. Dunlop's report, that certain deductions are drawn from the supposed immunity of that country, which are apt to make us overlook, to some extent, the real source of the malady, and lead us to erroneous conclusions.

Those who have studied the history of "cattle plague" will perhaps remember, that during nearly the whole of the last century, the pestilence was scarcely ever absent from some part of the Continent, and on several occasions invaded our own country. The losses it caused were almost beyond computation; and wherever remedial measures were adopted, the malady appeared to localise itself, and to spread from these places as from a centre, appearing always, and solely, as a virulently infectious and contagious disease. Prevention did not form any portion of the medical teaching of those days; and as the practitioners of human medicine were chiefly entrusted with the curative measures, the malady was allowed to exist and spread, as in this country and Holland in 1865. In the latter kingdom, it was scarcely absent during the whole century; and in 1774 prevailed there, as well as in the north of France, and particularly in Picardy. In the month of June, it suddenly appeared at Bayonne, a seaport town in France, near the Pyrenees, on the Spanish frontier, from whence it rapidly extended inland. "For a long time," says Paulet,* "the south-west portion of France had not suffered from any of the great epizootic scourges. Naturally very healthy, bounded on the south by Spain, a country little subject to the pestilential diseases of animals; to the east and west by the sea, it has rarely shared with the other parts of France and Germany in misfortunes of this kind. Being so remote from the ordinary sources of these maladies, which constantly come from the east or north, on the side of France; the good police observed, to prevent their extension

* 'Récherches Historiques et Physiques sur les Maladies Epizootiques,' vol. ii, p. 117.

when they ravaged any of its provinces; and lastly, the situation and natural salubrity of its climate, all seemed to guarantee it from their effects, and assure its tranquillity. Suddenly, however, it was reported, that in the month of June, 1774, a disease similar to that which desolated Holland and Picardy, had unexpectedly manifested itself, without any apparent cause to be discovered in the air, waters, or pastures, at the extremity of France, a few leagues from Bayonne. Some said it first appeared at Villefranca, others at Saint-Jean-pied-de-Port, on the Nive, in Lower Navarre. However that might be, every one knew that a cargo of raw hides from Holland or Artois, and which had been disembarked at Bayonne, from whence they were carried to one of these places to be tanned, was the real cause of the malady."

The contagion once introduced was not slow in developing itself, and extending east, west, north, and south, causing great havoc. In this part of France, it was reported upon by several eminent authorities, and deeply engaged public attention. A list of the writers and the articles on this visitation I give below.* In the mean time we have to do with Spain. And here I must express my regret that the few veterinary writers of the last century belonging to that country, and to which I have been able to refer, afford us but slender information of the maladies then prevailing either in their own or the adjoining kingdoms. Villalba,† however, who had every facility for making investigations of this kind, in his classical work on the epidemies of Spain, fortunately gives us the following account:—"On the 11th July, 1774, the Marquis de Bassecourt, General Commandant of Guipuscoa (a frontier province of Spain), reported to the Supreme Board of Health, that in the province of Labourd, in the kingdom of France,

* *Secondat.* 'Observations sur l'etat Actuel de l'Epizootie aux Environs de Toulouse,' 1775. 'Journal de Physique,' 1775.

Grignon. 'Hist. de la Maladie Contagieuse qui s'est declarée au Hameau de la Neuville en Champagne,' 1766.

Bacherat. 'Dissert. sur la Maladie Epizootique du Betail,' 1777. 'Mém. de la Soc. Roy. de Médicine,' 1779.

Douzan. 'Mem. sur la Maladie Epizootique regnante,' Bordeaux, 1774.

Vic d'Azyr. 'Observations pour Préserver les Animaux Sain de la Contagion,' etc., Paris, 1775. 'Instructions sur la maniere de Désinfecter les Villages,' Paris, 1775.

Bellerocq. 'Récherches sur la Maladie Epizootique,' etc., Bordeaux, 1774. 'Avis rédigé sur les Mémoires du Directeur de l'Ecole Vétérinaire,' Paris, 1774.

Faur de Beafuort. 'Consultation sur la Maladie Epiz. qui regne en Guyenne,' Bordeaux.

Prat. 'Gazette d'Agriculture,' Feb. 28, 1775. 'Consultation de l'Université de Méd. de Montpellier,' 1775.

† 'Epidemiologia Española,' vol. ii, p. 229.

a district adjoining that under his eommand, there was spreading a grievous sickness of a contagious eharacter (*una enfermedad contagiosa*), and which was every day sweeping off large numbers of cattle. In consequence of this occurrence, there was every reason that the introduetion of French oxen should be absolutely prohibited, and that even the importation of sheep should be forbidden by new and stringent measures. On receipt of this intelligence, the Supreme Junta, looking wisely at the state of affairs, and being desirous of doing preeisely whatever was neeessary for the preservation and welfare of the eountry, urged upon the mayors the adoption of the most important steps to this end; and there were despatched, by virtue of these orders, Ignaeio de Michelena, Juan de Ordoi, and Martin de Lorz, ehief veterinary surgeons, to the vicinity of San Sebastian, to investigate and report upon the malady. These *maestros albeitares* having done so, eertified before a eommission, that the malady consisted in a dissolution or softening of the brain (*una disolucion del cerebro*), and they founded their opinions on the happy results that had attended the inunetion of powerful ointments (*untura fuerte*) on the top of the neck; and also because able anatomists had observed, that after death there was in the brain a greenish coloured or bloody fluid, as if there had been suppuration or gangrene; and also that the medullary substance of the horns (*la substancia medular de las astas*), which was mueh wasted, eontained a yellowish matter. The use of aquafortis, and other remedies which they prescribed, produced good effects sometimes, but in other instanees they were entirely useless. So that to prevent the spread of the disease, or its introduction into other plaees, these authorities endeavoured, in the most energetic manner, to persuade the commission that the only eertain, just, and equitable remedy for extirpating the eontagion was to kill the diseased and suspected animals, inter them deeply in pits, and eompensate the owners. . . . Had these salutary recommendations been attended to, and put into force in every plaee where the disease showed itself, the great suffering and mortality that attended the epizooty introduced into Spain in 1774 would have been avoided, inasmuch as in many towns and villages there perished every head of cattle, so that not one was left; this was the case at Andoin, in the provinee of Alava. Neither did the contagion work much less ruin in its progress through Navarre, Guipuzcoa, Aragon, the mountains of Santander and those of Pas.

"Notwithstanding the precautions taken to lay embargoes

on, or to destroy everything obnoxious, as had been recommended by Dr. Ortiz during the epidemie at Pampeluna (a city of Spain), so great had been the ravages of this epizooty in the kingdom of Granada, that but few eattle remained; and despite the enforcement of the measures taken to bury the dead animals in deep pits, it was impossible to prevent the putrid particles from rising into the air, though mueh pains had been taken to heap large quantities of lime and earth over the burial plaees. Escovar has mentioned this vaeeine epizooty and its origin. Aecording to his account, it was notorious that the contagion eould be communicated from one animal to another, and so be regenerated; by these it eould be earried to other pastures, and for a long time had inflieted suflering on many kingdoms, without any suspieions having been formed as to the eontagious partieles being disseminated by the air sinee 1708; from which eause it has beeome so universal in Europe, and has so frequently been produetive of sueh a great mortality amongst animals."

Besides the fact of the invasion, here we have a lesson from Spain, as instruetive as any in the history of animal plagues. No matter how the eattle of a eountry may be reared or provisioned, whether they be fattened on grass grown from animal manure and foreed into riehness by "all manner of fearful abominations," or over-cared for and over-fed; or whether, as in Spain, they enjoy the perpetual open air, or the double system, once allow the Steppe murrain to get among them, and there will be but little difference in the rates of mortality. This is a fact repeated over and over again in the annals of this malady; and if Spain ever commences to import from regions where there is any ehance of the contagion finding its way, she will diseover that her method of rearing and feeding her ruminants will ensure them no more proteetion than that employed in other countries.

It is eurious to note, that it took a month for the malady to travel the eomparatively short distanee aeross the frontier, from Bayonne to St. Sebastian; whereas it progressed rapidly in the districts of Franee, and was quiekly at Toulouse. It is also worthy of remark, that the Spanish veterinary surgeons should have used their utmost endeavours to prevail upon the authorities to resort to the only measures for eombating this terrible eontagion, but it appears without effect. How often does history repeat itself, even in the matter of eattle plagues. There is but little difference to be found in the Spanish epizooty of 1774 and the British one of 1865.

THE PRINCIPLES OF BOTANY.

By Professor James Buckman, F.L.S., F.G.S., &c. &c.

(*Continued from p.* 154.)

Before considering the subject of the metamorphoses of the parts of flowers of plants it will be well to enter into a more minute description of the structure and action of the pollen.

The "fertilising powder" or "dust," as it is called, is most interesting and varied in the form and size of its grains. It may be briefly described as a separable cell, and is, indeed, the true seminal matter of a plant. At the same time we must not quite conclude the pollen grains to be separable cells, as in their turn they are often formed of a congeries of cells which are highly complicated in structure.

If we examine the pollen of any of the lily tribe of plants we shall find it somewhat large in size, and we may, therefore, the better make out its structure.

In the accompanying woodcut we have a representation of the pollen grains of the tiger lily, as seen under a Powell

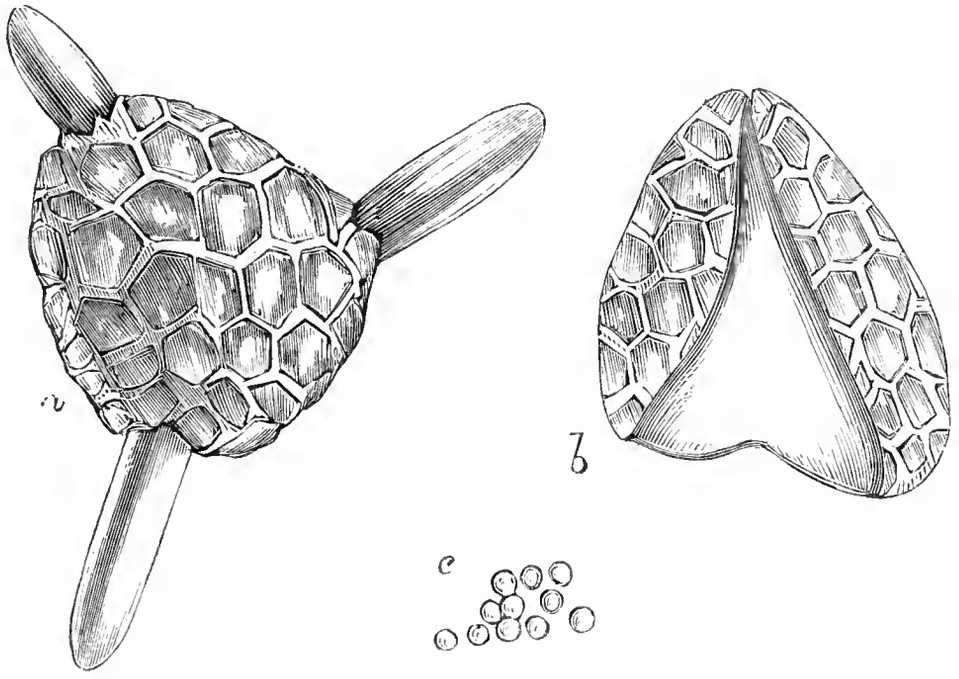


Fig. 9.—*a* and *b*. Pollen of the Tiger Lily. *a*. Showing the exsertion of the pollen tubes. *b*. Burst and discharging its fovilla—$\frac{1}{4}$ in. objective. *c*. Pollen of Forget-me-not, $\frac{1}{8}$ in. objective.

and Lealand's $\frac{1}{4}$th inch objective (fig. 9, *a*, *b*), which may

at once be compared with the pollen grains of the forget-me-not, with the $\frac{1}{8}$th inch of the same makers *c*, in order to show the enormous differenee in point of size of the grains of fertilising powder.

If we examine fig. *a*, we find it to be somewhat triangular in shape, eonsisting externally of a membrane composed of cellular tissue, pressed either pentagonally or hexagonally; this membrane is termed *extine*, and is here piereed at three points by a more delieate expansive lining which is called the *intine*.

Now, this arrangement is somewhat peeuliar, and seems to be formed so as to ensure feeundation, for upon a pollen grain falling upon the stigma, it seems quite eertain that it must touch between the surfaee at one of the angles, and when this oeeurs the point in eontaet elongates more and more, penetrating between the tissues of the style, and so growing downwards as a root until it arrives at the germ; the pollen tribe then bursts, and the eontents of the pollen cell, the *fovilla* aets its feeundating part.

Now, the exact mode by whieh the proeess is brought about is still a matter of discussion, but it would seem that the formation of pollen tubes, and their aetion in the manner described, is tolerably well recognised; and this action is favoured by the usually either hairy or gummy stigma—so made to retain the pollen grains that may impinge upon it, combined with a loosely-packed elongated eellular arrangement, in the style when that part of the organ is present.

Now, if pollen aets in this way, it will aeeount for the faeility with which the gardener ean form hybrids by attention to fertilisation; thus, in the produetion of a hybrid in the flower to be feeundated, all its own stamens are earefully removed, and the pistil of that flower is feeundated by another form either of the same species or the same genus, so that there is a limit to the changes whieh can be wrought by this method.

Metamorphoses or Vegetable Morphology.

Having now deseribed the flowers of plants, we may very properly enter into an inquiry upon the subjeet of morphology; by this we mean the referenee of the forms or organs of plants to the leaf, and in illustrating this subjeet we shall refer to examples of morphology in the Calyx—the Corolla—the Stamens—and Pistils.

Calyx.—If we stray into an old-fashioned garden, it is ten to one but that at this season we may find some of those strange polyanthus flowers in whieh the natural pointed

divisions of the calyx of the cowslip from which they have sprung are developed into five well-formed leaves with form, colour, venation, and all parts like the root-leaves of the same plant, and during the past season we grew in our greenhouse a fuschia the calyx of which was composed of beautifully formed leaves.

Corolla.—It is not at all uncommon to see a malformed branch on a rose tree, composed of the altered elements of what seemed intended for a flower; hence the calyx is composed of green leaves, the corolla also of green leaves, with sometimes a tincture of colour. And here, also, our fuschia presented some petals, with the form and colour of the leaf. We often see in charlock both calyx and corollas leafy, and their texture rough and green.

Stamens and Pistils.—In true double flowers these organs are transformed into petals, and thus the double rose cannot fecundate. New sorts, however, are obtained by fecundation, but that is in cases where the metamorphosis of the parts is incomplete.

It is, perhaps, in the white water-lily, *Nymphæa alba,* that the transition from leaves to calyx, from calyx to corollas, and from these to stamina, can be best traced. In the fuschia we have before referred to we have examples of leaf-like petals, so also of petals with anthers, just forming on one side, to others, in which but a small portion indeed of the petaloid matter is adherent to an anther.

In fine, to sum up our remarks on this subject, which we have found it most difficult to elucidate without a quantity of drawings, we would say that in most cases of abnormal flowers, some facts of importance connected with vegetable morphology may be observed; but the truth is, that most persons collect only typical forms. Double flowers especially teach us much in this way; and the flowers of the double cherry, with its sometimes bunch of green leaves in the centre of a mass of petals, is sufficient illustration after all of most of the remarks in this chapter, which we conclude with the following condensed illustrations from Balfour's 'Botany.'

"Bracts are very evidently allied to leaves both in their colour and form. Like leaves, too, they produce buds in their axil. The monstrosity called hen-and-chicken daisy, &c., bends on the development of buds in the axil of the leaves of the *involucre.* The sepals frequently present the appearance of true leaves as in the rose. Petals sometimes become green-like leaves, as in the variety of *Ranunculus Philonotis* mentioned by De Candolle, and in a variety of

Campanula ranunculoides noticed by Dumas. At other times they are changed into stamens. De Candolle mentions a variety of *Capsella bursa-pastoris* (shepherd's purse), in which there were ten stamens produced in consequence of the transformation of petals. The stamens in double flowers are changed into petals, and in *Nymphœa alba* (white water lily) there is a gradual transmit from the one to the other. Sometimes the stamens are changed into carpels and bear *ovules* (young *seeds*). This has been seen in wall-flower, willows, poppy, &c. Petit Thouars noticed a plant of *houseleek* in which the one half of the anthers bore ovules, and the other half pollen; the carpels, as in the double cherry, may be seen in the form of folded leaves. In double flowers they are transformed into petals, and in other cases they are developed as stamens. It is said the increase of temperature and luxuriance of growth sometimes make flowers produce stamens only.

"In plants having unisexual flowers this is more liable to take place, as in melon, cucumber, &c. Increased vigour seems to be required for the development of stamens, for some fir trees in their young state bear cones and produce small flowers only when they reach the prime of life."

URINARY CALCULI ASSOCIATED WITH DISEASED KIDNEY AND BLADDER OF A HORSE. DEATH.

By Mr. J. D. Peech, M.R.C.V.S., Wentworth.

In the month of October last my attention was directed to a "pit horse" eight years old, which was attacked with severe pain resembling intestinal spasms. He threw himself about with great violence; the pain only now and then abating, to recur again with as great violence as before. On examining him I found the circulation much increased, breathing accelerated, countenance haggard and expressive of extreme suffering. From my inquiries I ascertained that he had not urinated for some time, and that previously to this attack he had been noticed for several weeks to pass only a very limited quantity of urine which was ejected with great difficulty. Notwithstanding this he fed well, and went through his usual work with but little difficulty.

On ascertaining the imperfect condition of the urinary

organs, I proceeded to examine the urethral passage, when I discovered at the extreme end of the penis an accumulation of matter very hard and offensive; but beyond this nothing more could be detected either in the prepuce or urethral canal. The bladder was next explored per rectum, and found to be exceedingly distended with urine and painful even to the application of gentle pressure. From its long-continued distension the muscular coat had lost all power of contraction, and consequently the catheter was passed, and a considerable quantity of offensive dark-coloured urine (something like coffee) was drawn off. The operation afforded immediate relief. An opiate was afterwards administered to arrest the straining, which soon ceased. A dose of aperient medicine, the application of a mustard cataplasm to the lumbar region, and attention to dietetics, soon restored him to his usual condition, and again enabled him to resume his accustomed work.

All went on well, with the exception of the scanty emissions of urine, till the 10th of February, 1869, when early in the morning I was aroused to attend to him, he having been in considerable pain during the greater part of the night, and nothing that had been done by the attendants having afforded the slightest relief. I at once examined the penis, when I found a large calculus firmly wedged in the urethra, a few inches from its extremity. It was removed with some little difficulty, inflicting only slight injury to the passage. After its removal a small quantity of urine escaped, notwithstanding which the catheter was again introduced, and the contents of the bladder drawn off. This again allayed the pain, sufficiently so indeed as to allow of his removal out of the pit to the surface. He was now placed in a comfortable box and properly cared for in the shape of getting linseed tea, mashes, &c., all of which, however, was of little use. On Feb. 15th, about 11 a.m., he suddenly became worse, but as I was from home I did not see him till late at night, when I found him beyond all hope of recovery. Death ending his sufferings about 11 p.m., being twelve hours from the time of the beginning of the third attack.

Not being able to be present at the *post-mortem* examination, I was disappointed at finding him quartered, &c., on my arrival, but fortunately the bladder was left entire in the pelvic cavity. I had it removed, but while I was examining the penis the knacker carelessly cut into the viscus, making an incision, which I fear will somewhat interfere with your examination.

The urethra was in a sphacelated condition throughout its

entire course, and in one part it was plugged with a curd-like or cheesy substance. A similar substance, which had been removed on Feb. 15th, I enclose with the other morbid parts. The right kidney was one complete mass of disease, its structure being softened and entirely broken up. The pelvic cavity contained a dark-coloured matter similar to that found in the bladder.

The further description of the parts I will leave in your hands. The thickened substance formed a coating to the inside of the bladder, and escaped on its being opened. There was also one small calculus in addition to the one I forward found in the viscus.

[The parts referred to in the foregoing case were forwarded to Prof. Tuson, who informs us that they were in such an advanced state of decomposition when received at the college, that no correct opinion could be formed of their pathological condition. Prof. Tuson thus describes the urethral calculus: "It is irregularly ovoid in shape, being about one and a quarter inch long, by about three quarters of an inch wide; the surface is nodular and highly crystalline. Its colour is yellowish-brown, and its weight 116·12 grains. By chemical analysis and microscopic examination, it was ascertained that the calculus consisted of carbonate of calcium with small quantities of carbodate of magnesium and organic matter, chiefly mucus."—Eds.]

REMARKABLE CASE OF PENETRATION OF THE THORAX OF A COW WITH A STAKE.

By R. Metherell & Son, Veterinary Surgeons, Spalding.

Some few days before Christmas last we were sent for by Mr. Dennison, of Moulton Chapel, to see a cow with a wound on the inner side of her off fore-leg, she having been gored, as was supposed, by another, a vicious cow, which was kept in the same crew-yard. On examining the animal, a deep wound was found which readily admitted a probe to be passed fully six inches up it. Considerable swelling was present, and also some emphysema. On further examination, a hard substance was detected on the infero-lateral part of the sternum, posterior to the right limb, which on being cut down upon proved to be a large stake. As the stake could not be readily withdrawn from the original wound in consequence of its broken end being so far removed from the opening, and the

wound being on the inner side of the elbow-joint, the operation of extraction proved a difficult one. The newly-made incision was therefore first dilated, and an attempt made to divide the stake with a saw; but after cutting about three quarters of an inch into it, we found its division by this means to be all but impracticable. The orifice of the incision was consequently enlarged, and the limb so extended and elevated, that we were enabled after a time to lay hold of and secure the broken end of the stake. On examination it proved to be a rough, knotty, and coarse piece of ash-pole (a portion of the fencing of the crew-yard), two feet long and five inches in circumference. At about two thirds of its length, and nearest to the end which had entered the animal's chest, a broken and rusty nail projected in a hook-like manner, having around it a quantity of hair. It appears that the pole, which had been originally nailed in a horizontal direction to the crew-yard post, had got loose at the end, and that a vicious cow had forced this poor animal against it with so much violence, that it penetrated the chest on the inner side of the right fore-leg, and traversed the body for a distance of two feet and a half, where it remained for upwards of two days before being extracted.

On entering the body the stake took a somewhat upward course, and passing on the inner side of the elbow-joint, penetrated the cavity of the thorax between the costal cartilages of the sternum, about four inches behind the elbow. Within the thorax it traversed the floor of the cavity underneath the right lung. It seems next to have penetrated the diaphragm, and to have entered the rumen, as at end of the stake, where a hollow exists, a small quantity of ingesta, about a tea-spoonful, was found. Now, the most wonderful part of the story is, that the animal made a good cure, and is at this time, about eleven weeks after the accident, apparently well and in perfect health.

THE TREATMENT OF LAMINITIS AS PROPOSED BY MR. T. D. BROAD, M.R.C.V.S., BATH.

By J. G. Dickenson, M.R.C.V.S., Boston, Lincolnshire.

Laminitis being rather a frequent affection in my district, cases are often brought under my care, which, either from neglect, or from the treatment of some quack, are of a very serious description.

Having seen in the *Bristol Observer* the outline of a paper on laminitis, which Mr. Broad had read before the West of England Veterinary Association, I put myself in communication with that gentleman, who very kindly answered all inquiries, and sent me a shoe of the pattern he was accustomed to use in these cases. I was not a little gratified to learn, also, that more than an average success had attended his mode of treatment; and hence I resolved that, on the first occasion which presented itself, I would give trial to the treatment, in order to test its results.

It was not long before an opportunity offered, in four acute cases and in two chronic. The results, I may say, were perfectly satisfactory, especially in the acute cases, which were all severe. In addition to the other means employed, I administered repeated doses of fl. Tincture of Aconite, and also made use of enemas.

For the present I content myself by merely recording these facts, in the hope that some other member of the profession who may have had cases brought under his notice, and who has tested the treatment, will record his experience for the benefit of the profession.

THE PHARMACY ACT.

By Thomas Walley, M.R.C.V.S., West Derby Village, Liverpool.

Allow me to correct a slight mistake which has crept into the Inaugural Address of the President of the Lancashire Veterinary Medical Association, published in your March issue, p. 228. He there says—"That according to the new Pharmacy Act, every person who was not upon the register of the Pharmaceutical Society before the passing of the Act in July, 1868, will have to undergo a modified examination, and produce certificates as to character," &c. The following is the case—"All persons who shall (at any time previous to the passing of this Act) have kept open shop for the sale and compounding of drugs shall, on making a declaration to the Registrar of the Pharmaceutical Society that he has been in business as a chemist and druggist previous to the passing of the Act, accompanying the said declaration by a certificate signed by two qualified medical men, or two Justices of the Peace, be entered on the Register of the Pharmaceutical

Society without either fee or examination." It is only assistants who are expected to undergo an examination.

Now, before we apply this principle to our own profession, we must bear in mind that *nearly all* chemists and druggists are necessarily educated and respectable men, while there are many farriers and cowleeches who cannot write their own names. Such men as these should not be admitted unless, indeed, they can pass a good oral and practical examination, but those who have received a good education, and can produce certificates of character and competency, should be registered in the same way as the chemists and druggists.

HEART DISEASE.—PARTIAL OCCLUSION OF THE RIGHT AURICULO-VENTRICULAR OPENING BY A TUMOUR.

By Andrew Simpson, M.R.C.V.S., Kendal.

The study of this department of pathology as a speciality or even in common with general pathology, does not occupy much of the time of the veterinary surgeon, nor is much space occupied in the literature of the profession recording any advance that has been made in this direction. It cannot be that this non-recognition of a class of diseases in veterinary nosology depends upon the infrequency of their occurrence, nor upon the little interest which they possess for the veterinarian. It may never be possible, perhaps, for the practitioner of veterinary medicine to arrive at so precise a knowledge of the various morbid conditions to which this important organ is liable, as the members of the sister profession can obtain, for very obvious reasons. Auscultation in our patients is not so satisfactory as in theirs, from physical peculiarity, difference of position, &c., nor can our subjects give us any hint that they have a "bad heart;" but, notwithstanding such difficulties, I think we have means of assisting us to a practically correct diagnosis of such affections. We can by careful observation and intelligent interpretation of symptoms, in this and in all other morbid phenomena, speak with considerable certainty. We have besides opportunities, which the human practitioner often desires in vain, of verifying our diagnosis in the ample scope we have of examinations *post-mortem*. I often think that if we are precluded from consulting with our patients as to their ills, this opportunity we have of

putting our opinions regarding the nature of such to the test, abundantly compensates for such a want.

The physician is sometimes made or attempted to be made the dupe of his client, from various motives intentional or otherwise; this we are spared and, at least, are not put off our guard, and on the wrong tack at the outset. We get the previous history of our subject more or less correctly; we consider the circumstances in which he has been and is now placed, we take notice of his appearance, we inquire into the more particular symptoms (pathognomonic), and on these observations we form our opinion as to the nature of the case and the system of treatment to be pursued. If after all our efforts, as often happens, we are "doomed to disappointment," the consideration of all others the most consoling to the practitioner is, that he thoroughly understood his case. I think the knowledge of the nature and pathology of a case of infinitely more consequence than an elaborate system of treatment, because the proper understanding of the one will necessarily indicate the other. It must strike observant minds that, both in the management of their own practice, and in the study of the more important cases which occur in the practice of others, and which from time to time are recorded in our periodical literature, often all the bare knowledge and possession of certain favourite nostrums and stereotyped systems of treatment, and the modes of applying such in the case of disease, do not go far in making a good veterinary surgeon. When we see recorded (and according to the statements of their various advocates with equal success) the adoption of plans the most opposite, such as—Hydrocyanic acid and quietness *versus* Liq. Ammon.; drastic purgatives and counter irritants in tetanus, horse whips, heavy shoes, and turpentine liniment *versus* poultices, relief from pressure, and repose in laminitis. Copious bleeding, purging and blistering *versus* Aconite, stimulants, and homœopathic globules in milk fever, and so on, one is led to inquire for an explanation of this paradox, and so far as I am able to answer, it is that the *vis medicatrix naturæ* often asserts her *vis* notwithstanding much (unintentional of course) subversion.

I would here remark *en passant* with what avidity provincial or rather country members of the profession, far removed from the influence and communion of veterinary medical societies, devour and feed upon the transactions of such as are recorded in the Journal of the profession. It may be true that the ease with which any advantage can be attained engenders indifference, and sometimes we neglect enjoying it; otherwise,

such meetings would be looked forward to with an enthusiasm which would ensure better attendance, and more surely fulfil the intentions with which the societies were at first originated, such institutions having the advancement of the profession sincerely at heart, and working under one common motive, must exercise a mighty influence in the elevation of our body from its present somewhat unsatisfactory, though not hopeless, condition.

To become better acquainted with morbid anatomy and pathology ought to be the aim of us all; and as the most important means to this end, we should in all cases where there is any doubt or difficulty confirm or disprove—for this is better far than supineness—our diagnosis by a *post-mortem* examination and study, and thus we should be strengthened in our self-respect and reliance, and raised in the estimation of our employers. If we all availed ourselves more of this mode of investigation, there would be less occasion for reconsideration after the event than there is at present with many of us, who rarely if ever take the trouble to have "a peep behind the scene." By availing ourselves of this easily obtainable source of information, those of us who are young will soon grow old in experience and usefulness, and our very Nestors in knowledge will become more knowing still, and thus in the meantime when veterinary medical bills are abortions, veterinary education not what we would all wish it to be, and charlatanism rampant, we may be doing something to increase our usefulness, seeing that this is after all the only standard by which our superiority can be measured, and our services esteemed and sought after.

The subject of the disease to which I have alluded was a half-bred coaching mare, black, seven years old, about fifteen hands three inches. Her owner, Mr. R. Barron, of this town, informed me that up to early in April, 1868, she had done regular work, and was not noticed to ail anything. About this time she was observed to get soft, and sweat profusely on doing her usual work. She would feed well when not working, but when doing even moderate work would refuse her food. Being now thought to be rather out of sorts, my predecessor was called to see her. Thinking that her want of appetite and general unthriftiness depended on some derangement of the stomach and bowels, he gave a dose or two of physic, and some tonic and alterative powders, but as the mare got no better she was as soon as there was any grass turned out for a run. She remained at grass from about the end of April till the middle of October, having done no good while out. She was generally found standing under a hedge or looking over

a gate. I saw her for the first time on the 24th October; she was not much emaciated, but her whole appearance was very unthrifty and indicated something seriously amiss. The symptoms were as follows: Pulse 60, and distinctly intermittent, only occasionally perceptible at the jaw; very well marked venous regurgitations; anasarcal enlargement of the limbs; pendulous swellings between the fore legs and under the abdomen. Auscultation discovered a rushing sound as of some fluid being forcibly driven through a small aperture, as well as other sounds less easily described, but warranting me in concluding that disease of the heart, probably depending on some obstruction, was the cause of distress in my patient. There was general listlessness, but no cough, nor any particular distress of breathing. I informed the owner as to my opinion of the nature of the case. On being desired to prescribe for her, I recommended quietness, generous diet, and good care generally as the only means that could be of any service in the case. I may here state that for the first fortnight after being taken up, she fed well on corn, hay, bran, &c., and, indeed, up to the time of her being sent away, continued to feed pretty well. My next visit was on the 14th November, when all the symptoms were much aggravated, her legs were more "filled," and she looked more miserable than when I saw her last. I now thought it proper to inform the owner that I considered the case a hopeless one, and that he might send her to the kennels as soon as he pleased, desiring to be informed when she was to be destroyed, that I might have an opportunity of examining her *post-mortem*.

She was taken to the kennels a distance of two miles, which she walked pretty well, on the 16th, and as she was not required for immediate use, she was put into a field. I got notice next morning, however, that she had been found dead, having died during the night.

Post-mortem.—The abdominal viscera presented no unusual appearance; pelvic viscera healthy. The lungs, further than being congested, were healthy. On looking at the heart externally it was considerably larger than usual and of a clay colour. The left auricle was collapsed and empty. The right was standing out prominently as if filled by a clot. I opened the right auricle first, and was surprised to find its cavity filled with a dense yellowish tumour, conical, apex upwards, base protruding through the auriculo-ventricular opening, and as far as I could see at the time completely obliterating that opening. The walls of the ventricle were much thinner than usual, the valves, *chordæ tendinæ*,

and *carnæ columnæ* were also atrophied, doubtless from disease. The left side of the heart, beyond being more than usually developed when compared with the right side, appeared quite normal. The tumour protruded nearly an inch into the ventricle. The base of the tumour would measure fully three inches in diameter, and it was about two inches in height. I made a careful examination of its structure (assisted by a surgeon in this town) with the microscope, but we were not able to determine its real nature. An examination of the walls of the heart showed nothing like fatty degeneration. The tumour seemed to be a homogeneous mass, covered with a glistening membrane; there was no appearance of fat-globules, cells, nor fibres of any description.

On making a more careful examination of its attachment round the auriculo-ventricular opening, this was found to be perfectly closed, except a small aperture that would only admit a goose quill on the inner side towards the septum, so that it was the blood rushing through this circumscribed space which had given rise to the rushing sound heard on auscultation. I have preserved this very interesting specimen. I never saw nor heard of anything like it myself, and it is difficult to understand how such an extensive morbid lesion of this character could have existed so long without proving fatal; one would think even temporary interference with the integrity of the auriculo-ventricular opening would be necessarily fatal, such is not the case however, as this specimen shows.

I have shown the specimen to several medical gentlemen in this town, and also to Mr. Lawson of Manchester, all of whom expressed surprise at such extreme departure from the normal condition of parts being compatible with life.

I believe the animal might have lived a considerable time had she been left undisturbed in her box; but the exertion of walking to the kennels had been too much for her. I need not add that the result of this *post-mortem* examination was very satisfactory to me, and I trust the report of it may be of some interest to my professional brethren.

Pathological Contributions.

EXTRACTION OF A NEEDLE AND THREAD FROM THE ŒSOPHAGUS OF A DOG.

Mr. T. W. Beach, M.R.C.V.S., Leatherhead, has sent us an account of a case in which a needle armed with a short piece of thread had become fixed in the lower part of the œsophagus of a dog. Four days previously to Mr. Beach being called to the case the animal had swallowed a piece of cheese which had attached to it a needle and thread. He was presently seized with vomiting, which was associated with a copious flow of saliva and much restlessness. An examination of the fauces showed that the needle had passed much lower down, as nothing could be seen either of it or of the thread. Mr. Beach immediately constructed a probang of a piece of whalebone tipped with sponge and passed it down the œsophagus. The needle was caught by the sponge by gently twisting the probang within the œsophagus, and easily drawn up. The dog was instantly relieved, and has since done well. He was the property of Mr. T. Grissell of Norbury Park.

IMPERFORATE ANUS IN A PIG.

Mr. D. B. Howell, M.R.C.V.S., Reading, writes us as follows:

"On Sunday evening, March 7th, a person named Baker residing in this town requested me to look at a pig on the following day which was unable to void its fæces; but, I am sorry to say, the animal died before I saw it. It was a young male pig, five weeks old, without any anal opening; notwithstanding which it had done well for about four weeks, when it had gradually weakened, and died after considerable suffering."

"The owner, on finding an imperforate anus, made an incision in the part a few days after the birth of the animal, but not sufficiently deep to reach the bowel. At the time of death the wound had completely healed and cicatrized."

Mr. Howell adds that he considers the case a very unusual

one in respect to the length of time the young animal lived without being able to pass any feculent matter.

CATTLE PLAGUE.

From the information which has reached us from Eastern Europe since the publication of our last number, it appears that the cattle plague is still widely diffused, very little diminution having taken place in the number of cases in either Galicia or Hungary. It was hoped that the disease had been exterminated in Lower Austria, but such does not appear to be in reality the case. The disease still lingers in districts south of Vienna. To guard against the introduction of the plague, the Prussian authorities have established a quarantine of twenty-one days on store stock coming from Galicia or Hungary. A rumour has prevailed that the disease had made its appearance in some of the states of the Northern Germanic Confederation, but this we find on inquiry to be without foundation. The Dutch government, as a measure of precaution, however, has stationed a veterinary surgeon at Emmerich to inspect all cattle entering Holland from the Prussian states.

SMALLPOX OF SHEEP.

We have received confirmation of the statements made in our last number that this fatal disease is still very far from being exterminated in many parts of the Continent.

It is admitted that the malady prevails in two or more of the provinces of Holland, viz., Friesland and Denthe, and that numerous cases of the disease have occurred in Holstein, Mecklenburg, and the Baltic districts of Prussia.

Under these circumstances the greatest vigilance is required on the part of the Inspecting Veterinary Surgeons to the Customs at our several ports, especially as unrestricted importation of sheep is now allowed.

Facts and Observations.

Trichina Spiralis.—Seven cases of illness, caused by eating pork affected with *trichina spiralis*, have occurred in

New York, two of them proving fatal. The reappearance of this dreaded disease has caused considerable alarm in that city.

The *Medical Circular*, of March 10th, also states that six persons in one family had died from eating trichinized pork in the canton of Tessin, Switzerland.

Proposed International Work on Parasites.—Professor Hallier, of Jena, has made arrangements with "some excellent workers" to publish a journal of parasitology, a subject of much importance, whose further study is likely to be of great value to the science and practice of medicine in the future. The journal will admit papers that treat, not only of the parasites of man and animals, but of plants, as well as of the diseases and epidemics connected with or dependent upon parasites. Contributors are to have their papers printed in their own language. The journal is to appear every two months, each part consisting of eighteen or twenty sheets, and it will be illustrated with plates.—*Lancet.*

Alleged Non-absorption by the Skin.—Professor Scoutetten, of Metz, has written to the French Academy of Medicine on the subject of cutaneous absorption. He maintains that Professor Tardieu is wrong in attributing a disease of the skin he spoke of to red stockings dyed with coraline; for that the skin, when healthy, does not absorb; and that no bath whatever can have any effect on it. The doctor is so positive on this subject that he offers himself to be experimented on, by entering any bath containing poisonous substances, whether mineral or vegetable, provided they have no corrosive qualities. He further offers to pay a fine, of an amount to be fixed by the Academy, if he be wrong; and declares himself ready to come to Paris at any time to place himself at the Academy's disposal for this purpose.

Live Stock in Ireland.—The agricultural statistics of Ireland, which have just been issued, show a decrease in the number of live stock as compared with 1867 as follows:—Of horses, 1216; of cattle, 87,451; of sheep, 13,075; and of pigs, no less than 372,748.

Endurance of Cold by Horses.—The *Abeille Medicale* contains the following curious information about the power of endurance of cold by horses. On the 2nd of January, 1846, an expeditionary column operating in the mountains of Bou-Taleb, Algeria, started for Setif with mild and beautiful

weather; but on the following night a severe frost set in, and snow fell in abundance, continuing on the 3rd and 4th, so that it rose to a height of nearly three feet. The head of the column arrived at Setif on the evening of the 4th. During these two days and nights about one fourth of the men were buried in the snow; another fourth experienced no bad effects from the cold, and the rest had to be sent to the hospital on account of bad chilblains. And yet none of the horses of the four squadrons, which belonged to the 3rd African Chasseurs, suffered the slightest inconvenience; neither feet, nor tails, nor ears were frozen; the pulmonary affections were not more numerous than usual. The second case occurred in the Crimean war, during the winter of 1855-1856. The thermometer fell to four degrees below Fahrenheit's zero; one of the horses had a hoof frozen so firmly to the ground, that it had to be broken up with a pickaxe to release the animal; for thirty-six hours the horses were kept without drink, because as soon as the water had been drawn up it would freeze in the pail; and yet this intense cold did not affect them, although they had to bivouac in the open air, the stables not being ready. These cases go far to show that there is no danger in good ventilation of stables even in the depth of winter.

Hydrophobia at Preston.—Two deaths having recently occurred in Preston from hydrophobia, the police of that town are now carrying on a vigorous raid against dogs. A few days since six of these animals were poisoned with prussic acid in the yard of the police station. One of them bit a young woman named Tyson, twenty years of age, of Silver Street, six weeks before Christmas, and lately, since reading the reports of the dreadful sufferings and deaths of a youth named Weights and the child of a man named Wrigley, who were both bitten by rabid dogs about the same time, she has been in a very depressed state of mind. Acting upon the superstition that if the dog were destroyed the person bitten would recover, the owner of the dog, John Blake, of Canute Street, gave the animal up to the police. The officers now capture all the dogs they find at large, and such as are not claimed suffer death by prussic acid. Persons who appear to claim their dogs are forthwith summoned for an infraction of the bye-law relating to such animals, and are mulct in penalties and costs. Seven persons were thus dealt with, and in nearly every case it transpired that the defendant had obtained a dog licence only on the day or day after the animal was captured, or the person reported.—*Standard.*

THE VETERINARIAN, APRIL 1, 1869.

Ne quid falsi dicere audeat, ne quid veri non audeat.—CICERO.

BOTANY IN ITS RELATION TO VETERINARY MEDICINE.

IT was once remarked by a learned professor in his inaugural address to the students of a medical school, that of all subjects which were submitted to their notice botany seemed to attract the least attention, and even in many instances it excited something akin to contempt. Perhaps there yet lingers among comparatively educated people a vague impression that the study of botany belongs to the *elegantiæ* of science, and is thus fitted to the tender intellects of the fairer portion of creation rather than to the sterner minds of men who, having work to do, are bound to do it with their might.

Those who estimate the study of the history of the vegetable world in the light of an effeminate amusement, might, perchance, find themselves somewhat sternly undeceived at the commencement of the subject; and it is even not unlikely that the apparent difficulties might not become less evident as they advanced. We do not desire to tempt any enthusiastic student into the thorny path by the shallow pretence that it is strewed with roses; nevertheless, with well-considered intention, we commend to his favorable notice the papers now being published in our Journal on the "Principles of Botany," by Professor Buckman. This science is not only shown to be of importance as a part of general education, but also to have a peculiar adaptability to every branch of the medical profession, whether in reference to the hygeine and treatment of the higher or the lower forms of animal life, and, we doubt not, as the learned professor advances, to the consideration of the classification and qualities of plants, and their influence upon animals, that still more important facts bearing on the value of botany as a branch of veterinary education will be fully established.

We already see, from the few short papers we have published on botany, that the science has a direct bearing on the subject of general anatomy, the laws and principles affecting the one branch of science having a marvellous similitude to the other. In the language of Professor Lindley, "another and not less important purpose has been to demonstrate, by a series of well-conducted proofs, that in no department of natural history are the simplicity and harmony that pervade the universe more strikingly manifest than in the vegetable kingdom, where the most varied forms are produced by the combination of a very small number of distinct organs; and the most important phenomena are distinctly explained by a few simple laws of life and structure."

Seeing, then, that this science is capable of affording so much useful information to our professional brethren, we hope the time is not far distant when botany will form part of the education of the aspirant to veterinary honours, and we may suggest one of the subjects also in the examination for the Diploma of the College. Botany is to be considered in this view of it, not merely as a mental exercise, or as a subject connected with a liberal education, but as being a science capable of assisting us in important practical as well as theoretical conclusions.

As a practical subject, surely a science which reviews the vegetable kingdom—the subjects of which are so beneficial or so disastrous to the animal kingdom—can hardly be other than pre-eminently useful, for it is one which teaches us what forms of vegetable to cultivate, and how to act in their cultivation, thus often aiding us in converting useless or noxious weeds into wholesome nutrient matters—a science capable of guiding the farmer in the production of vegetables for the various uses of animals. A knowledge of botany, finally, again says Professor Lindley, "teaches the physician how to discover, in every region, medicines that are best adapted for the maladies prevalent in it, and which, by furnishing him with a certain clue to the knowledge of the tribes in which particular properties are or are not to be found, renders him as much at ease alone, and seemingly without resources, in a land of unknown herbs,

as if he were in the midst of a magazine of drugs in some civilised country."

A practical case, showing the value of botany to the members of our profession, has just come to our knowledge. A gentleman, having lost some lambs from an attack of disease which he did not understand, sent a dead lamb to his veterinary surgeon, requesting him to make a post-mortem examination. This was done, and he reported that the animal had died "of gastro-enteritis, produced by the impactment of the pylorus and part of the duodenum with *wool* and coarse fibres of undigested food." On inquiry as to the nature of the undigested food, we found that the fourth stomach contained a quantity of a black-looking seeds. What, then, were these seeds? We have reason to suspect that they were the seeds of the *Datura tatula*—purple-flowered Stramonium; so that, after all, we may have to refer to the botanist to make out the case in its entirety. We daily hear of cattle dying in some pastures, while others are renowned for their health-giving properties.

But we would not underrate the theoretical views which after all become of practical importance in showing the analogy of structure, and the dependencies of animals upon plants, and, as so well remarked by Henfrey, "the progress of science is the result of the advancing march of observation and generalisation, by which we endeavour to acquire a knowledge of the conditions of things, and to harmonise their relations with the laws of our understanding."

In this practical age every suggestion is met by the inquiry, *Cui bono?* Every-day experience in the life of the country practitioner will furnish a definite answer; and, in fact, he who knows most of the earth with the herb yielding seed, and the fruit tree yielding fruit after his kind, will be least inclined to ask, What good? In a thousand ways he realises that knowledge is power—special power—to him whose life is devoted to the care of those animals who derive all their food and no small portion of their medicine from the vegetable world.

Extracts from British and Foreign Journals.

CENTRAL CHAMBER OF AGRICULTURE.

A COUNCIL meeting of the Central Chamber of Agriculture was held on Tuesday, March 2nd, at the Salisbury Hotel, Fleet Street, under the presidency of Mr. C. S. Read, M.P.

Mr. Duckham introduced the subject of legislation with reference to the establishment of safety markets for imported animals, and the regulation of the trade and traffic in home-bred animals, for the prevention of contagious diseases: in doing so he enforced the following resolutions:

"1. This chamber considers that a consolidated act, applicable to the United Kingdom, for the sanitary regulation of the home trade and traffic in animals, and for the establishment of safeguards against the introduction of foreign diseases, is indispensable for preventing enormous losses of live stock by contagion and infectious disorders.

"2. This chamber considers that strict regulations should be imposed as to the accommodation, feeding, watering, and security from contagion of animals in transit by ships or railway; that it should be made penal to remove by road, railway, or water, or to exhibit in any fair, market, or public sale, arrivals suffering from cattle-plague, pleuro-pneumonia, sheep-pox, foot and mouth disease, scab, or glanders, and that all fairs, markets, and public sales should be subject to efficient inspection.

"3. This chamber considers that owners of animals suffering from contagious or infectious disease should be required to give immediate notice of the existence of such disease to any authority appointed for the purpose; and that it should be made illegal to remove animals for a specified period from any infected farm or premises.

"4. This chamber considers that the introduction of foreign diseases can be prevented only by slaughter or by quarantine of imported animals at the place of debarkation; and that for the accommodation of importers and the interest of the public, licensed markets, with lairs and abattoirs attached, should be provided at the seaports where animals from foreign countries are landed."

Mr. Rigby, of Cheshire, seconded the resolutions, which were supported by various members of the council. They were passed unanimously, with one or two minute verbal alterations.—*Daily Telegraph.*

SCOTTISH CHAMBER OF AGRICULTURE.

Pleuro-Pneumonia Inquiry, in Connection with Cattle Traffic and Transit.

REMIT.

Aberdeen, *July 28th*, 1868.

"That, without committing itself to an opinion as to slaughtering all animals affected with pleuro-pneumonia, the Chamber appoint the directors a committee to consider the whole question of legislation for the exclusion and limitation of contagious diseases, and to report to the next meeting of the Chamber."

In prosecution of the above remit to them, the directors prepared questions for the opinions of leading veterinary surgeons in the United Kingdom as to the origin and nature of the disease, and sent these to Professors Simonds and Finlay Dun, veterinary surgeons for England; Professor Ferguson, for Ireland; Mr. Edwards, for Wales; Professors Williams and M'Call, for Scotland, and received full and anxiously prepared opinions in answer, and submitted a report thereon to the annual meeting of the Chamber in November last. At that meeting an amendment on this report was proposed by Messrs. Goodlet and Barclay, and the matter was recommitted to the directors for further consideration.

Since then various meetings and discussions have taken place on the subject; and at a meeting of the counties committee on the 3rd February last, other amendments were proposed and remitted to the directors for consideration, and they have now agreed to adopt the following as their

FINAL REPORT.

That a Consolidated Cattle Diseases, Traffic, and Transit Act of Parliament would, by providing increased security and protection from disease, and thereby decreasing the cost of producing meat, be of the greatest advantage, not only to the agricultural interest, but to the whole community.

That such Act of Parliament should contain the following requirements:

1. That cattle conveyed in any railway, truck, ship, or boat, for a period exceeding twelve hours, be provided with a supply of water before the expiry of that period, and at least once in every period of twelve hours thereafter, the period being reckoned from the time at which the cattle are delivered for

conveyance by the owner to the carrier, until they reach their destination; and that the Privy Council be empowered to make such regulations as shall prevent unnecessary delays in the transit of animals by railway.

2. That cattle or sheep be only carried in ships or steamboats licensed for the purpose; that inspectors be appointed to prevent overcrowding; and that the holds of ships or steamboats carrying cattle or sheep be properly ventilated; and that cattle or sheep be conveyed on railways only in covered trucks fitted with spring buffers.

3. That the present system of showing store cattle and dairy cows in the fat markets is one of the most fruitful causes of spreading infectious diseases of all kinds; and, therefore, in or near large towns where fat markets are held, there should be provided separate markets for *store* cattle, for *dairy cows*, and for *fat* cattle, so that none of these classes should come in contact with each other.

4. That foreign cattle should only be admitted into this country at ports specially sanctioned by order of the Privy Council.

5. That fat cattle from a foreign country should be excluded from every market save a licensed fat market, to be held at or near the port of debarkation, for the sale and slaughter of such foreign cattle, and that such markets should be under thorough government supervision.

6. That foreign store cattle imported from a clean country, and which shall have been reported, on veterinary inspection, as clean before embarkation, and also on debarkation, and shall have been twenty-eight days in the possession of the importer on his own premises, near to landing, to which they shall be taken under license, and direct from the port of debarkation, may be shown for sale in any store market or public sale in the kingdom; and, on these conditions being complied with, should have the same freedom of transit as is allowed to home store cattle.

7. That where, in Great Britain and Ireland, pleuro-pneumonia exists, intimation shall be given by the owner to the local authority within three days of its occurrence, and the entire stock on the premises should, at the instance of the local authority, be put under inspection, and isolated for a specified period, and disinfectants used under proper regulations; and that the removal alive of any infected animal from an infected place, or the wilful exposure in open market, or at a public sale, of any animal suffering from pleuro-pneumonia; or the knowingly taking such animals along the public highways, or conveying them by railway or boat,

should be rendered an offence punishable in a summary manner by fine or imprisonment; but animals from an isolated place not suffering from such disease, might be allowed to be removed for sale for immediate slaughter under order of the local authority.

8. That as regards the export trade of Ireland, the Order in Council by the Lord Lieutenant, passed 6th March, 1868, should be strictly enforced under the supervision of government inspectors at each port of embarkation, and also at each port of debarkation in Great Britain.

9. That the inspectors of the local authority be authorised and required to see to the enforcement of the regulations prescribed by the Act or by the Privy Council, and be authorised to sue for the penalties, and that the penalties be applied towards the diminution of the local rate.—*North British Agriculturist.*

ROYAL COLLEGE OF VETERINARY SURGEONS.

SPECIAL MEETING OF THE COUNCIL, HELD FEB. 24TH, 1869.

PRESENT:—The President, Professors Simonds and Brown, Assistant-Professor Pritchard, Messrs. Broad, J. C. Broad, Ernes, Fleming, Greaves, Harrison, Hunt, Lawson, Moon, Robinson, Wilkinson, and the Secretary.

The President in the Chair.

The minutes of the preceding meeting were read and confirmed.

Letters were read from Professor Williams, of the Edinburgh Veterinary College, and also from Mr. Gowing, regreting their inability to attend the special meeting.

The Committee appointed to consider the manner in which the results of the examinations for the diploma should be registered, presented their report, which, on the motion of *Professor Brown*, seconded by *Mr. J. C. Broad*, was adopted.

The President then informed the Council that he had deemed it advisable to call a Special Meeting for the discussion of the report of the Committee appointed to inquire into Mr. Ernes' motion in respect of the examination for the diploma.

The Secretary read the suggestions which were made by Mr. Ernes, and also the minutes of a former meeting of the Council in reference to the examinations, and then proceeded to read the following report of the Committee.

The Examination Inquiry Committee, appointed by the Council, January 6th, to take into consideration the mode of examining the veterinary candidates by the Board of Examiners of the Royal College of Veterinary Surgeons in reference to the suggestions made by Mr. Ernes, beg to submit the following report:

"A meeting of the Committee was convened January 20th, 1869.

"Present:—The President, Messrs. J. C. Broad, Ernes, Fleming, Harrison, Hunt, Thacker, Wilkinson, and the Secretary.

"Mr. Ernes was elected Chairman of the Committee.

"After a careful consideration of the question submitted to them, the Committee report that they concur in the view taken by Mr. Ernes, that the present system of examining students is defective and insufficient.

"The Committee further consider that the examinations should be extended to subjects of a practical nature, which, by a proper understanding with the Principals, might be held at the educational colleges; and they are also of opinion that the candidate could not satisfactorily go through a whole course of examination at one sitting.

"After a considerable discussion,

"The following resolutions were unanimously adopted by the Committee:

"'First—That it appears to the Committee that the one hour examination is not sufficient to test the qualification of the student.'

"'Secondly—That the examinations be oral, written, and practical, the latter to be on the living, as well as on the dead subject.'

"The meeting then adjourned.

"The Committee met again, February 3rd.

"Present:—The President, Messrs. J. C. Broad, Cart-Ernes, Fleming, Greaves, Harrison, Wilkinson, and the Secretary.

"The discussion was resumed.

"On the consideration of the division of the examinations into certain periods,

"The Committee decided that the examinations should be limited to once a year.

"It was also agreed, in accordance with the suggestions, that the examinations be divided into three periods, to be held on different days at intervals to be determined by the Council.

"As a bye-law already exists relative to special examina-

tion, the Committee have not thought it necessary to take any action on that suggestion.

"The Committee also submit whether the reorganization of the Examining Board should not be considered by the Council with a view of substituting veterinary surgeons for medical examiners.

"On the question of the election of examiners for life,

"The Committee were of opinion that the system is inexpedient."

It was then moved by *Professor Brown*, and seconded by *Mr. Moon*—

"That the Report be received."

The Council then proceeded to discuss the Report as a whole.

The members of the Committee expressed the great difficulty they had had to contend with in consequence of the suggestions laid before them being somewhat indefinite in character.

The Committee expressed a desire to co-operate with the teaching colleges.

It was considered by the Council that the present examinations were insufficient, and that it was impossible to ascertain in the course of one hour whether or not a candidate for the diploma of the College was capable of practising the art and science of veterinary surgery.

They agreed with the Committee that the examination should be oral, written, and practical.

The want of a practical knowledge was admitted to be a great grievance; and it was suggested that it would have been prudent on the part of the Committee to recommend the Council to put itself in communication with the authorities in the different schools, in order to arrange for practical examinations being held within the precincts of the colleges.

It was admitted that a great necessity existed for improving the general education of the individuals entering the profession, and, as the Royal Veterinary College had already instituted a preliminary examination, an additional step might be taken by entrusting the preliminary examination to a number of independent gentlemen, such as a Committee from the College of Preceptors.

It was also considered that the great want of the present day was a good scholastic education.

By the provisions of the Charter of the College, it was thought that the hands of the Council were tied in respect to the education of the pupils at the School.

It was remarked that the Court of Examiners of the Royal

College of Surgeons was composed of teachers belonging to the various schools in the metropolis, and that no one, unless he is, or has been, a teacher, was qualified to become an examiner. It might be questioned, therefore, whether the present Court of Examiners was efficient, although we probably possessed the best men which we could, under existing circumstances, obtain. It was also held that the College could not dispense with the services of the gentlemen belonging to the medical profession.

In reference to the lectures delivered at the College, it was admitted that they are in some respects above the capacity of many of the students.

With regard to the practical ability of the students, the Council thought the results of the present system left much more to be desired.

It was also considered that the examinations should be held but once a year, under an improved arrangement, as stated in the Report.

After a very lengthy discussion,

It was moved by *Mr. Ernes*, and seconded by *Mr. J. C. Broad*—

"That the discussion be adjourned to the next quarterly meeting."

The following amendment was then moved by *Mr. Wilkinson*, and seconded by *Mr. Brown*—

"That steps be taken to carry out the practical examination forthwith."

After some further discussion,

Mr. Wilkinson withdrew his amendment, and the original motion was carried.

By order of the Council,
WILLIAM HENRY COATES,
Secretary.

NORTH OF ENGLAND VETERINARY MEDICAL ASSOCIATION.

THE twenty-first quarterly meeting of the above Association was held at Mr. Grey's, Adelphi Hotel, on Friday, January 22nd, 1869, at two o'clock in the afternoon.

The members present were Messrs. M. Hedley, Darlington (President); C. Hunting, South Hetton; C. Stephenson, Newcastle; R. Bryden, Seaham; H. Hunter, Newcastle; D. Macgregor, Bedlington; W. S. Moore, Gateshead; R. Hall, Stockton; and the Hon. Sec.

The minutes of the preceding meeting were read and confirmed.

Letters were read by the *Hon. Sec.* from Professor Armatage and Messrs. Peele, Hartlepool; Plews, Stockton; Foreman, Leadgate; and Gofton, North Shields, regretting their inability to attend.

The President then read his inaugural address, which was well received, and followed by a brief discussion, in which several of the members took part.

Mr. Hunting proposed a vote of thanks to the President for his practical address, which was seconded by *Mr. Bryden*, and carried unanimously. It was proposed by *Mr. Meikle*, and seconded by *Mr. Stephenson*, "That the President's address be sent for insertion in the *Veterinarian*." Carried unanimously. The members afterwards sat down to a sumptuous repast provided by Mr. Grey. Mr. Hedley, President, in the chair, Mr. Hall occupying the vice-chair.

After spending a few hours in a friendly and professional intercourse, the company broke up at an early hour.

JOHN MEIKLE,
Hon. Secretary.

THE PRESIDENT'S INAUGURAL ADDRESS.

GENTLEMEN,—In appearing before you to-day, I have to ask your kind indulgence for a short time, promising you that I will not detain you long. Before introducing my subject, allow me to return you my heartfelt thanks for the high honour you have conferred upon me in electing me your president for the present year, a position that I most reluctantly accept, because I know there are other gentlemen in the Society who could fill the office more efficiently and with greater satisfaction to the members of the Association.

I am very sorry indeed that my friend Mr. Plews, through indisposition, was under the disagreeable necessity of resigning the presidentship of our Society, after such a unanimous call. I fondly hope he may soon be restored to his wonted health and strength, and that at some future period he may be able to fulfil the duties of our presidential chair. Gentlemen, nothing but this circumstance which rendered it necessary for you to elect another president could have induced me to accept the office, as I feel quite inadequate to the performance of its duties. However, with your united support, I promise that anything and everything I am able to do will be done for the good of this Society. With a ready and willing hand, trusting then to your needed help, I hope the year which we have entered upon may be one of profit and happiness to us all as veterinary surgeons and members of this our Medical Society.

As an individual member, I have great pleasure in reflecting upon the many interesting and instructive meetings we have had. I look upon the meeting of professional brethren and the discussion of the various subjects brought before them as the best means of breaking down petty jealousies and diffusing useful knowledge; and I trust the same spirit which has animated our meetings in the past may

inspire them in the future. I do not intend to weary you with a long address, my remarks will be brief, and will be confined to the present and prospective condition of veterinary surgeons.

A veterinary surgeon of the present day ought to be a man of respectability, a man of principle, and a man of talent. A man of respectability, because from his profession he is daily mixing with the upper classes, and he ought to be able to acquit himself in a manner worthy of the profession he has chosen, and attain a position in the world. A man of principle, because of the confidence placed in him by his employers in disputed cases, where his integrity is put on trial. A man of talent, as it requires no ordinary degree of skill and tact to treat the diseases of our domestic animals, and satisfy the minds of those clients whose confidence in veterinary surgeons is often of the most limited character.

When a young man makes choice of the veterinary profession, he enters some veterinary school, where he undergoes a very simple preliminary examination. A few questions are asked, such as, Can you write well? for you require to take copious notes during the lectures; have you any Latin or German? Or he gets some simple arithmetic account to work out as a test of his abilities; it very rarely if ever happens that an applicant is rejected. He then enters the college as a student, and remains there for the prescribed period before he is eligible for presentation at the examiner's table. We will suppose that he passes a fair examination and receives the diploma, whereby he is entitled to practise the veterinary art as a fully qualified veterinary surgeon. He then starts business for himself in the best and most suitable district he knows, having no opposition near him but the old quack of the district. At first, all things go smoothly on for a time, when, perhaps, a difficult case presents itself, taxing a young vet.'s experience and skill in no small degree. We will suppose he has made a mistake in the diagnosis, and he treats the case contrary to its requirements. The patient gets worse, the client becomes uneasy, he loses confidence in his medical attendant, and he deems it necessary to call in the old cow-leech whom he has been in the habit of employing before the veterinary surgeon came to the neighbourhood; the farrier makes careful examination of the case, and, *perhaps*, diagnoses the disease correctly, and at once offers to perform a cure; in the course of a day or so a marked improvement takes place in the patient, and in a few days the animal is quite itself again.

This has a damaging effect on the veterinary surgeon's practice. Instances similar in character to the above begin to multiply in his practice, with results analogous to the one just quoted, and, as a consequence, his business leaves him; the old quack is left in full possession, and rejoices greatly over the victory he has achieved. Gentlemen, cases like the foregoing are of no uncommon occurrence. Why is this so? because the majority of our young men when they leave college are possessed of practical knowledge to a very limited extent; indeed, a goodly number of them never performed an operation on either horse, ox, or dog, in their lives, and not a few have never

treated a case of disease. Gentlemen, I have no hesitation in saying that our profession will never take that position in society which it ought to take until we have some means of preventing *uneducated men* from entering our veterinary colleges. The preliminary examination should be enforced, and there should be a positive law in relation to *all our schools*, to prevent every applicant who is not a first class English scholar being admitted. I believe there are many noble, plodding, industrious, persevering men amongst us, who have made their way in the world against the disadvantages of defective education. If, however, they had received a better education, it would have enabled them to shine more brightly, and made their power to be felt through the length and breadth of the land. We have on record the names of not a few whose memories are dear to us, and will not soon be forgotten, whose education was of a superior kind. And we have still amongst us a Spooner, Simonds, and Gamgee, whom the profession will, as long as memory lasts, be proud to number amongst its noblest spirits. We have gentlemen amongst us, I am proud to say, who are worthy of our highest praise; men of talent, men of respectability, and men of principle too, who are able to stand side by side with members of any other profession in the kingdom, and I fondly hope their number may be increased. And this can only be done by giving our sons and pupils a suitable education, and having the examination for the diploma of a strict and searching kind.

Gentlemen, we must never rest satisfied till we get a satisfactory veterinary bill from Parliament to prevent men without diplomas using the title of veterinary surgeons. How is the public to distinguish between us and quacks, when both exhibit the same name of veterinary surgeon? I believe there are scores of such men practising the art, whose clients are quite of opinion that their veterinary attendant is a legally qualified practitioner. If we look at the sister profession, we find they have the protection of the law on their side, which prevents any man assuming the title of surgeon unless he is a member of the College of Surgeons. I think that we should obtain similar powers, it would be a protection to the public against impostors, and it would save the veterinary surgeon from much reflected disgrace, consequent upon the graduate and empiric alike using the title which he alone can claim. Let us endeavour, gentlemen, to do everything in our power, and use all lawful means whereby the profession may be placed in that position where we all desire to see it—in the place of honour and justice. I promised at the beginning of my address that I would not keep you long. I will now make good that promise and draw my remarks to a close by thanking you for the patient manner you have listened to my address, and hoping we may soon be in possession of the privileges and protection which the profession justly demands.

THE LANCASHIRE VETERINARY MEDICAL ASSOCIATION.*

THE twenty-fifth meeting of the society was held at the Trevelyan Hotel on Thursday, December 10th, 1868, Mr. J. Howell, Rochdale (in the absence of the President), in the chair.

The minutes of last meeting having been read and approved, a resolution was moved by *Mr. T. Greaves*, seconded by *Mr. Lawson*, and carried unanimously, that a letter of condolence be sent to Mrs. Brown, on the death of her husband, Mr. G. Brown. It was proposed, seconded, and carried unanimously, that the resignation of Mr. C. Simpson be accepted, and that the names of Mr. Breckell, of Garstang, Mr. J. Polding, of Bury, and Mr. G. Sermon, be erased from the list of members.

Mr. Cox, V.S., Knutsford, was proposed and seconded by *Messrs. T. Greaves* and *J. Greaves*.

Mr. Haycock gave notice that he should at the next quarterly meeting bring before the Association certain charges connected with a case reported in the *Veterinarian* of the present month, reflecting on his professional character.

Mr. J. Greaves then read his "Essay on Laminitis and Canker:"

MR. PRESIDENT AND GENTLEMEN.—I must ask you to make every allowance for me to-night; if I do not come up to your expectations, it must not be attributed to an absence of a desire on my part to make the subject worthy of your consideration, but to the fact that I was only called upon at the eleventh hour, and at a time when I was unusually busy. In fact, I felt it was an injustice to me, an injustice to you, and an injustice to the subject to attempt it under the circumstances; but, at the same time, as it appeared to me, there was only one of two alternatives, either to run the risk of producing this hurried and imperfect sketch, or else to desert your president in his emergency; this latter contingency could not for a moment be entertained, hence this attempt.

I have chosen to bring before your notice to-night two distinct subjects, each of which is of the greatest importance to the veterinary surgeon. I have always taken a deep interest in both the diseases alluded to, and for over thirty-five years I have had (almost continually) one or other of them under treatment; and after watching cases with the greatest care and attention from their commencement to their termination, and noting down the effects of various kinds of treatment, I have on different occasions published the results of my observations in the *Veterinarian;* perhaps some of you may have done me the honour to peruse those papers.

* This report of Proceedings of the Lancashire Veterinary Medical Association, with Mr. Greaves' Essay only came to hand in time for our present number in consequence of the first copy having been lost during transit.

Laminitis.

It is not my intention to occupy your time in discussing the anatomy and physiology of the foot, or the merits of the various methods of treatment advocated by different practitioners, further than to say that, having had the good fortune to be present when this subject was brought forward and discussed at five of the Provincial Veterinary Medical Associations, I have heard the views, opinions, and mode of treatment of some of the wisest and most eminent practitioners of the day. I have endeavoured to profit by these advantages, and to bring the knowledge thus gained to bear upon my patients; and although my success has been perhaps equal to that of any of my fellow veterinary surgeons, still the results have been upon the whole anything but satisfactory to me; and I feel persuaded that if you, my hearers, will be candid with me, you will admit the same as regards your own experience, not only in the treatment of this disease, but also in the other disease which I am about bringing under your notice, viz., canker.

The opinion I entertain on the nature of acute laminitis is, that it is protracted intense cramp in the dense fibrous tissues of the feet, forcibly drawing backwards and downwards the toe of the coffin bone. That this view of acute laminitis is the correct view is, I think, borne out by the organic changes produced, and the altered position of the coffin bone in the hoof. The first in order is the tearing away of the horny laminæ from the body of the wall at the toe of the foot: as far as is yet ascertained, this is the first change in protracted acute laminitis. There is a space intervening between the back of the horny laminæ and the wall at the toe; this is observed to exist prior to any indication of sinking of the sole in front of the point of the frog; this space that I have alluded to is filled up with an exudation, a sort of lymph, which in the process of time becomes horn, but only imperfect horn, as shown in the specimens before us. During the summer time the under surface of the coffin bone bulges out, and sinks downwards, producing pumiced feet. That it is not congestion of the vascular system in the foot, nor inflammation in the foot, that is, inflammation proper, I am convinced, because it is not subject to the same conditions that inflammation is; it is not regulated by the same laws nor subject to the terminations that inflammation is. The success attendant upon the following mode of treatment is a proof that it is not inflammation, neither is it controllable by, nor amenable to, the same treatment to which inflammation usually yields. Do you call to my notice the throbbing of the artery and the heat in the feet to prove to me that it is inflammation? I say this is by no means a proof. You may bleed to syncope, until your patient falls, as I have done, three days in succession, thus exhausting the arterial tubes of almost all their blood, but all the while they are throbbing still. I believe it is not dependent upon any impediment in the passage of the blood in the capillary vessels in the foot, but to a violent vibratory action in the coats of the artery itself.

I now beg to call your attention to the treatment employed by Mr. Broad, of Bath, in cases of acute laminitis. He brought this subject before the meeting of the West of England Association on the 25th ult. at Bristol. He does not bleed his patients, nor foment nor poultice the feet, neither does he cast them nor sling them; he simply takes off the shoes, and substitutes for them bar shoes made very thick at the toe, say three quarters of an inch, and thinned gradually to the heels—a number of specimens I here exhibit, the heels and bar being about as thick as an halfpenny, the extreme edge taken off. He then gives a cathartic dose, compels the horse to walk, badly enough and slowly enough at first, as you may readily conceive; but the horse soon improves, and then you may keep him at it for hours together; you may let the horse have an hour or two's rest, and then out again for hours together. Contrary to all expectation, the pain and suffering, heat of the feet and throbbing of the arteries subside, and in three or four days the animal can walk free from pain. In two or three weeks, under this treatment, the horse is as sound as ever, and fit for any kind of work. It is said this plan of treatment is invariably successful; it was corroborated by the president, by several other practitioners who had put it to the test, and by several letters from others. Mr. Broad had brought horses which had suffered from laminitis to the place of meeting for us to see; one horse had had both coffin bones exposed at the sole. Nevertheless, they were now going sound, and their feet were not at all deformed; it was said that in no case yet has this method failed; it is a novel means of treatment, but the results are startling; and, as I said there, we have no right to condemn this system until we have tried it and proved it to be ineffectual. We are bound to receive it, since Mr. Broad's statements are substantiated by the living cases before us, and by numbers of successful cases submitted to this treatment by Mr. Lawson and Mr. T. Taylor, of Manchester. Mr. Broad recommends strong shoes in all weak feet, with the view of warding off concussion. Upon this same principle I may remind you, if an anvil be placed upon your chest, men may strike with sledge hammers with all their might upon the anvil, without hurting you in the least, the thickness and weight of the anvil breaking the concussion.

Operation for Canker.

This operation, which has been in use in England for some four or five years, was first recommended in these parts by Mr. John Lawson, Jun., who had seen it done and done it himself at Alfort College in France. He has performed the operation for me upon several of my cases; and such has been the success which has attended his treatment, that I have myself had recourse to it in nineteen or twenty cases during the last five years. Of these instances three only were unsuccessful, the others recovered, and went to work again in from twenty-one days to three months, usually about six weeks to two months afterwards. Only one case had a relapse; I attribute this to having put him to work too soon. There are several points of great

importance to be observed in the performance of the operation, with a view to secure success; and if these points are very carefully and very attentively minded, all but invariable success will follow. In the first place, I premise it is altogether unnecessary to say a word about the nature of canker. You all of you know what canker is, and how exceedingly difficult it is to cure. Some few cases get better under the old method of employing innumerable inconceivable and unintelligible modes of treatment; many of them after having been under hand some six months, others twelve, eighteen, and twenty-four months, are at length condemned to go to the dogs. I believe canker to be a specific disease, differing altogether and entirely from cancer. It is a morbid fungoid growth upon the surface of the sensitive frog, or sensitive sole, or sensitive lamina; or it may be on any two of them, or on all three conjointly: it appears in all sorts of feet, even the best formed feet, and in animals which have also good clean flat firm legs; it is sometimes an accompaniment of greasy heels, but it is found as often where there is not the slightest tendency to greasy heels.

Well, then, the point which we must first take into our consideration is the age and value of the horse; if he is, say under ten or twelve years old, and worth, say thirty pounds, it will be worth while taking him in hand. Be particular to examine all his feet; if the disease is only in one foot, or even in two feet, and confined to the frog and a portion of the sole, it matters little how long it has existed, it is to be cured easily and almost certainly. If it is in the lamina it is always more difficult to cure, still in several of my cases the whole sole, frog, and the lamina on both sides have been affected, some of them had been bad for years; they, nevertheless, recovered, and that radically. I pay no attention to the general health, place no reliance whatever upon any internal remedial treatment. I have the shoe removed, and supposing the frog and sole only affected, get the smith to lower the crust all round, almost to the blood, but the sole is not to be touched, get a bar shoe fitted to be in readiness; then, with the point of your drawing-knife, cut a groove all round the sole at its junction with the wall, so deep that you can see the blood; this done, cast the horse, have the twitch put on him, and supposing it is a hind foot which is affected, bring this foot forward, place it across the foreleg, and secure it there quite close and firmly with a flat rope, put on a tourniquet below the hock, then take a sharp scalpel and cut completely through the remaining horn of the sole at the bottom of the groove all round, always being particular to include all diseased parts, and even to reach beyond them, say one inch at least, whether it be sole or wall. If the laminæ be affected you must cut a groove from the coronet right down to the bottom, like to a sand-crack, one inch at least beyond the part affected, and include this in the horn to be removed. Now comes the most important point to be observed in the whole of the operation. Take great care to clean the surface of the affected part with bits of clean tow and throw them away, then get your small levers under the horny sole

at the toe, then lift it up a little, and as soon as you can, get a firm hold, first with one, then with two pair of pincers; do be careful here not to injure the bone or get hold of the sensitive sole or laminæ; do not tear it or bruise it, be gentle and careful; apply force gently but firmly with both pincers from toe to heel, and the horny sole becomes gradually detached and tears from the sensitive parts and comes out all in one piece, and along with it the portion of the wall intended so to come away. I have presumed there is no horny frog left.

Now this is indeed in one sense a most cruel operation; but if the tourniquet is well adjusted, and I lay great stress upon this, because if it is there is scarcely any bleeding, the operation is a nice clean operation, it enables the operator to see exactly the extent of the diseased surface, which is always well marked and distinct: this is very important, and now we have come to the most interesting part of the operation. Be very careful now what you are doing, for the success or non-success depends upon what you do; mind you do not take your sponge or cloth or dry tow, and wipe the surface of the affected part, and then wipe with the same sponge, cloth, or tow the surface of the sole or laminæ not affected; wipe the discharge very carefully off the surface of the diseased part with small bits of tow and throw them away, bit after bit; then take your clean sharp scalpel and excise off the diseased tissues; mind you do not let any of these slices fall or lie upon other surfaces not diseased, be very particular that you slice or shave off every portion that is in the slightest degree affected, be quite sure of this; if the fungus and thickening is considerable, you must cut off thick slices. I would much rather take more than is positively affected than leave the slightest particle of diseased structure. This done, wipe the surface, and rub it well with nitric acid by means of a tow mop on the end of a stick. The other portion of sole or laminæ exposed, but not diseased, must be wiped clean and dressed with carbolic acid. Then put on the shoe, stop up well with plenty of tow and tar, let the horse up, take off the tourniquet; if it bleeds much stuff in more tow and leave it until the second day, and then simply slacken the splints; the following day take the stopping out and throw it all away; be particular about this every time, never put the same dressing in a second time, because that portion of dressing or stuffing which has been in contact with the diseased surface and is saturated with diseased matter, may be placed upon another part which has hitherto been free from disease, and by this means infect it and spread the disease; now wipe the surface as before, taking great care to throw away every bit of tow you use; apply carbolic acid and clean tow to the whole surface. I do this for a few times, then some simple solution, such as sugar of lead and alum, 2 oz. each, and a little Sulph. Cupri, to the quart of water. There will be a thin loose skin covering the surface of the part that has been cut; this must be taken off gently, with your finger and thumb every time, wipe dry, especially in every nick and crevice, and dress. If any risings take place, they may be touched

with either the muriatic or nitric acid; in a week or so, a dressing or covering of tar and alum, equal parts, may be used over all, with moderate pressure, dress every other day; see to it, that the bandage is not allowed to be binding or pressing too tightly or unequally upon any part of the sores, and it will be found that the horn forms solid and strong in a very little time, and almost any kind of application will answer if only the diseased surface is entirely and radically excised; tar and carbolic acid is an excellent dressing. I never use the sponge or water only during the operation, and not then unless I have much blood. Water should be avoided at all times in the treatment of canker; and another thing must be constantly born in mind—keep looking every now and then at the other feet, to see if they keep all right. In conclusion, I recapitulate that the success of the operation mainly depends upon the following conditions:—

1st. Securing the horse and the artery completely.

2nd. Being exceedingly particular in cutting away every portion affected.

3rd. Being equally particular in keeping the unaffected surface free from the discharge.

4th. Keeping the foot dry, regularity of dressing, wiping it thoroughly clean each time.

At the conclusion of the reading a warm discussion ensued, in which nearly all present joined.

A vote of thanks was accorded to Mr. Greaves for his able paper.

The Treasurer then read his yearly statement.

Mr. A. L. Gibson was unanimously elected President for the ensuing year.

The following officers were also appointed:—

Vice-Presidents.—Mr. J. Taylor.
,, ,, W. Challinor.
,, ,, Morgan.
Treasurer.—Mr. Whittle.
Secretary.—A. Challinor.

SMITHFIELD CLUB.

A MEETING of the Council was held on the 2nd ult. Present—The Duke of Marlborough (President), Lord Bridport, Messrs. H. Aylmer, J. Baldwin, J. Clayden, J. Druce, S. Druce, T. Duckham, R. Hornsby, C. Howard, R. Leeds, E. W. Moore, H. Overman, J. Painter, J. T. Senior, H. Thurnell, J. S. Turner, T. Twitchell, and B. J. Gibbs (Hon. Sec.).

The Stewards of Live Stock presented the following report, which was received and adopted, and ordered to be published in the proceedings.

"On the investigation of the age of the animal No. 47.

"We consider that Mr. Wortley has failed to prove the correctness of his certificate as to animal No. 47, and we would advise Mr. Wortley for the future to prosecute more rigid inquiries as to the ages of his animals. We received a letter only this morning from the breeder of the animal of a most conclusive character, and regret that he should have seen fit to give such tardy information. It is to the following effect:—

"'*Witton, March* 1*st*, 1869.

"'Sir,—In reply to yours of the 23rd, I find the steer No. 47, shown by Mr. Wortley was not the one I sold Mr. Towers, and that I gave the certificate. For I have seen Mr. Towers, the dealer, who tells me his wife in error asked for age of steer he purchased of me. I believe the steer shown was bred by myself; but Mr. Towers got him through another party, and his wife was not aware of that when she wrote for certificate. I have written Mr. Duckham, and should have written you earlier, but was some time before I could meet with the dealer.

"'I am, yours respectfully,

(Signed) "'Edward Taylor, B. Gibbs, Esq.

(Signed) "'Charles Howard, Thomas Twitchell, John Painter, J. S. Turner, Henry Overman."'

The following gentlemen were elected Stewards of Live Stock for the ensuing three years, in place of the two who retire by rotation, viz., Mr. J. N. Beasley, of Chapel Brampton, Northampton; Mr. W. B. Canning, of Elston Hill, Devizes.

Mr. Joseph Druce and Mr. Robert Leeds were re-elected Stewards of Implements for the present year.

The Council revised the prize sheet for the present year, and made the following alterations, viz.:—In the Devon, Hereford, and Shorthorn divisions, the class for two years six months old steers, the second prize to be increased to £15; and third prize to be added, £10. In Sussex division, a third prize of £5 to be added in the class for three years' old steers. In the Irish cattle division, the following to be the wording:—"The Irish breed of cattle;" "All animals in these classes must be bred in Ireland." In the divisions for Hampshire or Wiltshire sheep, and also the division for Oxfordshire, new classes for old sheep to be established with the following prizes, viz.:—Fat wether sheep, two years old (above twenty-three and under thirty-five months), to the exhibitor of the best pen of three, first prize, £15; to the breeder of the same, a silver medal; to the exhibitor of the second best, seeond prize, £5. In the division for Ryeland, Cheviot, Dorset, &c., a third prize of £5 to be added. It was resolved to offer a piece of plate, value £100, for "the best beast in the yard," including extra stock. Also a piece of plate, value £50, for "the best pen of sheep in the yard," and a piece of plate, value £10, for "the best single sheep in extra stock." In the extra stock Shortwools and Southdowns two silver medals to be offered, viz., one for "the best wether," and one for "the best ewe."

It was resolved that, in place of the disqualification of pigs being final, when the state of the dentition is not satisfactory, the last clause of rule twenty-one shall be as follows: "If the dentition shall indicate that the age of any of the pigs had been incorrectly returned in the certificate, the steward shall call upon the exhibitor to prove to their satisfaction the correctness of his certificate."

It was resolved that the fee to be paid by non-members for the privilege of exhibiting be two guineas instead of one as heretofore.

The Council determined that the date of the shows be regulated by the same rule as heretofore, and the next will therefore commence December 6th next.

Veterinary Jurisprudence.

MANSION HOUSE.—March 10th.

A DOCTOR'S HORSE.

Walter Leonard, twenty-four years of age, a coachman, was charged before Alderman Carter with ill-treating and torturing a horse.

Police-constable Fleet said that yesterday afternoon he saw the prisoner driving a horse and brougham in Cheapside, and noticing that the animal could hardly walk stopped it and led it into King-street. On removing a large cloth across its back he saw it was nothing but skin and bone, and that under the throat was a large wen as big as witness's double fist. Its skin worked up and down loosely on the bones, and he told the prisoner to take it from the shafts. He refused, and said his mistress inside the carriage would talk to him if he wished. Witness then took it from the shafts, and the prisoner to the police-station, where he was bailed during the night. The horse belonged to Dr. Baker, of 66, New North-road, and witness afterwards took it to the green-yard. There, as he was giving it some water, a discharge from the nostrils ran over the side of the pail, and a veterinary surgeon was called in. He described it as very badly glandered, as being very old, and in bad condition—quite unfit for work.

Mr. Sangster, a veterinary surgeon, said the horse was in a very wretched state, was badly glandered, and so ill that to prevent infection it had to be removed to a shed in Goswell-street.

Dr. Baker, the prisoner's master, said he was quite astounded at hearing of the charge. The horse had been presented to him nine years ago by a lady, and was a great favourite. It had lately been in a low condition, owing to the negligence of a servant, but since the prisoner had been in his service it had regained its strength, although not much flesh. He could not believe that it was glandered.

Robert Hawes, another veterinary surgeon, said he had known the horse for some years, and there was nothing the matter with it, except its lowness of condition.

Mr. Alderman Carter said it was a most disgraceful case, and he

fined the prisoner 40s., with the alternative of fourteen days' hard labour.

The fine was paid by Dr. Baker, who said he would have the horse destroyed.—*Standard.*

Discrepancy of opinion among professional witnesses is not so uncommon as to excite any undue surprise; but it must be confessed that the evidence respecting the condition of the horse, referred to in the extract which we have taken from the *Evening Standard* of March 10th, is slightly staggering even to us who are not unaccustomed to "horse causes." Unprejudiced persons might imagine that there would be little room for difference of opinion when the question was between a horse being "badly glandered," and having "nothing the matter with him."

The policeman looking at the animal with the eyes of common life sees "a bag of bones," and also observes a wen under the animal's throat "as large as his doubled fist." The veterinary surgeon when called in sees beyond these palpable defects, and detects that the horse is "badly glandered."

On the other side the science of the owner, aided by the professional skill of a member of our profession whom he consults, only succeeds in discovering that the animal has "nothing the matter with him" but lowness of condition; and for this, not generally a hopeless state of things, the beast is to be destroyed. Knowing nothing of the case beyond what we gather from the report, we cannot attempt to decide when the doctors disagree; but we are strongly impressed with the idea that it would be far preferable for professional men to contrive to keep out of the witness-box altogether, than to publicly contradict each other upon matters of fact.—Eds.

NISI PRIUS COURT, NORTHAMPTON.

Tuesday, March 9.

(*Before Mr. Baron Pigott.*)

Branford *v.* Great Eastern Railway Company.

A Special Jury Case.

This was a claim for £50, for injuries done to a horse whilst in transit from Bury St. Edmunds to Thrapston, in July, 1867.

Mr. Bulwer, Q.C., and Mr. Perkins, were for the plaintiff; Mr. O'Malley and Mr. Metcalfe for the defendants.

Mr. Bulwer addressed the jury, and said the action was brought by Mr. Branford, a veterinary surgeon at Oundle, for injuries done to a horse during his transit from Bury St. Edmunds to Thrapston. The injury complained of occurred at Bury St. Edmunds, in July, 1867. The plaintiff, at that time, attended the show of the Royal Agricultural Society, and bought a valuable colt, which he transferred to the Great Eastern Railway Company, to be conveyed to Oundle. The colt was placed in a horse-box, in the show-yard, and

was taken thence a distance of about a quarter of a mile, to be attached to the passenger train. Generally it was the custom that boxes which were going to be attached to a train should be either drawn by a horse or pushed by hand, but in the present instance it was taken by an engine, and driven up to the train with great violence. The colt went quietly into the box. There was another horse also, belonging to Mr. Branford, in the box, and his man, Kisbee, was also in the box with them. When the box was being shunted up to the train, it was taken at such a pace that the groom became alarmed, and called out to them to go more quietly. The pace was not moderated, and the box was sent with such force against the train, that the groom was thrown against the front of the box, his hat was smashed, and his head was hurt. The head of the horse was dashed with violence against the front of the box, and he was thrown down, his legs being doubled under him. The concussion was so great that the beam at the top of the box, which held the pillar that divided the horse-box into compartments, was thrown out of its horizontal position, and the upright pillar itself was smashed. The plaintiff complained of the negligence of the company's servants, and said he should report them to head-quarters. On opening the box, the horse was found to be injured, and the box itself was in the condition which he had described. The injuries, however, were not seen to be so great as they afterwards proved to be. The box was put right, as well as it could be, and the horse was got upon its legs, and proceeded on its journey. When they arrived at Thrapston, the horse was lame in one of its legs, and what was still more serious he dropped in his hind-quarters, and had great difficulty in getting up hill. The injuries were such as to induce Mr. Branford to believe that the horse's spine was injured, and he called in another veterinary surgeon, whose opinion coincided with his own. The plaintiff wrote to the railway company the same night complaining of the negligence of their servants, and, at the same time, offering very fair and reasonable terms. He requested them to send their own veterinary surgeon, or any one else they thought proper, to examine the colt. He told them he had no wish to go to law, and if the company would give him the price he paid for the horse, and pay him some slight compensation, for his expenses, he would not take any proceedings. The answer he received from the company was that the injuries to the horse arose from its own plunging, and were not caused by any negligence on the part of the company's servants. This was an idle excuse, and one that was always made by railway servants, who, of course, according to their own showing, always did their duty. The plaintiff did not want to go to law with the company, and kept the horse and did all he could to cure it. Nothing could be done with it, and it gradually got worse, and was obliged to be killed in February last. To satisfy himself the plaintiff made a *post-mortem* examination, and a portion of the back was also sent in to Professor Spooner, of the Royal Veterinary College, who would give evidence as to the cause of death.

The plaintiff said: I am a veterinary surgeon, living at Oundle, in this county, In July, 1867, I was at the Royal Agricultural Society's Show, at Bury, and bought a horse there, on the 19th of July. I gave the horse to my man, Kisbee, to be sent to Oundle. Its value was about £60, but I did not pay that, as I gave another horse in exchange. I saw the horse put in the horse-box, in a siding in the show-yard. He went in quietly, as well as we expected a colt would do. He went in once, and as the halter was a rotten one he came out and went in again. The horse was perfectly sound after he was put in the box. My man went in with him. I afterwards went down to the station, and heard the noise of two carriages coming into collision with each other. I ran upstairs into the yard, and saw an engine behind the box, close to it, and a great crowd round it. The box was close to the train, but was not coupled to it. There had been a crash, and when I got up the porters were opening the box. When it was opened I saw that part of the partition was lying smashed on the floor, and that the horse was down on his haunches, with his legs under him. The porters endeavoured to lift him up. They untied the halter, which had not broken, and got the horse up. My servant, who was in the box, had his hat smashed. He was in the coupee box, at the head of the horses. They wanted to put the horse in a fresh box, and I said the horse was quiet enough, and he came on in that box. I complained at the time of the manner in which the box had been pushed up to the train. The beam at the top of the box had been knocked out of its position. The colt appeared to stand uneasily, and I told the railway people at Bury I should complain to the authorities at head-quarters. I got in the box with the horse, and when we got to Thrapston station, I saw the horse taken out of the box. He was very lame, trembled exceedingly, and appeared like a horse which had suffered concussion of the spine or of the brain. There was a drooping action of the hind quarters, which indicated injury to the spine. I sent to Mr. Arnold, veterinary surgeon, to look at the horse; and the same night I wrote to the general manager, stating that my horse had been injured, and asking him to send some one to look at it.

The letters which transpired between the plaintiff and the general manager and the superintendent were here put in and read. The plaintiff wrote requesting that a veterinary surgeon or some one else might be sent to examine the horse, and the reply which he received was that inquiries had been made from the company's servants at Bury, and it appeared that the horse had been injured by its own restiveness. Several letters passed, but they were all to the same effect, the company positively disclaiming any responsibility, and asserting that no violence was used in attaching the box to the train.

I then instructed Mr. Law to write to the company. In addition to the other injuries there were skin wounds on the legs. The horse was well fed, and I did my best to restore it. At last he got so weak I was obliged to support him on slings, and in February

in this year I had him destroyed. I kept him for eighty weeks, as I considered him to be a very valuable horse, and I wished to keep him. I made a *post-mortem* examination, and was assisted by Mr. Griffiths, of the Veterinary College. I found great injuries in the dorsal and lumbar vertebræ. I sent a portion of the back to Professor Spooner, at the Veterinary College. Had the horse been an old one his back would have been broken at once.

A portion of the back of the horse was produced in Court, and the structure of it and the injuries received were explained in a most lucid manner to the Court.

The plaintiff was minutely cross-examined by Mr. O'Malley, but he adhered strictly to the evidence he had given, and said he bought the horse to show at Oundle, and did all he could to keep it alive, as he considered it was a valuable one. When he bought the horse he offered £50 for it, but he gave another horse and a sum of money in exchange for it. The horse was a young horse, and had probably never been in a train before. He was quite sure his servant was in the box with it at the time of the accident, and came up with it to Thrapston. The horse was not a restive horse. He was first tied with a rotten halter, which gave way, and he ran back when the sides of the box were opened for a fresh halter to be put on him. He did not kick, and there was not much trouble in getting him in again. The partition in the box was broken by the concussion and by the weight of the horse falling against it. He examined the horse-box, and the beam at the top of the carriage was thrust outwards. He called the attention of the station-master at Thrapston to that. The other horse in the box was shaken, but he made no claim for that.

Mr. O'Malley said that after the lucid manner in which the plaintiff had explained the medical part of the case, it would not be necessary to call the other veterinary surgeon, who attended on behalf of the plaintiff, as they must be able men indeed if they could make the matter plainer.

The Judge thought it would be quite unnecessary. He never heard anything more plainly explained in his life.

Henry Kisbee, under-gardener at Lord Lilford's, said, in 1867, he was with the plaintiff at Bury St. Edmunds. Two horses were put into the box. The injured horse was put in the centre compartment, and the second horse in the compartment furthest from the door. There was not much difficulty in getting the colt into the box. When they were being shunted on to the train they went at such a pace that he put his head out of the window and called out to one of the men to go gently. After that he laid hold of the horse's head to steady him, to prevent his being pitched. They bumped the horse's head, and cut him on the forehead, and drove him down. They drove his (witness's) head against the top of the window, and broke the crown of his hat, and made a bump on his head. He corroborated the plaintiff as to the position in which the horse was found, and the injuries he received.

By Mr. Metcalfe—The colt went quietly into the box. He was

a little shy at first. He and Mr. Branford drove him by holding up their hands: neither of them held a whip in their hands. He (witness) got in the coupee with the horse, and went to the Bury Station quite quietly. He did not recollect the first halter being broken, or the partition being taken down. There was a fresh rein put on the head collar when the horse was being put in the box. Instead of leading the horse into the box, the company's men put the rein round an iron to draw him on, and the cord broke. The colt was not plunging when he put his hand on his head to prevent him being pitched down. He could not tell whether the horse was thrown down before the partition was broken or afterwards. They were both down at the same time.

Thomas Turner, examined by Mr. Latham Browne, said he was station-master for the Midland Company at Thrapston in July, 1867. When Mr. Branford's horse arrived at the station the plaintiff pointed out to him that the partition in the horse-box was broken, and that the bar at the top of the box was raised three quarters of an inch. He reported the damage to head-quarters.

Mr. O'Malley, for the defence, said, in cases of this description the company must depend on the information they received from the persons at the station, and the company had no right to expect that that information was incorrect. He then addressed the jury for the defence and said he should prove by several witnesses that the box was attached to the train without the slightest violence, and that the injuries it received arose from the restiveness of the horse itself. The witnesses for the plaintiff and the witnesses for the defence were hopelessly at variance, and he was quite sure the jury would decide the question without allowing their minds to be biassed by any of the prejudice which was so common against railway companies.

The following witnesses were then called for the defence:

Frederick Chaplin, inspector to the Great Eastern Railway, said, on the day in question a great number of horses were loaded. He superintended the loading of all of them. They were all carefully loaded. The boxes were taken from the loading place to the passenger station by an engine. It was a distance of about a quarter of a mile.

By Mr. Latham Browne—The line from the loading place to the passenger station was a decline. It was not usual to use an engine for that purpose. Two or three hundred or more horses were loaded that day. There was no trouble whatever. Everything was tied safe.

Inspector William Balls said he was stationed at Bury St. Edmunds at the show, and remembered the horse-box in which Mr. Branford's horse was placed. The box was brought from the show-yard by an engine, and was taken from the siding to the train by a horse. The horse was taken up quietly to the train, and a man was coupling it up to another box, and was pulling up the second side chain when they heard a noise in the box. The noise was like that of a horse falling down. That was after the link had been put over

the hook; after the first side chain had been put up, and whilst the second chain was being put up, Webster and he looked in and saw the horse down. The upright partition was also broken. He did not see that any other damage was done to that or the next box. There was no complaint about a jerk from the passengers. There was no jerk. The partition bulged out towards the platform, away from the horse. Mr. Branford did not complain. There was a graze on the horse's hock, and as he (witness) was feeling it, the plaintiff swore at him and told him he was trying to make it kick. The plaintiff told him the horse was quiet enough, and he had ridden it seventeen miles that morning. He (witness) told him if he had done so he ought to be indicted for cruelty to animals, as the horse had no shoes on,

By Mr. Bulwer—He never was a policeman at Bury, but he had been almost everything else. He (witness) was responsible for the shunting and making up the trains, and it was he who told Mr. Robertson that no violence was used in shunting the box. The partition was broken, but it was not on the ground. He saw some one with the owner of the horse, but the man was never in the train at all. He would swear he was not. There were no other boxes in that train, and no other horses were loaded that day. He could not be mistaken, for he remembered it well on account of the language used to him by the plaintiff, who called him a —— fool. He did not hear Kisbee call out to any one that the box was being taken up to the train too fast.

By Mr. O'Malley—He was one of the first men who opened the box, and he must have seen if Kisbee had been there. He was not there. In answer to the Judge the witness said that on one occasion he saw a partition broken in a similar manner by a horse at Chelmsford. It was a bigger horse than this one, but he could not say whether it was a cart horse or not; he believed it was.

Thomas Newhall, examined by Mr. Metcalfe, said, on the 20th of July he shunted the horse-box from the siding to the train. He accompanied it to the train, and there was not the least jerk. He had coupled the box to the train with the exception of the second side chain. He afterwards assisted in getting the horse-box up.

By Mr. Bulwer—Mr. William Balls was his station master at that time, but he had not talked the matter over with him. He had been with him this morning, but had not mentioned the case to him—not particular, not particular. He had not mentioned it to Mr. Balls, not at all, not at all, not particular, like. They had not mentioned it to each other. That was not said, not all, sir, not at all.

The Judge—Do you mean to say that you have been together all the morning, and not mentioned it at all? No, my lord, no, not at all.

By Mr. Bulwer—There was another box on the same train. There had been no other horses sent that day. There had been a special horse-box train from the show-yard. The partition between the two horses was not broken down. It was just snapped.

He did not hear a man call out from the train not to go so fast. He did not see the man there, nor did he hear Mr. Branford say he would report him.

John Webster, station-inspector at Bury, said he saw the box drawn up to the passenger train by a horse, and had hold of the handle of the door, and walked a distance of twenty yards. It went quite slowly, and after the horse was taken away, he pushed up the box with his hands. This witness then corroborated the other witnesses for the defence, and also said he did not see any one in the box. After Mr. Branford came upstairs he saw him and a young man in the box. He heard Mr. Branford tell Balls that he had ridden the horse seventeen miles to quiet him, and he heard Balls tell him he ought to be taken up for cruelty to animals.

By Mr. Bulwer—He did not see the partition down, nor did he see the top of the box forced up. The front of the box was padded up as far as the horse's chest. It was padded also behind.

Charles Boughton, lampman at Bury station, corroborated the previous witnesses, and said it was not until the tail lamp was put on that he heard a noise in the box.

By Mr. Bulwer—He came up with all the other witnesses from Bury, with the exception of Balls. The subject was not mentioned between them on the journey up. It had not been mentioned since they had been at Northampton ; indeed, it had not been mentioned at all since the accident.

Mr. O'Malley again addressed the jury, and contended that it had been clearly shown by five witnesses who knew the station well, and were all present at the time, that there had been no negligence on the part of the defendants.

Mr. Bulwer replied on the part of the plaintiff, and alluded to the extraordinary fact that every one of the railway servants denied that this matter had ever been talked over amongst them since the time the accident occurred. He did not blame the railway company, for they were defendants on the information they received from their servants, but it was quite evident the witnesses for the defence were all trying to screen themselves and Inspector Balls from censure.

The Chief Justice, in summing up, said the evidence of the witnesses for the defence and for the plaintiff was directly contradictory, and it was for the jury to decide who was to be believed. His lordship also alluded to the strange assertion made by all the witnesses for the defence, that the matter had never been spoken of amongst them, and again paid a high tribute to the abilities of Mr. Branford, and spoke of the candid and fair manner in which he gave his evidence. It was a matter of great satisfaction to find that the Veterinary College was sending into the country such intelligent and able men. They had gained that day from Mr. Branford an amount of information which was not only useful in that case, but would be useful on other occasions.

A verdict for the plaintiff for the full amount was immediately returned.—*Northampton Herald.*

PARLIAMENTARY INTELLIGENCE.

House of Commons, March 4th.

DISEASES AMONG CATTLE.

Mr. W. E. Forster brought in the Government Bill for consolidating, amending, and perpetuating the Acts for preventing the spread of infectious diseases among cattle. He explained that, as regards the home trade, it would re-enact, almost as they stood, the present arrangements for "stamping out" the cattle plague, and would give some new powers with regard to sheep. It was also proposed to give the Privy Council power for checking other diseases besides the cattle plague, as well as the diseases of sheep and horses; and it contained other provisions for regulating the traffic in cattle, and particularly for securing to cattle in transit an ample supply of water. As to the foreign trade, it transferred from the Queen in Council to the Privy Council the power of prohibiting the import of cattle from any country into any port, of stating from time to time the countries from which cattle might be brought, and of defining areas at ports into which cattle might be brought, but out of which they could not be taken alive. There were also provisions at which Mr. Forster glanced slightly for encouraging the formation of markets.

Lord Robert Montagu approved entirely the first part of the Bill, but was convinced that the second part would not keep out the cattle plague. He urged that his and the Government Bill should be referred to the same committee.

Mr. Gregory and Colonel Brise supported this suggestion; and Mr. Headlam, Mr. Dent, Mr. Norwood, and Mr. Macfie advised the Government to push their Bill on with all speed.

Wednesday, March 10.

CONTAGIOUS DISEASES (ANIMALS) BILL.

Lord R. Montagu, in moving the second reading of his Bill, said that a measure upon the same subject had recently been introduced by the Government; but the two bills did not trench upon the same ground, and he should have been glad if his measure had been treated as supplementary to that which the Government had brought forward. He was afraid, however, that the representatives of the administration in that House were not prepared to adopt the same view of the subject, and he should therefore submit his Bill to the House upon its own merits. It had been stated that it had been

framed specially for the purpose of securing an advantage to agriculturalists; but he denied the justice of that allegation, and he could distinctly declare that the measure was drawn up with a determination to consult the interests of every class in the community. The noble Lord then proceeded to point out the peculiar characteristics and the most virulent form of cattle plague for the purpose of showing the necessity of adopting exceptional precautions for the prevention of its spreading. It was a disease which might remain latent in the animal for a period of fourteen days, and it was therefore impossible to know whether foreign cattle on their arrival at our ports might not, if allowed to circulate freely over the country, become instruments to an unlimited extent for the spread of the contagion. It had in consequence been found necessary to impose the most stringent and unusual restrictions on our foreign cattle traffic. He believed that it was still necessary to continue to a great extent those measures. They could not distinguish between the cattle introduced from a country in which the infection prevailed and a country which was free from the visitation; and if they were to allow the unrestricted introduction of any foreign cattle, they must run the risk of a renewal of the plague in this country. He would meet the requirements of the case by providing that the system of separate markets for foreign cattle should be permanently adopted; and it was manifest that the existence of such markets must benefit the towns in which they were situated, while they would afford the most effectual guarantee against a recurrence of such a calamity as that to which we had a few years since been exposed. The great question was what should be done with foreign beasts during the few days between their landing and their being slaughtered? The separate market system would enable them to deal in the most satisfactory manner with the matter. He believed that that system would not raise the price of meat to the British consumer, and it certainly had not been attended with that result in Liverpool, where it had a fair trial. It would no doubt have the effect of getting rid of the middleman and of his profits, and by that means it would reduce the cost of meat to the consumer, while it would enable the foreign importer to obtain a higher price, and would thus encourage the introduction of animal food into our markets. It should be remembered that of the whole of the meat consumed in this country not more than 5 per cent. in quantity and not more than $4\frac{1}{5}$ per cent. in value came from abroad, and that was an amount which might easily be lost if the cattle plague were again to break out among our herds. He did not wan to exclude foreign cattle; he believed, on the contrary, that his Bill would lead to an increase in the importation of cattle; but the great object which they should have in view was to establish a reasonable provision for the safety of the native herds, which formed the great source of our consumption. The noble lord concluded by moving the second reading of the Bill, upon the understanding that it was afterwards to be referred to a select committee.

Mr. HEADLAM rose to move as an amendment that the Bill be

read a second time that day six months. The Government had introduced what might fairly be regarded as a complete measure—whether it was a well-devised one or not—upon the subject, and the course which a private member ought to pursue was to endeavour to make that measure as perfect as possible. He believed that the passing of the Bill proposed by the noble lord, and its subsequent reference to a select committee, could only have the effect of delaying the settlement of a question which it was necessary they should deal with at the earliest possible moment. The Bill of the noble lord would establish as a universal and permanent rule the principle of separate markets at which the animals imported should be slaughtered, while the Government measure would allow foreign cattle to be introduced into our general markets under ordinary circumstances, but would, at the same time, invest the Privy Council with large powers of excluding such cattle whenever they might think that mode of proceeding desirable. It appeared to him that the free circulation of cattle from abroad was, as a general rule, the true principle of legislation upon the subject, and that the establishment of separate markets as advocated by the noble lord, however it might be disguised, would be a return to the system of protection. It was clear that the latter arrangement must act as a check on the importation of cattle from such countries as Spain and Portugal, in which the rinderpest had never made its appearance, and that it must so far tend to raise the price paid for meat by the English consumer. He earnestly hoped that the House would proceed without delay to legislate upon the subject, and that they would for that purpose take up at the earliest possible moment the Government Bill, into which measure the noble lord could, if he thought proper, introduce his proposal in the shape of amendments in committee. He moved as an amendment, that the Bill be read a second time this day six months.

Mr. Norwood seconded the amendment. The Bill of the noble lord, he said, dealt with only a portion of the question, and the measure which had been introduced by the Government was of a much more complete character. He could state that since the year 1865 the importation of foreign cattle into Hull had greatly decreased, and he believed that it had decreased in consequence of the restrictions to which it had been subjected. He would remind the House that it would be impossible to remove into the interior the offal of cattle slaughtered at a port, and that in the summer months meat of any kind could not be safely carried any distance. He objected to any permanent restrictive system in the case, which could only have the effect of limiting our supply of food from foreign countries.

Mr. Read said the principle of the Bill was the establishment of separate markets for foreign cattle, and the measure was introduced for the simple purpose of attacking contagious diseases at their fountain head. He believed that unless they were so checked all other measures for their prevention must be ineffectual. The present high price of meat was to be attributed, not to our trading

regulations, but to the great and terrible drought through which we had passed last summer, when for three months our sky was of brass and our soil was of iron. The result of the condition of the atmosphere was that for a considerable time we had no grass in this country, we had but very little hay, and our root crops were destroyed, and yet they were told by the right hon. gentleman, the President of the Board of Trade, that agriculture was never in so prosperous a condition as at present. (Hear, hear.) He (Mr. Read) asserted on the contrary, that graziers never had so disastrous a year as this, and that instead of realizing a profit they had sustained a considerable loss from the rearing of cattle. The Bill would act as a valuable safeguard against the future introduction of cattle plague into this country, and upon that ground he gave to it his earnest support.

Mr. W. E. Forster said he believed that there were no members in the House prepared to regard that as a question of protection, but at the same time it could not be denied that a restriction on the importation of foreign cattle must, to a certain extent, act as a protective measure for the native producer. He felt persuaded that the only effectual mode of dealing with the cattle plague would be the adoption, when the exigency arose, of some most stringent regulation for the prevention of the movement of cattle through the country, and the measure which he had the honour of introducing would invest the Government with the necessary powers for that purpose. The noble lord himself would not, he took it for granted, deny that the plague might be conveyed through the persons having charge of cattle from one market to another, and his measnre would afford no security against sueh a danger. The noble lord himself did not appear to contemplate the total exclusion of foreign cattle—of the cattle of France, for instance—from our ordinary markets, and yet he had made in his Bill no provision for giving the Privy Council a discretionary power. They must all be anxious for an extension of the dead meat traffic, but he believed that such traffic would be best promoted under the widest possible free-trade system. It appeared to him that a compulsory rule for the slaughter of all foreign cattle could not be maintained unless it was shown that some decided danger existed of the spread of contagion. The Government proposed to deal with that question upon the principle of interfering with the foreign cattle trade as far only as might be necessary for the prevention of disease, and he thought that the Government Bill would provide the powers which would be indispensable for that object much more effectual than the measure of the noble lord. He would beg of the noble lord to withdraw his Bill, and he would undertake that if that course were pursued, an opportunity should be afforded to the noble lord, and to those who adopted his views, of raising those points on which they disapproved in the Government scheme before the committee by which that scheme would be considered.

Mr. Selwyn-Ibbetson said he readily admitted that a Bill brought forward by a government was far more likely to lead to a settle-

ment of a question of that description than one introduced by a member; but he also thought that the proposal that both those measures should be referred to the same committee was a perfectly admirable one.

Mr. Dent expressed a hope that the noble lord would yield to the request that he should withdraw the Bill, and not call upon the house to assent to its principle.

Mr. Lowther said he believed the Bill of the noble lord would afford the only effectual security against the introduction and the spread of cattle disease in this country.

Mr. Newdegate also supported the Bill. It would ensure certainty in the conduct of the cattle-trade, and certainty was the great element of success in traffic of any description.

Mr. Secretary Bruce said he believed that no course could be more inconvenient than referring the Bill to the same committee as the government measure, and, indeed, the proposal would, in his opinion, be wholly impracticable. The Bill of the noble lord dealt only with the importation of foreign cattle, and did not deal completely even with that question, so that it could not possibly be engrafted on the more comprehensive measure of the Government.

Sir G. Jenkinson, who spoke amid loud cries for a division, expressed his approval of the Bill.

The House divided, and the numbers were—

For the second reading	197
Against	253
Majority against the second reading ——	56

CONTAGIOUS DISEASES AMONG CATTLE.

[The great length of this Bill prevents our giving more than its chief provisions in a condensed form. The subjoined report is from the *Norwich Mercury*.]

The following are the chief provisions contained in the Government Bill introduced by Mr. W. E. Forster:—In the course of his speech he said—He would first mention the internal regulations which it was proposed to establish by this Bill, and would at the outset refer to those which related to the cattle plague. It was proposed to re-enact almost precisely as they stood the present regulations for stamping out the cattle plague should it unfortunately break out again, for giving the power of declaring certain places infected, for inspection, for preventing the removal of animals, and for compulsory slaughter, and the Bill also contained the same provisions with regard to compensation. The powers now enforced by Order in Council in the case of sheep-pox would be embodied in the Bill, but though they did not take power by Act of Parliament for the compulsory slaughter of sheep,

they proposed regulations for preventing the removal of live sheep or carcases without licence in places declared to be infected with sheep-pox. They proposed to take powers to check lung disease and foot and mouth disease—any contagious disease, in short, among sheep, cattle, or horses. They had done this for two reasons. In the first place, the facts elicited by the Government in the course of their inquiries proved that pleuro-pneumonia had been, from first to last, almost as dangerous and destructive as the cattle plague; and, in the second place, they had every reason to believe that the agriculturists generally were much more willing than they were formerly to submit to interference on the part of the Government. They had seen the good results which had so evidently attended the exercise of summary power in the case of the cattle plague, and they were, consequently, willing to submit to something of the same character in reference to other diseases. But, in the case of pleuro-pneumonia, the Government did not propose to take such stringent powers. Upon the declaration by the inspector that any premises, field, stable, or cowshed was infected by lung disease, that place was declared to be infected, and came under certain rules set forth in the schedule of the Act, the main purport of which was that diseased animals were not to be moved out of such infected area, except for slaughter, and no animal that had in any way come into contact with infection was to be moved except for slaughter without a license. They proposed to make it penal to exhibit infected animals for sale in any market, or to turn them on to a common, the same provisions being applicable in the case of scab in sheep, and they proposed to take powers to prevent animals being moved when diseased by road, rail, or steamboat. The definition of contagious diseases as given by the Bill was the cattle-plague, sheep-pox, pleuro-pneumonia, foot and mouth disease, and scab in sheep, and they took powers to enable the Privy Council to include other diseases in the list if it should be thought necessary to do so; providing, however, that the least stringent of the regulations contained in the Bill should be applied in any such cases. The Bill re-enacted the powers at present existing for disinfecting and cleansing lairs, sheds, and trucks, and to that category the Bill added steamboats and sailing vessels. Another object which they sought to attain was the better provision for animals sent long distances by rail, the destination usually being London. The Government were pressed by many gentlemen to take compulsory powers to compel the railway companies to provide food and water, but there appeared to be great difficulty in doing so. The directors of railway companies stated that they did not provide food and water because they had no power to recover the expense from the consignor or consignee, and because they were bound by Act of Parliament to change certain rates. What the Bill, therefore, proposed was, that railway companies should make the charge of supplying the animals a debt upon the consignor or consignee, and that the animals themselves should be a lien for the debt. With regard to the importation of foreign cattle, they proposed to take the same

powers that were now possessed by the Government to prohibit the importation of foreign cattle into any part of the kingdom and from any foreign country. At present the power of prohibition was vested with the Queen in Council; they proposed to give it to the Privy Council, so that the power could be exercised without any delay. They also took power to permit the landing of foreign animals from any foreign country in any port or part of any port on certain conditions; so that they took two powers—first, the power of prohibiting importation from suspected countries; and, secondly, of defining certain countries from time to time from which, under certain conditions, importation might be permitted. Those conditions were defined in the schedule of the Act, and in that schedule it was provided that these animals could only be landed at certain defined ports, at certain defined landing-places, and could only travel within certain defined areas within those ports. The cattle could not be removed alive from the limits of the defined area. Powers would be reserved to the Government, through the Privy Council, to, in the first place, mark out certain defined areas at the ports of import, into which areas the animals could be brought on their importation, but out of which they could not be taken alive. It would also rest with the Privy Council to, from time to time, settle what were the places from which cattle were not to be imported. With the exception of these places the importation of cattle would be free. In the Bill powers would be taken for the local authorities to construct markets and erect lairs and slaughter-houses, to levy tolls, and to borrow money on tolls or rates. He had good reason to hope that, though compulsory powers were taken for the construction of markets, it would not be necessary to use those powers in the metropolis or at any other port.

MISCELLANEA.

CRUELTY TO SHEEP.

A deputation from the Royal Society for the Prevention of Cruelty to Animals waited upon the Markets Committee at Guildhall, on the 19th ult., for the purpose of laying before them the evils of exposing sheep, shorn of their wool, to the inclemency of the weather in the Metropolitan Cattle-market. Mr. F. D. Mocatta said that of late years very many sheep were sent to the Cattle-market for sale shorn of their wool, and there was no provision made to shelter them from the cold. There was no by-law of the Corporation to prevent the sending of shorn sheep to market, and the society had, therefore, been compelled to take proceedings against salesmen who had exposed the animals in that way. Mr. Game and Mr. Bannister, members of the Market Committee, agreed that great suffering was caused to the sheep by the custom, which was kept up for the small advantage obtained by the graziers of 2*d.* per lb. in the value of the wool taken off during life. They also said that the advantage was more than lost by the evils produced on the flesh of the animals. Mr. Sewell, Chairman of the Markets Committee, thanked the deputation for bringing the subject under their notice, and assured them that the Committee felt the importance of the subject, and would do their utmost to prevent a continuance of the practice.

ERRATUM IN NO. 495.

At page 215, fourth line from top, *for* "unaided" *read* "undivided."

THE

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Communications and Cases.

SUBMUCOUS HÆMORRHAGE IN THE INTESTINES OF A HORSE.

By Professor Brown.

In the course of his investigations the pathologist often has to rest satisfied with a bare record of facts, which are quite inexplicable by reference to the evidence with which they are accompanied. Certain morbid changes in the organism are observed, and the natural inquiry is, What caused them? Probabilities present themselves, and are tested, but fail to furnish the clue to a solution of the enigma, and the investigator is at last forced to admit that, notwithstanding the definite character of the results, their origin is mysterious.

The case which suggests these reflections also in itself affords a good illustration of their truth; a horse is suddenly attacked with abdominal disease; in the course of a few hours he dies, and a *post-mortem* inspection shows that very intense action, of a destructive kind, has been going on. Inquiry is made, but no evidence is obtained to account for the unusual morbid appearance. The animal was placed under perfectly favorable conditions; everything in relation to the system of management which was adopted while the horse was in his owner's possession was quite in the usual course; and until the morning of the fatal attack the animal had not given evidence of any important derangement.

From the owner's account, it appears that the horse, a bay five-year old carriage horse, was purchased on February 1st of a dealer in the country. The animal was brought to London by railway, and was used, as young horses are used, very gently, both in harness and saddle, for a few weeks, care being taken not to overwork him. In the beginning of March he was noticed to have a slight cold, but the indisposition was of so trifling a character that no advice was sought, and the daily exercise was not discontinued; febrifuge draughts were administered, and in a week the horse was considered to have recovered.

On the morning of March 12th symptoms of spasmodic colic were observed; or, as the attendant expressed it, "the horse was griped." The sudden appearance of this malady is not so unusual among the horses of a large establishment as to excite alarm, and therefore nothing more was done in this case than to give one draught composed of the ordinary fever mixture, with the addition of tincture of opium. No improvement took place, and at 10 o'clock a.m. attention was called to the animal, then labouring under the following symptoms:

General appearance haggard; expression of countenance indicative of suffering; the top lip was swollen and glossy, and internally abraded; pulse quick, small, and hard; respiration laboured and principally carried on by the abdominal muscles. The horse frequently altered his position, but none of the movements were suggestive of very acute pain.

From the general appearance of the animal, rather than on account of any specific symptoms, an unfavorable opinion was formed, which was verified by the result.

On the following day at 12 o'clock the horse died.

It was particularly noticed that during the attack the excretions were normal in character, and at no time was the suffering so acute as to cause very violent expressions of pain. The horse never rolled, kicked at the abdomen, nor in any way manifested those symptoms of impatient tolerance of pain characteristic of spasmodic colic.

Post-mortem examination four hours after death.—Immediately on opening the abdomen, the cæcum and a portion of the ileum protruded; both parts were nearly black in colour, and the small intestine had a peculiarly solid appearance, precisely as though it had contracted upon some hard body contained within it. When the whole of the viscera of the abdominal cavity were exposed to view, the lesions were seen to be exceedingly circumscribed in extent, but, at the same time, very decided in their character.

Referring first to the aspect of the exterior of the organs, the greater part of the intestinal canal was normal. About two feet of the small intestine at its commencement from the pylorus, and the same extent at its termination in the cæcum caput coli, were dark in colour and contracted; all between these two distant points was externally free from every appearance of disease. The cæcum and a portion of the colon at its commencement were also nearly black in colour; all posterior to these parts were perfectly normal: stomach, spleen, liver, kidneys, and bladder presented externally a perfectly healthy appearance. The stomach and those parts of the intestinal canal which showed the most marked evidence of disease were opened for the purpose of making an examination of the mucous membrane. In the stomach very little derangement was apparent; a few small patches of congested membrane were seen, and these, on being closely inspected, were found to be associated with exudation of blood beneath the mucous tissue, to a sufficient extent to cause slight elevation of the membrane in those parts.

The mucous membrane of duodenum and commencement of the jejunum, in all a length of about two feet from the pylorus, presented a very extraordinary appearance. The mucous membrane was quite black in colour and irregularly elevated by submucous hæmorrhage to the extent of nearly half an inch in height, and in many parts there were yellow patches, of the size of a shilling, of dead tissue, which could be easily detached from the subjacent structures. Similar appearances were observed in the ileum about eighteen inches from its termination, and also in the cæcum, and in a portion of the colon.

Other parts of the intestine which externally appeared free from disease were opened, and on the lining membrane here and there circumscribed patches of elevated and congested tissue were seen; but the internal, as well as the external, surface of the greater part of the tube was perfectly healthy.

The contents of the intestines were generally fluid.

A small quantity only of ingesta was found in the duodenum tightly compressed by the contracted walls of the tube. A quantity of partly digested food was found in the cæcum and commencement of the colon; but posterior to these parts the canal was nearly empty.

Description altogether fails to convey an adequate idea of the extraordinary nature of the changes which had taken place; they can only be realized on the supposition that

some powerful irritant had been taken into the stomach, where it had remained for a sufficient time to cause irritation of isolated portions only of the membrane; escaping from the stomach into the first intestine, it appeared to have excited powerful contraction of the walls of the canal, and thus to have been retained long enough for the full development of the irritant action; the result being extensive submucous hæmorrhage. From this point the irritant seemed to have passed through the whole length of the jejunum and ileum until within a short distance of the cæcum-caput coli, where detention apparently had again occurred with the same result as in the duodenum. In the cæcum the greatest accumulation of ingesta was observed; and in that part the most decided changes of structure had been produced.

The above hypothesis was tested by microscopic and chemical investigation. Minute examination revealed nothing beyond the fact of destruction of tissue; the components of the mucous membrane were found to be separated and deranged, but no foreign bodies of any kind were detected.

Professor Tuson undertook the chemical investigation, and in his report he states that none of the metallic poisons were detected, and further that special search for nitrate of potash, which it was suspected might have been administered in large quantities, was unsuccessful.

A most careful inquiry into the circumstances of the animal's management did not assist in solving the difficulty; the same kind of treatment had been indiscriminately applied to all the horses in the establishment; and in no other instance were anys igns of disease observed; no fresh provender had been recently introduced, and altogether there did not appear to exist any cause for the sudden and fatal attack. As a possibility it may be suggested that some irritant vegetable matter might have been contained in the portion of hay or other provender which fell to the horse's share; but this mode of accounting for the morbid appearances is purely speculative and entirely unsatisfactory. An instance of acute intestinal disease of a somewhat similar character to the one related, occurred some years ago, and the causes of the attack were equally obscure. A bay hunter was sent to be fired for hock lameness. The operation was performed and the subsequent progress of the healing process was in every respect satisfactory; the horse had so far recovered by the end of a month that it was considered safe to discharge him from the infirmary.

On the day previous to his intended removal, the horse was left at 12 o'clock in the day perfectly well; at half-past

12 a message was received to the effect that he was in great pain and kicking so violently that fears were entertained for the safety of the stable in which he stood. An immediate visit was made to the stable, and the horse was found in a most miserable condition, covered with sweat, rolling and kicking in a mad fury. By dint of considerable exertion, not unattended with danger to those engaged, the animal was removed to a large loose box, well supplied with litter, where there was less danger of his injuring himself in his violent struggles. Treatment was altogether out of the question; an attempt to apply fomentation to the abdomen was rendered abortive by the constant struggles, and for the same reason medicines could only be given with great difficulty; after fifteen hours' continuance of the most fearful pain the animal died.

Post-mortem examination showed intense congestion of the mucous membrane of the intestine, accompanied with hæmorrhage. The small intestines were filled with blood and submucous hæmorrhage was generally present throughout the intestinal canal.

Suspicion of poisoning arose at once, in consequence of the suddenness of the attack and the character of the morbid appearances. A portion of the contents of the stomach and intestines, and also of the diseased parts were sent to Dr. Voelcker, who, after a minute investigation, did not discover any poisonous agent.

Detection of vegetable poison is not easy—indeed, in many instances, is practically impossible, and hence there still remains a method of explanation in this case as in the first. It must be admitted that these obscure instances of virulent disease are interesting only on account of their novelty, the conditions which would render them instructive being either entirely absent or, if present, cognizable only to an insignificant degree.

MR. BROAD IN REPLY TO MR. FLEMING.

In reply to Mr. Fleming's letter in this month's *Veterinarian*, I beg to state that I did not intend being rude, or offensive, neither did I intend to designate Mr. Fleming as an "inexperienced theorist." I know him too well to do so, and only wish there were more "Flemings" in the profession; it would then march onward very differently from the way in which it does at present. I thank him for directing attention

to the works of MM. Bouley and Lafosse, as I had not seen those articles, although I had a coversation with Professor Bouley on the subject in 1864,* and he then showed me the water-bath which was used in treating cases of laminitis; he at the same time took great pains in explaining to me his views of disease of the lamina, but I do not recollect his referring to exercise. On reading his work, I infer that he relies more on the application of water to the feet, than on any other means. I find that Lafosse speaks more of exercise, and also gives instructions for tacking on larger shoes.

Mr. Fleming asks if I have ever used turpentine frictions to a horse suffering from laminitis. To this I reply that I have not, as I have never found any punishment necessary to cause the animal to move. I appeal to those members of the profession who have tried my plan of treatment, to say if they have found anything beyond the threat of punishment necessary. The repeated application of turpentine to the legs and body of a horse suffering from laminitis, must add to the irritation, and if applied much to the legs, it would make the skin sore, and the horse adverse to movement.

Mr. Fleming also thinks that "the majority of my cases must have been particularly mild ones if merely showing them the whip made them move." I think I may also very well leave that question to be answered by some other practitioner.

I have adopted the plan of not cutting the frogs or soles of my horses' feet for more than twenty years; but there are some very weak and flat feet with very large frogs, which require cutting. I paid Mr. Fleming a visit at Chatham in February last, and I feel it right to state that I never saw feet in a more natural and healthy state than those of the horses of the Royal Engineers under his charge. They were all excellently shod, and those shod on the Charlier system were particularly well done, and the horses appeared to go well in those narrow rims of iron let in level with the soles. I conclude, however, from an inspection of the horses of a battery of artillery which passed through Bath last week, that Mr. Fleming's plan of not paring the soles and frogs is not general in the army. In my opinion, it would be doing

* In the last ten years I have paid many visits to Alfort, and have always found Professors Bouley and Reynal most obliging and willing to show and explain any matter of interest. I have been much interested with what I have seen there. The operations are very numerous, and conducted skilfully and systematically, so that the students have an opportunity of seeing, and operating for themselves. The French veterinarians, in my opinion, are as a body far before us in a scientific point of view.

a public service were Mr. Wilkinson to see that the plan is carried out throughout the service. I think it unnecessary to refer to the two cases cited by Mr. Fleming in last month's *Veterinarian*, as he will find his questions answered by myself in my article in the same number. In support of the statements made, I have given the name of one M.R.C.V.S., and, if necessary, I will give that of another who watched the cases throughout. They both stated that if they had not seen the result, they should not have believed it. As to the use of heavy shoes, I refer to an article by Mr. Greaves in the *Veterinarian* of this month (page 299), as he has there expressed my views. When I find gentlemen ridiculing the practice of nailing heavy shoes on to feet which are inflamed and tender, I know that they are theorizing, and have never fairly tested the plan.

Horses with flat weak feet always go better in stout than in light shoes. Does not a sportsman with his gun find that he can walk all day in a stout heavy pair of boots more comfortably than in his dress boots? Mr. Fleming states that he differs from me in the treatment of "sunken soles." If the 1865 case be quoted as a practical example, I certainly shall not adopt his plan. For however much soles may be sunken, provided there is no suppuration or acute disease going on, with my plan of treatment, I expect to render the horse workably sound in *from two to six weeks*, and under the same system of shoeing, the feet will gradually improve. In nineteen cases out of twenty which are brought for an opinion in reference to sunken soles, the simple question is, "Can you in a short time render this horse serviceable? if not I will have it destroyed." In mild cases of laminitis it is not necessary to put on special shoes, as exercise and physic are sufficient. In neglected cases, or when the old plan of treatment has been adopted unsuccessfully, and suppurative action is set up in the bottom of the feet, exercise is not then advisable. It is sometimes necessary to modify the system, in very acute cases, where the feet have been previously diseased, or the soles sunken, or in case of very large weak flat feet; also at any time during the progress of a case, should the animal appear suddenly to suffer pain in one or more feet.

I have undertaken the treatment of cases where at the commencement suppuration had advanced so far that all the coffin bones were exposed, and separation at the coronet had commenced, yet the animals recovered and the soles became flat, under the application of my heavy shoes, and dressings of tar and Cupri Sulph. in from three to four months. Under such circumstances I do not give exercise until the new soles have grown strong.

ON LAMINITIS.

By Alfred Owles, M.R.C.V.S., 6th Dragoons.

Disclaiming all intention of joining in a controversy, I beg to be permitted, very briefly, to say a word upon the subject of pressure to the soles in cases of laminitis, because any opinion coming from so good an authority as Mr. Broad undoubtedly is upon this subject, is very likely to be accepted by the younger members of the profession without consideration. I may first state that, from a trial of Mr. Broad's special shoes in three cases of chronic foot lameness, I believe that an animal feels greater relief from their application in such cases than from any other shoe known to me; with regard to pressure on the sole in acute laminitis, I take it, we who advocate it do so upon principle. The weight of the animal must be sustained either by the laminæ or conjointly by the laminæ, sole, and frog, or by the sole and frog alone, and just in proportion as pressure is thrown on the sole and frog are the laminæ relieved of that amount of strain which, I think, must give relief to the original seat of disease. Mr. Broad's cases recorded in your present issue appear to me to be far wide of the mark, for any one who has seen sawdust impacted into the feet of horses, and allowed to remain there, knows that it forms a hard cake, and exerts a *constant* pressure upon the sole, almost equal to a large stone, without relieving the laminæ of the weight of the animal; and it does not surprise me that, under such circumstances, Mr. Broad's patients had extensive inflammation of the soles and increase of the lameness. We do not say that pressure on the sole in inflamed feet is good in itself, but that transferring the weight of the animal off the laminæ partly to the sole, &c., is of the first importance, by relieving the laminæ during the acute stage; and it is with such an object, I take it, that Mr. Fleming advocated the form of pressure which he did.

I agree with Mr. Broad that any application such as turpentine to the skin of a horse sufficiently potent to induce the animal to take exercise is inflicting actual pain to bring about a result which, in my opinion, can be obtained in a much more agreeable way to the animal, by leading it about, even should it be necessary for an assistant to follow with a whip to frighten the horse at starting.

THE PRINCIPLES OF BOTANY.

By Professor James Buckman, F.L.S., F.G.S., &c.

(*Continued from p.* 270.)

As soon as the action of the pollen has fully taken place, the floral envelopes begin to wither, and in most cases they fall away. In some, however, they remain in the withered state, and thus afford protection to the young fruit. In clovers both the calyx and the corolla remain after the fruit is formed, whilst in the apple the calyx enlarges and becomes in fact the bulky part of the fruit itself. But the most remarkable instance of the calyx enlarging after the formation of the fruit will be found in the winter-cherry (*Physalis*).

When the floral envelopes remain upon the fruit they are said to be persistent; on the contrary, when they readily fall off they are called deciduous. A most interesting example of the latter will be found in the common poppy, where the calyx falls off sometimes before the flower is fully expanded, and the corolla itself seldom maintains its position more than a few hours. What then receives the name of fruit may briefly be described as the ovary or germen matured with its included seeds. At the same time other parts become adherent in making up what is commonly called fruits, such as the bracts in the oak and hazel combined with their calyces.

The fruits of the pear and of the gooseberry are formed of the ovaries and calyces combined, while the peach, plum, and grape are formed of ovaries alone. Fruits are valued either for their whole substance, as the apple, wall-fruits, &c., or for their seeds, as the pea, bean, &c.

In some, as the gooseberry, the sub-acid flavour of the unripe ovaries are esteemed no less than the perfectly ripened; but in the case of the plum and the cherry, the riper they may be the more luscious and indeed the more wholesome. In order to show the difference, we copy the following analysis of the cherry, by Berard.

	Unripe.	Ripe.
Chlorophyll	0·05	—
Sugar	1·12	18·12
Gum or dextrine	6·01	3·23
Cellulose	2·44	1·12
Albumen	0·21	0·57
Malic Acid	1·75	2·01
Lime	0·14	0·10
Water	88·28	74·85
	100·00	100·00

The changes that take place during the maturation of fruits are no less interesting in a chemical than in a practical point of view, as upon a due knowledge of this matter the obtaining of fruits for food or medicine in the best possible state depends.

In order to show the changes which take place in the relative amounts of water, sugar, and cellulose, we append the following table of these in some cases of unripe and ripe fruits:

	Water.		Sugar.		Cellulose.	
	Unripe.	Ripe.	Unripe.	Ripe.	Unripe.	Ripe.
Apricot	89·39	74·87	6·64	16·48	3·61	1·86
Peach	90·31	80·24	0·63	11·61	3·01	1·21
Cherries	88·28	74·85	1·12	18·12	2·44	1·12
Plums	74·87	71·10	17·71	24.81	1·26	1·11
Pears	86·28	83·88	6·45	11·52	3·80	2·19

Fruits are very varied in structure, and consequently in classification they receive a variety of names, the most prominent of which will come under the following arrangement:

I. Fruits formed from a single flower, with one or more carpels, either separate or combined:

A. INDEHISCENT PERICARP.

1. *Usually containing a single seed.*

Examples—Acorn, nut, walnut, cherry, plum.

2. *Containing two or more seeds.*

Examples—Gooseberry, gourd, grape, apple, medlar.

B. DEHISCENT PERICARPS.

Examples—Pæony, pea, cabbage, poppy, bellflower.

II. Fruits, multiple, or formed by the union of several flowers:

Examples—Fig, fir-cones, pine-apple, bread-fruit.

Our advanced forms of edible fruits may be viewed as being for the most part *derivatives* from far different and oftentimes flavourless or nauseous parents, thus—the apple from the wild crab, the plum from the common sloe; whilst probably peaches and nectarines are but advanced forms of some plums.

Many of our cultivated fruits have no analogy either in this or any other country, and hence they may be concluded as the changed offspring by selection. When, however, a favourite fruit is attained, there is no difficulty in propagating it even upon trees of the opposite nature; thus, by inserting a bud of the former into the latter, by *budding*, or by attaching a branch of the former to the latter; by *grafting* we perpetuate a favourite sort. Both budding and grafting are operations so well known that we need not in this place either describe the methods by which the operations may be performed, or the general physiology connected with the question. Still, a statement of some of the effects of the process may not be out of place, as indicating the true principles involved.

"By grafting," says Balfour (and we may say budding also) "all our good varieties of apples have been produced from the crab-apple." The seeds of the cultivated apples when sown produce plants which have a tendency to revert to the original sour crab. Grafted varieties can only be propagated by cutting. The influence exercised by the stock is very marked, and it is of great importance to select good stocks on which to graft slips. In this way the fruit is often much improved by a process of ennobling as it is called. The scion also seems in some cases to exercise a remarkable effect on the stock. Slips taken from varieties with variegated leaves grafted on non-variegated have caused the leaves of the latter to assume variegation, and the effect when once established has continued even after the slip was removed.

The effects of grafting are well seen in the case of the red laburnum when united to the yellow species. The red laburnum is a hybrid between the common yellow laburnum and *Cytisus purpureus*, or the purple laburnum; the branches

below the graft produce the ordinary yellow laburnum of large size, those above exhibit often small purple laburnum flowers, as well as reddish flowers intermediate between the two in size and colour. Occasionally the same cluster has some flowers yellow and some purplish.

These remarks are sufficient to show that the stock and the graft exert an influence on each other, and also that different species, nay, and often different genera may be grafted on the same stock, though still it may be asserted as a rule that different families of plants may not be so intermixed; thus, the apple may be grafted on the quince, or on the white thorn; but we shall try in vain to effect a union by grafting of the apple with the oak or the walnut. We should not omit to mention that in the case of fruits grafting hastens their fruiting powers, besides perpetuating a desired variety.

In the case of fruits there is no doubt but that differences in soil and climate exert a great influence upon their properties and the products derived from them; thus at home we find that the same sorts of apples taken from a friend's orchard will differ in every essential particular; and so even neighbouring orchards will make a different sort and quality of cider, and this quite apart from treatment. Again, the grape in different parts of the world produces very diverse wines. So, again, in medicinal or food products, we know that they vary from the same causes, and even our ordinary cereal crops will in the same county be richer in feeding properties in one year than in another. In all cases climate has the greatest influence, and hence we sometimes hear talk of acclimatisation as regards plants, but in as far as our own experience goes, it is easier to make an artificial climate suitable for tender plants as for less hardy animals; thus, the hot-house, green-house, drainage, and good cultivation, all are ameliorators of climate; but as yet we know of no process that will enable us to harden tropical plants so as to enable them to withstand northern rigour unless they possessed the capability before.

It is interesting to find that, in this respect, the same law affects both animals and plants, and in both we find that true acclimatisation fails. Thus, though the Italian greyhound is bred in Britain, the offspring, like the parents, must be provided with jackets against the cold; and in our zoological gardens houses for tropical animals are obliged to be kept warm in summer. So it is with plants. When Cobbett would persuade his countrymen to grow maize or Indian corn, he probably knew that North America and

Canada possessed a colder winter than England, but he overlooked the uncertainty of our summer climate, the difference often experienced between night and day, and the fact that June is not uncommonly colder than May. The growth, then of maize is possible with us in sheltered situations, when these effects are reduced to a minimum, or, from the same causes, in rare and exceptional seasons; but this not because we have induced a hardened sort, but because the induced or natural climate were suitable. The summer climate of North America being both hotter and more equable than our own; but the falling of the night temperature, producing even frost, in England, in the middle of summer, interferes with fecundation by killing the ends of the long delicate tassels of the pistil-flowers, so that thorough fecundation is impossible, the result of which is, that instead of cobs of corn regularly impacted with perfect seeds, only a small per-centage of seeds become fecundated, and the produce is thus rendered small and uncertain.

Again, in cultivation, the good farmer will find it profitable towards the end of his lease to grow the more delicate sorts of grain, which would be impossible with his land out of order; the reason being, not that we can acclimatise the finer white wheats, for example, but that we can completely change the climate by drainage, by well working the land, and by judicious manuring.

Thought and reflection, consequent upon extended observation, will teach us that acclimatisation, as commonly understood, is one of the vanities of our time. We know that societies have been established in different parts of the world, ostensibly to acclimatise animals and plants, but it is doubtful whether the real constitution of either plant or animal has, in any case, been altered; for though it is quite true that sundry plants which have been first grown as greenhouse specimens have ultimately been found to succeed in the open air, yet in all such cases it may be concluded that it was before capable of withstanding a wider range of temperature. The *Aucuba japonica* was with us at first grown in the hothouse; it is now a common shrubbery plant, but it was before capable of withstanding our British climate. Potatoes, Dahlias, and Pelargoniums, are common examples of exotics doing well in our summer temperature, would yet die if exposed all winter. These examples are, however, appealed to as evidences of acclimatisation; and arguments derived from them are employed to forward the views of theorists. The philosophical botanist or zoologist soon comprehends the true meaning of such pretensions.

ON THE LAWS OF WARRANTY.

By D. B. Howell, Reading.

As the question of the proper education of the veterinary surgeon is placed in the hands of men well qualified to discuss the matter in its various phases, I beg to call the attention of the profession to a subject not only affecting the pupil in his studies, but also the practitioner in his practice, viz. "the law of warranty." At the Congress held in London in 1867, the late Mr. W. Litt read an admirable paper on the subject, the merits of which were well discussed immediately afterwards, and a committee proposed to be formed; yet at the time nothing was done, and the proposition still remains unfulfilled; as Mr. Litt has passed from things temporal to things eternal, I, without further preface, re-open the subject, as one not only interesting to veterinary surgeons in particular, but to every person possessing a horse. The old saying that every statute law is sufficiently wide to drive a coach and six through is certainly applicable to the law before us, because if it be correct in its various clauses, why is it the different judges decide in almost opposite opinions? Doctors differ, veterinarians differ, and, as a necessity, lawyers must. Why is it that we seldom or never see a horse case reported without the remark, "with the usual amount of hard swearing on both sides," or words to the same effect? Whether the phrase may be considered only a portion of the stock-in-trade of a reporter or the real truth, I leave to others to decide, yet until this is altered we shall never be respected as a profession; although for my own part I have a better opinion of the members as a body, than to think this hard swearing arises from an inclination, to use a mild term, to favour their own clients, but rather from really not knowing what is legal and what non-legal, as in the absence of such knowledge each practitioner adopts his own notions, be they right or wrong, in addition to which the majority of the great horse cases are tried in London, before a jury mostly or wholly composed of men whose real knowledge of horses does not extend beyond seeing them work in cabs or omnibuses. Shrewd barristers soon see what material composes the jury, and mixing up legal terms with high sounding veterinary ones, and the usual appeal to their understanding as men of sense, drive out what little knowledge they possessed, and each party using the same tactics to make black appear

white, so confuses the jury that the verdict in most cases is returned contrary to the evidence, and the unfortunate veterinary surgeons, at the least on the loser's side are credited with not telling the truth. A bill introduced to Parliament to simplify the law would, no doubt, meet with strong opposition from the legal members, as horse cases being invariably undertaken by men of means, afford ample scope for the exercise of their professional talent in lessening the contents of their clients' pockets. What with the repositories now opened throughout the country, where horses change owners in vast numbers, it behoves the profession to be well up to the tricks of the trade, some of which closely border on swindling, such as "setting a piper," "bishoping," &c.; and while some establishments ignore warranties altogether, others warrant nearly all the horses they sell, the vendors, probably in many cases, running the chance of having them returned, as they discover that to warrant increases the price. As on this point the law seems very clear—that is, so far as regards vexatious litigation, I beg to introduce an extract from 'Roscoe's Digest of the Law of Evidence on the Trial of Actions at Nisi Prius:'—"When a horse is sold by private sale at a repository for the sale of horses, where the terms of the sales are painted upon a board fixed up in a conspicuous situation, a purchaser must be taken to be cognizant of those terms, though nothing is said respecting them at the time of sale; and if one of the terms is that the horse being found to be unsound must be returned within twenty-four hours, *it must be complied with, though the unsoundness is of such a nature as may not be discovered within that time.*"

If all the dealers were to combine, and have such a tablet erected in their yards or places of sale, and sell and buy (the latter equally as important as the former) only according to those conditions, it would soon be acknowledged as the custom of the trade; and as the vendee has in his favour, under the present law, about ten chances to annul his bargain to one of the vendor, in compelling him to adhere to it, the buyer would then trust less to his own judgment at the time of purchase, but would rather call in a veterinary surgeon to give his opinion previous to the completion of such purchase, thus at the same time increasing our social position and our incomes, and avoiding litigation, which is prejudicial to every one engaged excepting the lawyers.

Roscoe says, "In selling a horse the word 'warranty' is not essential, but there may be a mere representation or opinion of the seller, without any intention on either side to

give or require a warranty, but generally, however, a representation made at the sale is part of the contract, and equivalent to a warranty."

In *Salmon* v. *Ward* the plaintiff wrote to the defendant, "You will remember that you warranted a horse as a five-year old," &c.; to which the defendant answered, "The horse is as I represented it." It was ruled that this was evidence of a warranty at the time of sale. In *Wood* v. *Smith*, where the seller said, "The horse is sound, to the best of my knowledge, but I will not warrant it;" yet at the same time knew it to be unsound; he was held answerable on this qualified warranty, viz. "that it was sound, to the best of his knowledge." In *Richardson* v. *Brown*, where the warranty was, "To be sold, a black gelding, five years old, has been constantly driven in the plough; warranted." This was held to be only a warranty of soundness. So in *Budd* v. *Fairmaner*, "Received of B. £10 for a grey four-year old colt, warranted sound," is not a warranty of age. In *Margetson* v. *Wright*, a general warranty of soundness was not deemed to extend to a manifest defect, to which the attention of the parties is called at the time of the bargain, and that a splint is not such a manifest defect. Under the head of "Breach of warranty," he says, "If the breach be denied, the plaintiff must give positive proof of unsoundness, &c., at the time of the sale. A suspicion that a horse was unsound is not sufficient.—*Eaves* v. *Dixon*. In *Kiddell* v. *Burnard*, the term "sound" in the case of a horse implies the absence of disease, or the seeds of disease, which impairs the natural usefulness of the animal. Does not this clause alone show the necessity of at once abolishing the statute in its entirety? Let men be as talented as they may, when it comes to the question of how long the seeds of a disease may exist before becoming manifest as a disease, there will always be conflicting opinions, especially when the case turns upon the state a horse was in when bought, perhaps months before being examined at all.

In *Elton* v. *Brogden*, Lord Ellenborough ruled that an infirmity, as a temporary lameness, which renders a horse less fit for present use or convenience, though not of a permanent nature, and though removed after action brought, is an unsoundness. In *Coates* v. *Stephens* a cough, though not permanent, is an unsoundness. Yet in *Garment* v. *Barrs*, Chief Justice Eyre ruled that a horse labouring under a temporary injury or hurt, is not an unsound horse.

Roaring is not necessarily unsoundness, unless symptom-

atic of disease, as in *Basset* v. *Collis*, but if it is of such a nature as to incommode a horse when pressed to his speed it is unsoundness—*Onslow* v. *Eames*.

Mere badness of shape (such as may produce cutting) though it may render the horse incapable of work, is not unsoundness — *Dickenson* v. *Follett*. But malformation, though congenital, may be an unsoundness, as a peculiarity in the eye which produces shortsightedness, and thereby a habit of shying—*Holiday* v. *Morgan*. A nerved horse is unsound—*Best* v. *Osborne*. Vice, as crib biting, is not tantamount to an unsoundness—*Scholefield* v. *Robb*. Whether thrushes, splints, or quidding, be unsoundness, is a disputed question—*Bassett* v. *Collis*. But a splint which produces lameness is an unsoundness, *even before the lameness is produced*—*Margetson* v. *Wright*. So a horse spavined—*Watson* v. *Denton*. Or chest foundered—*Atterbury* v. *Fairmaner*. Proof that a horse is a good drawer will not satisfy a warranty that he is a good drawer, and pulls quietly in harness—*Coltherd* v. *Puncheon*. From the foregoing we may conclude that our highest legal authorities do not in all cases properly demonstrate the law, or why does Chief Justice Eyre rule directly opposite to Lord Ellenborough? And, again, in *Dickenson* v. *Follett*, and *Margetson* v. *Wright*; therefore, I would remove at once the possibility of vexatious cases being commenced, as often occurs months after the animal was first purchased, by restricting the time in which he may be returned to five days, under any circumstances whatever; and, as the late Mr. Litt said, "ignore patent defects altogether, such as spavins, ringbones, sidebones, visual imperfections," &c.; for should the buyer not be himself sufficiently conversant with the various points to look to to discover such defects, he has always the opportunity of calling in a veterinary surgeon to protect his interests, and this latter he would undoubtedly do, if he understood, as in the law respecting repositories quoted above, viz., "that it *must be* returned within the time, though the unsoundness is of such a nature as may not be discovered within that time." There are, of course, many things little in themselves not observable to a buyer, yet easily recognisable to a professional eye, and which may be productive of irreparable mischief, to describe which the word "incipient" is used, and no doubt it is a very convenient word to introduce in a certificate when a valuable horse is presented for examination, and nothing definite can be found against him, yet the examiner fancies there must be a something, or else he would not have been brought for inspection.

There is another matter which I should like to mention before leaving the subject, and that is the great discrepancy between the certificates of men examining horses either the same day or the next. It has fallen to my lot to have to present several valuable horses for examination to the more eminent of the metropolitan practitioners, yet never in a single instance have I received unanimous opinions when three or four or more have examined the horse on the same day. One horse I had examined by five veterinarians on the same day. One condemned him as a slight whistler, nothing more; another as lame, with navicular disease of the near fore foot, nothing else; a third lame, with incipient bone spavin, nothing else; a fourth, a confirmed roarer; while the fifth passed him perfectly sound. I have not introduced this to throw discredit on the London men, because we never send a horse there until he has been seen by the locals, whose decisions vary quite as much as the others, but to show that if we find fault with lawyers they would with us, and, perhaps, with a good reason. I believe that in many cases the unsoundness exists in the mind of the purchaser, who, finding he has given too large a sum for the animal, and in hopes of recovering back a good proportion of the money, enters an action at law for some fancied defect in his bargain, and oftentimes knowing the vendor has a prejudice against law, fairly "bounces" him out of the sum he demands, when, perhaps, this individual horse was really what the seller represented him to be. Often a horse is "turned up" because the buyer's friends do not like him; and as every Englishman has his own particular notions about a horse's points, the value of the animal materially decreases in the estimation of the vendor, and especially when accidentally or otherwise the seller has omitted to fee the groom, who brings all his ignorance and cunning to bear in finding out *something* against him, Having extended these remarks to a greater extent than I at first intended, I will only add that the sooner a move is made in altering and carrying out the law of warranty, the better it will be for us, for breeders, dealers, and the country at large.

CURIOUS CASE OF TETANUS IN A COW, RESULTING FROM AN ACCUMULATION OF FOREIGN BODIES IN THE OMASUM.

By T. Newton, M.R.C.V.S.

On Feb. 9th I was called to see a roan cow, seven years old, which had calved her fifth calf a fortnight previously.

The symptoms were as follows:—Pulse 50, wildness of the eye, extremities warm, bowels obstinately constipated, and the jaws closely and firmly fixed. Treatment—an aperient draught, with counter-irritation to the spine.

10th.—Symptoms unchanged, and the aperient had not acted; therefore another drink was given at 7 a.m. with injections; at 7 p.m. the bowels had not acted, and a quart of cold-drawn linseed oil was administered, which acted during the night.

11th.—There was an improved appearance of the countenance, but no relaxation of the jaws. Pulse 45, bowels acting well; hydrocyanic acid was given without any perceptible effect.

12th.—No alteration for the better at 7 a.m.; hydrocyanic acid continued; at 8 p.m. the animal was much weaker.

13th.—The same treatment continued.

14th.—The animal now showed decided symptoms of sinking, and aconite was given instead of the acid.

15th.—Symptoms of sinking decidedly more marked; the same treatment was still continued, the bowels remaining regular.

16th.—On this day the case was deemed hopeless, and the animal was destroyed.

Post-mortem Examination.—On the left side of the cardiac orifice of the stomach was a pouch of similar structure and size to the manifold. This pouch was found to contain a quantity of sand, small stones, buttons, and pins, to the extent of two pounds in weight. The stomach and adjacent parts were in a state of congestion, and the manifold was completely empty. The digestive stomach and all the other viscera were in a healthy state.

TREATMENT OF LAMINITIS.

By J. Vickers Blake.

The treatment of laminitis upon Mr. Broad's principle I have found most successful. I have seen five cases where his plan was carried out thoroughly, all of which recovered with great rapidity, and no deformity of the feet ensued. I treated two cases without putting shoes on; both animals recovered, and in six days returned to their work, which they continued to perform.

[We understood that the *heavy shoes* are an absolutely essential, if not principal, part of Mr. Broad's system.—Eds.]

Pathological Contributions.

THE CATTLE PLAGUE.

This disease still lurks in Lower Austria, which would seem to prove that the outbreak has been more severe than was at first admitted. Transylvania is said again to be free; but Hungary remains infected to a very considerable extent. The disease also prevails extensively in Roumania. The Prussian Reichstag has passed a law consolidating the various regulations of the different states forming the North German Confederation, to enable uniform and concentrated action to be promptly taken in the event of the disease being introduced from any of the surrounding countries. The want of a measure of this kind is said to have been the cause of the disease not being more quickly exterminated from Rhenish Bavaria in 1867. Slaughter and compensation are the leading provisions of the Act; but in no case will compensation be granted should an animal succumb to the disease within ten days of its introduction into the country.

PLEURO-PNEUMONIA.

Pleuro-pneumonia still continues to spread in the London dairies. It also prevails to a serious extent in many parts of

the country, and, with few exceptions, its virulence is unabated. Nothing short of stern legislation on the subject, which, practically, will have the effect of isolating animals, can arrest the disease and save the country from continued loss from this fatal malady. The time has fortunately arrived in which we can see the end of the supineness which has marked our dealings with this insidious foe during the long period of its existence here. The visitation of the cattle plague has taught us how rightly to deal with infectious diseases, and especially with such a one as pleuro-pneumonia. It is this knowledge which is now being turned to good account.

SMALL-POX OF SHEEP.

It will be seen by the Parliamentary intelligence published in another part of our Journal, that the small-pox of sheep has again been brought into the country; but fortunately, owing to the vigilance which was exercised by the authorities, the diseased animals were at once detected, and every precaution was taken to prevent the spread of the malady. Indeed, the disease was stamped out almost as soon as it was introduced. Every one of the diseased sheep was killed and buried at the place of arrival, and all the animals which had been exposed to infection were slaughtered and the carcasses examined prior to being sent direct to the meat market. Their skins and all the pens and places which the animals had occupied were likewise cleansed and disinfected. The sheep were of the Saxony-merino breed, and had travelled by rail to Antwerp, where a moiety of them, 219, was shipped by the "Maas" to London, the others being sent by the "Harwich" to Harwich. Both lots belonged to the same exporter, and both were found to be diseased. In the one lot, two of the sheep were in the papular stage, and one was found in which the crusts had fallen. In the other three or four the animals exhibited different stages of the disease.

Besides the infected and diseased animals the "Maas" had on board 1596 sheep, and the "Harwich" 132, and also 218 pigs. It will thus be seen that the amount of risk was very great; and much credit is due to the government for the promptness and decision with which it acted in the matter.

HOG CHOLERA.

The disease thus designated in America appears to be on the increase in the districts around New York. Very recently the affection manifested itself in a large drove while *in transitu* from Buffalo; and before steps could be taken by the authorities several of the animals had been disposed of alive, and many others of the herd were found to be suffering from the disease on a special examination being made.

Hog cholera is allied to typhus of pigs, which disease was ably treated upon by Dr. Budd in his lecture delivered a year or two since at the rooms of the Royal Agricultural Society, and published in our Journal at the time.

The readers of the *Veterinarian* in America, of which we know there are several, will do good service to pathology by sending us a description of hog cholera, especially a full account of the symptoms of the disease and the lesions which are observed in a *post-mortem* examination.

PARTURIENT APOPLEXY.

Mr. Samuel Newman, M.R.C.V.S., Havant, Hants, writes as follows:—"I have read with interest from year to year the several cases recorded in the *Veterinarian* by my brother practitioners of the above fatal disease, and confess to have felt quite envious at the great success they have met with in the treatment of it. I am only favoured with a small practice, but still have seen a great many cases during the twelve years I have been here. Since the first of this month (April) I have had six cases, and have tried every mode of treatment recommended, but five out of the six animals died. I have come to the conclusion that the members of our profession who favour us with their experience in the *Veterinarian* do not record their unsuccessful cases, or, if otherwise, we get a worse form of the disease here than in many other counties.

A NOVEL APPLICATION OF DRY EARTH.

The *Lancet* says that, from a communication to the *New York Evening Post*, we learn "that at the time of the introduction of an earth-closet into the surgical ward of the Pennsylvania Hospital for trial, there was a patient present suffering from a severe compound fracture of the leg, the wound of

which was in a very unhealthy condition, discharging profusely, and producing an offensive smell, which was not wholly obviated by free ventilation of the ward, and the use of disinfectants. It occurred to Dr. Hewson to try the deodorising and absorbent effects of dry earth. The results are said to have been extremely good; the smell was entirely removed, and the wound itself assumed a far more favorable aspect. The idea seems a plausible one; but we give the account for what it is worth. It serves to illustrate, if true, one of the marked features of the dry-earth system—viz., the power to arrest offensive odours by the direct application of dry earth to their source, instead of acting on the whole volume of vitiated air by means of aërial disinfectants."

Facts and Observations.

Influence of Pneumogastric Nerves on Respiration.—A paper by Herr Voit and Rauber appears in the report of the Academy of Sciences of Munich. It has been concluded from previous experiments of other physiologists that the amount of carbonic acid exhaled after section of the nerve is the same as that before. Herr Voit and Dr. Rauber find now that this is true only for the first few hours after the operation. At a later period, when the tissue of the lung has begun to undergo a change, the quantity of carbonic acid diminishes rapidly, and that of oxygen is increased.—*Popular Science Review.*

The Pacinian Corpuscles.—The structure of these bodies has been studied by Professor Ciaccio, who has just published a long and admirably illustrated memoir upon it. The conclusions arrived at are chiefly as to the relation of the nerve to the club-shaped centre. This relation is one, according to the author, of continuity. He does not admit the existence of either a loop or a coil.—*Ibid.*

Animal Life in Water at Great Pressure.—In proof of Dr. Carpenter's idea that the pressure of water has little effect on the vitality of animals, M. Deville has at his laboratory an apparatus erected by M. Cailletet, in which fishes are living under a pressure of 400 atmospheres, proving that the greatest depths of the ocean may be habitable.—*Ibid.*

The Horse in pre-Historic Times.—In his paper this year communicated to the Royal Society on the fossil equine remains of the Cave of Bruniquel, Professor Owen tates that the sum of the several comparisons was to refer

the equine fossils from sedimentary deposits, and both varieties from the Bruniquel cave, to one and the same species or well-marked race belonging to the true horses, or restricted *Equus* of modern mammalogists; the individuals of which race, with a small range of size, probably due to sex, were less than the average-sized horse of the present period, but larger than the existing striped or unstriped species of *Asinus*.—*Ibid.*

South American Oxen.—At a very recent meeting of the French Academy of Sciences, M. de Quatrefages presented a memoir written by M. Sanson on a peculiar group of oxen found in South America. The cranium of this supposed new family has been examined, and various naturalists who have seen it have regarded it as a monstrosity. But M. Sanson says that if it is a monstrosity it is capable of perpetuating itself, since it is represented in South America by large flocks of cattle. In Mexico it is particularly abundant, and, thanks to a correspondent in that country, M. Sanson has obtained photographs of the new species.—*Comptes-Rendus*, March 8.

Paris Milk and Water.—The Paris *Constitutionnel* states that the consumption of milk in Paris is 500,000 litres per diem, at the price of 25 centimes the litre, to which 50,000 litres of water are added, bringing the depredations in this article to the sum of 4,500,000 per annum. The dairy proprietor, the milk merchant, the collector, and the retail milk seller, all add their quota of water. The price, 25 centimes per litre, less than 2½d. per quart, is, in fact, not remunerative, and hence the constancy of the fraud. Chemical experts cannot prevent it, for there is no normal standard of the quality of milk; nor can such exist, since its density varies from numerous causes acting on the animal, such as food, localities, time of milking, the mode in which this is done, &c.—*Medical Times*.

Starvation of Animals through Drought.—Shocking accounts (says the *Melbourne Argus*) come from the interior as to the state of affairs produced by the long drought. In a Wagga Wagga paper we read that "in almost every direction the roads are swarmed with flocks of wretched animals, mere bags of bones, seeking in vain for a mouthful of something—anything—to eat. A flock belonging to Mr. Morron, of Grubbengong, had been driven to Bland's Creek, and were brought back to Grubbengong, with a loss of 1300 from starvation and thirst; 500 were lost at one fell swoop by rushing pell-mell, in the agonies of thirst, into a waterhole, and smothering themselves in the mud."—*Standard*.

THE VETERINARIAN, MAY 1, 1869.

Ne quid falsi dicere audeat, ne quid veri non audeat.—CICERO.

THE PUBLICATION OF REPORTS OF THE PROCEEDINGS OF COUNCIL OF THE ROYAL COLLEGE OF VETERINARY SURGEONS.

PEOPLE like to know what their representatives are doing, whether in the council chamber of the nation or in the more restricted area of the meeting room belonging to a corporation, and they are quite right to want to know who is active and who passive, who speaks and who remains silent.

Mr. Hunt, of Birmingham, spoke strongly at the last quarterly meeting of council on behalf of those members of the profession who are located at a distance from the metropolis, and who can only know anything of the proceedings of council from the reports which appear from time to time in our pages—reports which Mr. Hunt described as meagre in the extreme; not more so, he admitted, recently than they formerly were, but always inadequate to meet the wishes of those who are anxiously waiting to learn what has been done for the advancement of the profession, and what account its delegates have to give of themselves. During the discussion of the subject there was a general expression of opinion that the published reports of proceedings were in effect neither reports nor minutes; that there never had been any satisfactory reports sent forth; and that it was time to take steps to insure for the future the publication of a record of the meetings of the representatives of the profession sufficiently comprehensive in details to convey to members the information which they have sought in vain in the reports of council proceedings, as they have hitherto appeared in the veterinary periodicals.

We have nothing to urge against the principle which is thus asserted, nothing to oppose to the course which was adopted in order to carry the principle into effect forth-

with. On the contrary, we are content to receive for publication the most elaborate reports which the committee of revision may think fit to send us; convinced, as we are, that nothing which is really important in the observations of members of council should be withheld.

There are, however, two sides to this as to every other question, and recent events remind us of a source of danger even in the seemingly indifferent proceeding of extending the reports of discussions which take place at the Royal College of Veterinary Surgeons some five or six times a year. It has happened on several occasions during a debate that a member has spoken in strong terms of the defects of some system, alluding to no particular individual, and possibly not thinking of any. The bolt, shot at a venture, has more than once hit those for whom it was not intended, and the result has been personal complaints and explanations, all in an amicable and pleasant way, as must of necessity be the case among gentlemen collected together in one room, and combined for a common object, but nevertheless not of a kind to promote freedom of discussion, or to foster personal friendships.

Perhaps the members of the veterinary profession are not more apt to take offence than other persons, but whether they are or are not, there is this great difference in circumstances which affect them, and those which relate to other constituencies. Professional questions like those discussed at the council meetings of the College have an interest, often a keen one, for every member of the body corporate, while questions of public interest are commonly questions about which the public does not concern itself the least, and in reference to which anybody may be severe or funny or even dreary without exciting the ire of the public; such is not the case with the subjects on which the council of the College has to deliberate. We can quite understand that Mr. Hunt expressed the feeling of the profession exactly when he said it was difficult for him to convey an idea of the amount of anxiety manifested by veterinary surgeons in the country to peruse the reports published, in order that they might see who spoke for the good and who

for the evil of the profession. This is all very well, but it must be understood that good and evil are sometimes convertible terms. What the utterer meant for sweet may be bitter to the taste of his hearers; and if we are to judge from what has transpired at several council meetings, and notably at the last quarterly meeting of council, the report of which is published in the present number, there is at least a possibility of good intentions being misconstrued. There may be, perhaps there is, a little healthy excitement to be got out of a brief, if warm, discussion upon the exact amount of personality concealed in language which may be admittedly parliamentary; but, in plain terms, the tendency of all such friendly contests is to make men enemies, and to most persons that contingency is suggestive of discomfort.

As we advance in life, remarks a thoughtful writer of the present day, one must be sparing of one's emotions; and if it comes to be apprehended by members of council that their little oratorical efforts are to be critically analysed for evidence against them, and their well intentioned zeal for the good of the whole to be interpreted to mean deliberate condemnation, we prophesy that sober-minded men having no political ambition to gratify, and unstimulated by prospects of official aggrandisement, will decline the contest, from which they can only expect to gain those distinctions proverbially awarded to the members of the family quadrumana; distinctions which are tersely, and not without some amount of contemptuous satire, conveyed in the terms "more kicks than halfpence."

To speak without hidden meaning, if members of council find that their honestly outspoken opinions involve them in contests with their professional friends, they are likely to seek refuge in a practical exemplification of the adage "silence is golden."

It is of the last importance that every member of council should utter his views frankly and honestly; he can only do this when he feels assured that in relation to every member of his profession he may speak "without fear and without reproach."

Reviews.

Quid sit pulchrum, quid turpe, quid utile, quid non.—Hor.

Chemistry for Students. By Alexander W. Williamson, F.R.S., Professor of Chemistry in University College, London, &c. New edition. Oxford, at the Clarendon Press. 1868.

This work contains a clear, concise, and systematic account of many of the facts and fundamental principles of chemistry, so arranged and so treated as to enable the diligent student to become possessed of such a knowledge of the science as will enable him to rely on it as a sound basis for more extended acquirements.

Dr. Williamson, like some other authors, has adopted a method of exposition which differs from that usually employed by chemical writers; "for I," says he in his preface, "describe and compare individual facts, so as to lead the mind of the reader towards general principles, instead of stating the general principles first, and then proceeding to illustrate them by details." This mode of treating a scientific subject like chemistry, which owes its advancement mainly to the inductive mode of investigation, is the natural, rational, and safest method of exposition, and any work which, like Dr. Williamson's, successfully carries this principle into practice, can confidently be commended to the notice of all persons desirous of becoming acquainted with the facts of chemistry and their applications, as well as with the kind of reasoning upon which the theories of chemists have been established.

We might take objection to some parts of Dr. Williamson's work; for example, investing hypothesis with the character of fact. In speaking of atoms, the existence of which are denied by mathematicians, and only *assumed* for convenience by chemists, he says, "but in no case has any of them been broken up into smaller particles, nor built up from smaller ones." Thus the reader would be led to regard atoms, not as what they really are, *mental conceptions*, but as physical entities whose existence is capable of experimental demonstration, thus fail to draw the distinction between theory and fact, and to appreciate their relative importance, and to benefit by the assistance which such an acquisition renders

as a mental exercise. Notwithstanding this and other defects of but small magnitude, we believe that Dr. Williamson's compact little manual will be read with pleasure and profit by chemical students of all classes.

An Introduction to Scientific Chemistry, &c. By F. S. Barff, M.A., Assistant to Dr. Williamson, Professor of Chemistry in University College, London. London: Groombridge and Sons.

Mr. Barff has endeavoured to make, and what is more, has succeded in making, his excellent little book an introduction to the work by Professor Williamson that forms the subject of the preceding review.

The non-metallic elements are alone systematically treated; some of the metals and their compounds are incidentally described, and no reference is made to organic chemistry. The work is divided into two parts; in Part I no symbols are used, and no principles are elucidated, but the attention of the reader is directed solely to facts. In Part II, theo retical considerations are introduced, *i. e.* after it is supposed that the reader has possessed himself of a knowledge of the facts upon which those considerations are founded. This plan, which is an exceedingly good one, can be successfully carried out in a book, but it is not so easy of accomplishment, or so desirable in oral teaching.

We cannot conclude without adverting to the admirable chapter entitled "Advice to Candidates under Examination." The remarks and directions given in this chapter are so sensible, substantial, and so good, that we hope to quote pretty freely from them on a future occasion, for the benefit of those of our readers who have to prepare for, and we trust pass, the ordeal through which they have to pass at our schools, and at the Royal College of Veterinary Surgeons.

Mr. Barff's book contains many illustrations, but we regret to say that these important auxiliaries to learning are not so well executed as they might be in an age like the present, when wood engraving has arrived at such a very high pitch of excellence. We moreover trust that in the event of a second edition being called for, Mr. Barff will remedy the defect to which we have just alluded.

A Dictionary of Materia Medica and Therapeutics. By ADOLPHE WAHLTUCH, M.D., L.R.C.P. Lond., &c. London: John Churchill and Sons.

THE medicines described in this work are, of course, arranged in alphabetical order. They are arranged according to their Latin names. Underneath the Latin name of a remedy is placed its synonyms in the same language, then follows the commonly used English title and its synonyms, and finally the French, Italian, German, and Russian names. The character, however, which renders Dr. Wahltuch's dictionary unique is that the information is arranged in five columns for convenience and facility of reference; each column bears a heading indicative of the kind of information to be found within it. The first column is headed "Name and Synonyms;" the second, "Character and Properties, or Composition;" the third, "Physiological Effects and Therapeutics;" the fourth, "Dose and Form;" the fifth, "Preparations;" and the sixth, "Prescriptions." Thus the information required can be gathered at a glance, and as it is highly though ably and judiciously condensed, the work will no doubt be regarded with especial favour by practitioners.

Dr. Wahltuch's dictionary has been written for the practitioner of human medicine, but the character of the book is such that we can safely recommend it as a valuable addition to the library of the veterinary surgeon.

Horse and Man.—By C. S. MARCH PHILLIPS. London: Longmans, Green, & Co. 1869.

MR. PHILLIPS does not address his instructions in the equestrian art to the "Centaurs" of the period; on the contrary, he confesses, in his preface, that while many accomplished horsemen know more of good riding than he does, few can excel him in the knowledge of bad riding; and with all men who are ignorant of the manner of maintaining themselves on horseback with comfort, to say nothing of grace, he at once establishes himself on delightfully sympathetic terms, by admitting that in middle life he was one of them in ignorance; and he goes on to say, for the encouragement of the aspirant to the honours of the *manège*—

"Circumstances induced me, when in the prime of life, to take pains enough to become a fair mechanical horseman,

and the difficulties of the achievement are therefore fresh and vivid in my memory. The method which I have found most effectual for the purpose is a simple adaptation of the system which M. Baucher applies to the education of the horse. In other words, it consists in learning one thing at a time.

"This method I have taken the present opportunity briefly to explain. It is, I need scarcely remark, exclusively intended for the use of inexperienced horsemen. It cannot change a good rider into a first-rate one; but I believe that, if perseveringly and intelligently practised, it will enable a bad rider to become a tolerable one."

This is cheering news, and may well tempt the retired and occasionally *ennuyee* citizen to make the *essaí*.

The author disclaims all pretention to originality; the principles which he advocates are those which M. Baucher propounded five and thirty years ago, divested of all embellishment, and presented in their real practical simplicity.

At the outset the statements of some high authorities as to the possible acquirement of the equestrian art are controverted. At page 1 we find the following:

"The once celebrated Nimrod pronounces that no man whose thighs are round, or whose calves are large, can ever ride well; and a far better judge, the clever writer who signs himself 'Harry Hieover,' has indorsed the vulgar opinion that no man can become a horseman who has not been used to riding from his childhood. It is quite time that these prejudices, so derogatory to the science of equestrianism, and to the spirit and intelligence of pedestrian Englishmen, should be resolutely protested against."

Notwithstanding we incline to the opinion that in the sense in which they used the word "horseman," both Nimrod and Harry Hieover are right in their conclusions.

Pursuing the same line of argument the author continues at page 3:

"What will be the consequence if a grown man can be shown how to use not only his limbs and muscles, but his reason and memory for the purpose? I answer that in a month he will possess as perfect a seat as his natural aptitude for riding would have permitted him to acquire if he had passed his whole life in the saddle."

We take this reply as the natural expression of a man who has succeeded himself in reaping the full benefit of the system which he advocates, rather than as a truly prophetic enunciation of general results. Mr. Phillips has a perfect right to his own view of the matter. We are for the "natural aptitude," and the "whole life in the saddle," against all

the systems in the world; but as to the method of learning, the author continues—

"How, it may be asked, is this to be done? I answer, simply by attending to one thing at a time. You want to learn how to sit a horse. Very good; then put aside for the present all anxiety about managing and guiding him. Your present business is, wherever he may go, and whatever he may do, to continue steady upon his back. Therefore leave it to some one else to take care that he goes where he ought, and does nothing which he ought not. You are at present in the situation of a landsman going to sea, and must not think about steering until you have got your sea legs."

The practical value of these directions no one can question. In the same terse manner the writer inducts the pupil into the mysteries of the "seat," "the hand," "the legs," "the nerves," "breaking the horse," and "finishing."

Criticism upon style in regard to a work of this kin dis perhaps uncalled for, but it is impossible not to notice the entire absence of "fine writing" throughout the work. The author seems to have been more concerned about the exact thing to be said than about the best way of saying it, and in consequence has said, or written, what he intends, in the most precise and intelligible manner: witness the concluding lines of the book.

"Do not be in haste to condemn your horse for final impenitence. There are very few horses which cannot be properly suppled, still fewer which will not be greatly and manifestly improved by even an imperfect attempt to supple them. If you find that you are making no progress, it is twenty to one that the fault is your own. Try every possible combination before you give up. Remember that every lesson carefully and patiently given will improve you in teaching, if it does not improve your pupil in learning. Above all, never give up in a pet. So long as you feel mortified and dissatisfied at your failure, this is a sure proof that your failure was avoidable and is reparable.

"When you are complacently conscious of having done your own work cleverly and well, then lay the blame on your horse if you choose to do so."

How to acquire the art and mystery of this "suppling," the amateur will find plainly described in the book, from the perusal of which he will gain amusement as well as instruction, and useful discipline in attempting to reduce its principles to practice.

Extracts from British and Foreign Journals.

THE NEW MEDICAL APPOINTMENTS AT THE PRIVY COUNCIL OFFICE.

We are very glad to learn that the new arrangements in the Medical Department of the Privy Council are now complete, and that Dr. Buchanan and Mr. J. Netten Radcliffe have been definitely appointed "sanitary inspectors," and are to be charged with the execution of all sanitary inquiries which Mr. Simon may think fit to direct. This kind of work has hitherto been executed in a fragmentary manner by various gentlemen whom the Medical Officer of the Privy Council was able to secure at the moment when any special inquiry became necessary; and it is obvious that, however ably the work may have been done—and in many cases it has been very ably done—the method of working was full of disadvantages. The post of sanitary inspector assuredly ought to be a permanent one, in order that the person holding it may gain that experience which only long familiarity with the work can give him.

On the merits of the two gentlemen now appointed, and who are, we suppose, to be regarded as the successors at some future time to the chair which Mr. Simon so ably fills, it is really unnecessary to say a word. The profession will unanimously agree that two abler men, or better fitted both by personal character and special attainments for the work before them, could not have been found.—*Lancet.*

THE EDINBURGH CATTLE PLAGUE REPORTS AND THE UNITED STATES OF AMERICA.

Our readers doubtless remember the elaborate reports on rinderpest drawn up by Dr. Andrew Smart, acting under the instructions of the Lord Provost and magistrates of Edinburgh, and which were published in our columns at the time. The reports were characterised by earnest practical and experimental inquiry, and the conclusions arrived at by Dr. Smart were the result of a careful study of the disease as it appeared in this country. The subject of cattle plague or rinderpest has for some time been under discussion by the New York State Agricultural Society, with a view to gather

up information from all available sources for preventive purposes. It must be complimentary to Dr. Smart to find that his reports have been taken as the basis of the volume on rinderpest which that Society has just issued for public guidance, and in which he is spoken of as a leading authority with the highest respect.* While noticing most fully the reports of the Royal Commission and the Edinburgh Medical Committee, the researches of Professors Simonds and Gamgee, and other authorities, British and Continental, Dr. Smart's practical experiments and recommendations are the leading theme of the volume. The beautiful coloured illustrations which Dr. Smart appended to his reports are also reproduced most faithfully. It is not less complimentary to Edinburgh than to Dr. Smart to find that the action taken at the time by the magistrates resulted in a series of experiments and conclusions whose importance has been recognised in so conspicuous a manner.—*Medical Times.*

THE CHARLIER HORSE-SHOE.

In France they certainly manage some things better than we do in England. Our forte lies in letting matters take their course; the public in theory can guard its own interests, and every invention, whether it be intrinsically good or essentially worthless, has its day—the unfortunate thing in many instances being that a bad invention, well puffed, has a much better chance of success than a good one left to display its own merits. During the last few years we have had several novelties in horse shoes brought to our notice, all of them founding their claims to support upon the assumption that other methods are, in comparison, more or less pernicious in their influence upon the horse's foot. Each plan has a trial, and succeeds to admiration, or fails beyond all hope of recovery, according to the temper of the individual who tries it, the manner of the work, or the extent to which the interests of the workman are implicated in the result. We are a practical people, and do not trouble ourselves much about reasons; if a system answers our expectation, we do not lose faith in its value because we are told that it is unphilosophical in principle. Acting in this spirit, each person enjoys his own opinion, and has his favourite system of shoeing, saddling,

* "First and Second Reports of the Special Committee appointed by the Executive Board of the New York State Agricultural Society of the Statistics, Pathology, and Treatment of the Epizootic Disease known as the Rinderpest." Albany, United States of America.

bridling, feeding, and grooming his horse, quite unconcerned as to whether other people believe in his method or not.

At present the ideas about horse-shoeing are in a state of complete muddle. Authorities are to be found for the most contradictory assertions. It is stated, for instance, that the foot expands at the ground surface, and, on the contrary, that it contracts; that the frogs should touch the ground, and that they will not bear the least pressure; that shoes should be as light as possible, and as heavy as the horse can bear them; that the iron should be concave next the sole, and, in direct opposition, that the concavity should be at the ground surface; that the hoof should seldom be touched by knife or rasp, and that it should be well pared, to counteract the effects of excessive growth owing to the absence of natural wear. In short, we have contrived to get into a maze, and there is no central veterinary society to appoint a commission to show us the way out.

The Charlier system of shoeing having made some considerable noise in France, and having been somewhat extensively adopted by omnibus companies, it was important to decide, by reference to the results of experience, upon the merits and demerits of the plan; accordingly, the Imperial Veterinary Society in July, 1866, appointed a commission, consisting of MM. Leblanc, Bouley, Rossignol, Villate, Benjamin, Mathieu, Poncet, and subsequently M. Weber in place of one member deceased. These gentlemen commenced their labours with the conviction that the present system of horse-shoeing leaves much to be desired; that the shoes are generally too heavy, too thick, and altogether unnecessarily large. There are few workmen who possess, in the opinion of the commission, the requisite skill to apply shoes in such a manner as to preserve the integrity of the feet and firmness of the animal's action. The commission did not limit its observations to the horses of the General Omnibus Company, under the direction of M. Signol, who adopts what he calls the "Periplantar" system of shoeing, but also inspected those of the Western Railway Company, under the direction of M. Lemor, who, together with M. Signol, offered every aid to the members.

Respecting the Periplantar system of shoeing horses, the commission states that it is a modification of the method which M. Charlier introduced to the notice of the Imperial Society on August 10th, 1865, and of which he subsequently admitted the practical impossibility. The commission considers the deep channel which was to be cut round the outer edge of the crust of the hoof, to admit the *whole* thickness of

the shoe, to be the essential part of the original Charlier system. This is no longer practised to the full extent, the *rabbet* being commonly made only deep enough to take one third, or even less, of the thickness of the iron. Whenever the shoe is seen to be sunk to the level of the sole, it may be concluded that the result has been attained through the medium of several shoeings, the shoe being allowed, as it were, to make its own bed in the hoof by degrees. Contrary also to the description which has been given of the system, calkins, and also front or side clips, are sometimes employed; nor are frost nails entirely dispensed with. The commission considers that all these modifications of the original plan constitute so many rational improvements, and cause the Charlier system to approach in character the ordinary method of shoeing.

On August 2nd, 1866, the inquiry was commenced by a visit to one of the depôts of the General Omnibus Company, when several horses were examined. Afterwards, the commission inspected other horses belonging to the Western Railway Company, under the guidance of M. Lemor. In every case a record was made of the condition of the feet, time of shoeing, and soundness or unsoundness of action. The first animal,

No. V 653, was in the forge at the time of the visit. Had been shod for thirty days with the Charlier shoe on the fore feet only. The hoofs were very good, but too long; the frogs and soles of both feet were level with the shoes, which were quite worn out.

In another animal,

No. R 099, the fore feet were shod on the 5th of July. They are too long; frogs and soles are level with the shoe. M. Signol stated that this horse had contracted heels; they are now, however, much wider than they were when the first Periplantar shoe was applied several months ago. The shoes are quite worn out. The hind feet were shod on July 28th; the shoes are new, but so deeply let into the horn that, notwithstanding their recent application, the ground surface of the iron is on a level with the sole.

No. R 176. Shod before, only fifteen days ago. Feet admirably formed; sole and frog level with the shoe. The horse goes well, with remarkably good action.

Horse belonging to railway company, No. 2. Shoes of great thickness, let into the hoof at the heels only. No *trench* in the other part of the hoof. Each shoe is *clipped* at the toe.

M. Dupuis informed the commission that the farriers are

ordered not to cut the *rabbet* in the wall of the foot, except when the feet are very strong, and under no circumstances to cut it sufficiently deep to let in the whole thickness of the shoe. Not until the third or fourth shoeing is the shoe expected to be sunk to the level of the sole.

During their investigation the commission ascertained that comparatively few horses are shod with the Charlier shoe on the hind feet; and the General Omnibus Company found it impossible to employ the hind shoe, on account of the rapidity with which they were worn out in fast work.

The members of the commission met a second time on January 4th, 1868, and continued their inspections. Since the commencement of the inquiry in 1866 the system of shoeing the fore feet only on the Periplantar method appears to have been confirmed, as it was remarked that hardly any of the omnibus horses was shod behind with that shoe. The experience of the shoe during frost was generally favorable, and horses continued to work without accident, but it was found necessary to use frost nails in the hind shoes, which were of the ordinary kind. Upon this point the commission concludes that "during frost and snow, horses shod on this system slip less than with the ordinary French shoe; but the ordinary shoes with frost nails are incomparably more secure than the Charlier shoe without them."

Finally, the commission states that the Periplantar system as ordinarily practised, the shoe not being sunk to the level of the sole until the third or fourth shoeing, is tantamount to the removal of a certain portion of the unnecessary length of hoof. The system is most applicable to strong well-formed feet; applicable with difficulty to feet with low heels and small frogs; and quite inapplicable to feet which are deformed by disease. The shoe cannot be considered, any more than that in ordinary use, as a panacea for all the ills that horses' feet and legs are liable to.

In the concluding words of the report we find the expression of a strong conviction that there has been already qnite enough discussion of the matter; and a decided hint that for the future it would be better to leave those who are interested to find out whether or not the advantages of the Charlier system are of so positive a kind as to counterbalance the inconveniences which attend its employment.—*The Field.*

Analysis of Continental Journals.

By W. Ernes, M.R.C.V.S., London.

Le Journal de la Ferme publishes a case of cure of hydrophobia by Dr. Buisson, obtained on himself by means of vapour baths at a high temperature. Dr. Buisson was called to attend a female patient in the last stage of hydrophobia. After having bled her, he wiped his hands with a handkerchief on which there was some of the woman's saliva. He had a small wound on the index finger of the left hand, and on noticing this he became aware of his imprudence and danger, but confident in his recent discovery he contented himself by washing it with cold water.

Thinking, M. Buisson says, that the malady would not declare itself before the fortieth day, and having that day many patients to see, I put off from day to day to use my remedy, viz., vapour baths. On the ninth day, being in my study, I felt all of a sudden a pain in my throat, and a more severe one in my eyes. My body seemed so light that I felt as if I could jump to a great height, and that if I leaped out of the window I could have suspended myself in mid-air. My hair was so sensitive that without seeing it I could count every one of them. There was a constant flow of saliva from my mouth; the contact of the air caused me great suffering. I avoided looking at bright or polished things. I had a great inclination to run and bite; not human beings, but animals and everything about me. I could only drink with difficulty. I remarked that the sight of water was more painful to me than the pain in my throat. I believe that by shutting his eyes the hydrophobic patient would always be able to drink. The paroxysm came on about every five minutes; I felt it first in the index finger, from which it extended along the course of the nerves to the shoulder.

Thinking that my remedy was only preventive, I took a vapour bath, not with view of a cure, but with the intention of suffocating myself. But when the bath had reached fifty-two centigrades, all the symptoms disappeared as if by enchantment, and I have not felt anything since. I have since treated by the same means more than forty persons bitten by rabid animals, and all have been preserved from the consequences.

When a person has been bitten by a mad dog, he ought to take seven vapour baths, one *per diem à la Russe,* from sixty-three to sixty-seven centigrades, that is, the preservative

remedy, when the malady is declared one will suffice from 57° to 62° C. The patient to be kept quiet in his room until the cure is completed.—*Journal Vétérinaire de Midi.*

HIPPOPHAGY.

In 1868, there were killed in Berlin 4044 horses, the meat of which was sold for food, the blood being used by dyers. In France, from the statement of M. Decroix at a banquet which took place at Troyes, it appears the consumption of horseflesh is at present only 165,000 kilogrammes per month, while the number of horses, mules, and asses available would furnish 55,000,000 of kilogrammes for alimentation.

The committee has, therefore, much to do. Horse butcheries have been established recently at Boulogne-sur-Seine, St. Denis, Troyes, Reims, and Marseilles.—*Ibid.*

ON THE OUTBREAK AND PROGRESS OF SHEEP-POX IN THE DISTRICT OF RUMMELSBURG AND STOLP, PRUSSIA, FROM 1854 TO 1868; WITH THE RESULTS OF THE INOCULATION SYSTEM, ITS ADVANTAGES AND DISADVANTAGES.

From a Report to the Government by M. Muller, District Veterinary Surgeon at Stolp.

In 1854, about six months after the author had been appointed to the district, sheep-pox broke out. It had not been known in the district in the recollection of the oldest proprietor, farmer, or shepherd; and as no one knew the malady, the fear and anxiety were very great as the disease spread with rapidity, and the losses among the sheep became very serious to the farmers whose principal revenue they formed. It first appeared amongst the flocks on the frontier of the district of Stolp and Bütow, from whence it spread to the district of Rummelsburg. Whether this was due to sheep brought from the infected districts, or to conveyance of the virus by other means, could not be ascertained. In the months of August and September, the malady had invaded nearly all the flocks of the district, and at the same time had penetrated into the districts of Neustettin, Furstenthum, and Schlawe.

From the rapidity with which the malady spread over the districts of Pomerania, it was feared that it would extend over a vast part of the country; this apprehension was

confirmed by the intelligence of its having reached the provinces of Old Prussia—Posen, Pomerania, and Brandenburg—and finally Saxony, where it became extinguished in the winter.

The rapid spreading of the malady in the district of Rummelsburg was a very strong proof of the volatile nature of the contagion, inasmuch that the number of sheep was not more than one third of the present number; besides the villages are from two to three English miles apart and separated by mountains, forests, heaths, and streams;* and, moreover, the commerce at that time was so trifling, and the roads so bad that they were almost impassable, and on that account but little frequented; the possibility of the malady having been so rapidly propagated by sheep or raw sheep's hides, &c., in the district in so short a time may therefore be doubted.

Applications were made on all sides for inoculation to be tried, and it was done as far as possible. In the space of from two to three months from forty to eighty thousand sheep were inoculated; the weather was at the time dry and moderately windy, but not too hot; the thermometer stood from 15°—20° R. These circumstances were not considered favorable for inoculation, but, as was afterwards observed, they were favorable to the spreading of the malady.

It was difficult to obtain a sufficient quantity of proper virus; and making a virtue of necessity, the author inoculated many whole flocks with the virus from the natural sheep-pox and with the blood of infected sheep, the animals being selected which had the disease in a mild form and were likely to recover. Afterwards he was enabled to obtain a sufficient quantity of the mitigated virus which he transmitted as far as the twentieth generation. But taking everything, weather, &c. &c., into consideration, he found no difference between the mitigated and the natural virus either in the mortality or the violence and rapidity of the malady. Many of his colleagues who applied to him for mitigated lymph were astonished when he told them that he had inoculated whole flocks from the natural pox and with the blood of infected sheep.

The propagation of the sheep-pox and the severity of the attack depend principally on the state of the weather, the sanitary condition of the sheds in which the sheep are kept (sheep in Germany are stabled during the night and in bad weather), the mode of introducing the lymph in inoculation, and the locality where the inoculation has been performed,

* The district of Rummersburg is hilly.

and moreover the healthy state of the flocks, and other circumstances.

The author inoculated flocks in which the malady had already broke out, to the number of some 10,500 head, without any fatal result in the different villages of the districts—Rummelsburg and Stolp—in all of which the malady prevailed more or less. It must be observed that the sheep were in good condition, and that all the hygienic measures recommended were strictly observed; the weather warm and dry, and the wind moderate. If we have to deal with a flock in which there are a few individuals already attacked, the best plan is to separate the affected from the healthy, and then inoculate a few of the strongest either with good lymph or, in default of it, with the blood of the affected sheep. By this the malady is in many cases cut short, or, at all events, checked, so that time is gained for this first inoculation to produce good lymph for further experiments.

When good virus is employed the disease is developed generally from the ninth to the eleventh day; but if the inoculation is made with bad lymph, either foul or mixed with pus, the period of development is irregular and the losses are very considerable. This was observed frequently in the district of Stolp, where inoculation had been performed by shepherds and other individuals.

The author relates the following case as an illustration:

On a farm where he had to inoculate a flock of about eight hundred sheep, he inoculated a few of the animals, but the weather being unfavorable, the operation was not so successful as to induce him to continue his experiments with the lymph thus obtained. On the thirteenth day the pustules were found to be filled with pus, with the exception of one, with the lymph taken from which the remainder of the flock were inoculated; meanwhile, a sheep proprietor from the neighbourhood called, for the purpose of obtaining lymph to inoculate his flock, and there and then took some of the sheep which were considered unfit for the purpose by the author. This proprietor inoculated forthwith his sheep with this purulent virus on the second day, and continued the inoculations, the inner surface of the thigh being the spot selected for the operation. The animals evinced at first great pain, became very lame, lost their appetite, and finally, out of 1000 sheep, 160 died; while of the 890 inoculated by the author, only 3 died. As the best place for the inoculation, the author selects the ear. When performed on the inside of the thigh, the under surface of the tail, on the bare part of the chest, there is a tendency to violent febrile reaction, great

local inflammation, lameness, difficulty in voiding of the dung, and a much greater mortality. The author has been informed by his professional colleagues of considerable swelling having occurred about the head when the ear had been selected; but he has never met with them in his own practice, but this might occur when the cartilage of the ear has become involved.

In 1867 the malady prevailed extensively, and only few flocks escaped, these being far removed from the main roads, between the mountains and in isolated valleys, but they caught it the following year, being infected, as it appeared, through the inoculation of the lambs of neighbouring flocks, so that none escaped the infection in the whole district. The losses were, in the month of August and September, in those flocks where the malady had broke out, and judicious inoculation had been resorted to, from 2 to 5 per cent.; while, where no inoculation was adopted, and the malady took its course, they were from 12 to 20 per cent. In November, when the weather was cold and frosty, the losses were still more considerable. In the latter part of the autumn (same year) the sheep-pox broke out in a flock of 2000; the sheep were in very good condition, but the malady had a firm hold of the flock before any information of it was given, and notwithstanding every precaution, such as separation, disinfection, and the establishment of a sanitarium, eight hundred of them fell a sacrifice to this frightful malady; the dead were removed by cartloads, and the stench was unbearable. The flock was one of the finest and best kept in the country; the wool, which always commanded a high price, was completely ruined; even those sheep which recovered had to be draughted, on account of the loss of the wool by the lesions on the skin caused by the pox. Since this it has been customary to inoculate the lambs, in September and October, in the whole district.

The losses by preventive inoculation are very small, and depend greatly on the way the patients are protected from the weather. They generally range from one fifth to one half per cent.

In 1859, the author was removed to the district of Stolp, where he was hardly installed when he was requested on all sides by the sheep owners to perform the protective inoculation of their flocks. The sanitary laws in reference to the sheep-pox only went back to the year 1853, previous to which it seems to have been unknown; at least, no record of it could be found in the governmental archives. But from these it appeared that in 1853-5 it prevailed in most

parts of the district, and that the losses consequent on it had been greater than in the district Rummelsburg, and, moreover, that the malady had since become enzootic, and caused every year considerable losses amongst the numerous flocks kept in close proximity. Besides, the public had a wrong notion of the malady, some were for, others against, the inoculation; others, again, amongst which a young nobleman, was very active, pretended to cure it by homœopathy. They asserted that the inoculation of lambs was detrimental to their growth, and that the losses from it were as great as those caused by the natural sheep-pox. In this they must have referred to unskilful operation undertaken in bad weather, and other unfavorable circumstances, &c. Those who had escaped this malady, fortunately or unfortunately, recommended their pretended preservatives to others who found to their cost that in their flocks they were worse than useless. Few followed the directions of professional veterinary surgeons; the author regrets to say the instructions given were sometimes from private motives contradictory in their character. Finally, all the flocks were inoculated, and many of the sheep proprietors had their lambs inoculated in the autumn. This plan, however, fell into desuetude, and inoculations were undertaken indifferently in summer, autumn, and winter, not always by veterinary surgeons, but frequently by shepherds, land stewards, and others, which caused the greatest confusion; statistics were no longer furnished by government veterinary surgeons at the expense of the state, as the authorities of Cöslin refused to pay the travelling expenses, and the police had no fund applicable for the purpose; it thus came to pass that the fresh outbreaks of sheep-pox were seldom reported to the district authority, and even sometimes concealed, so that no preventive measures were adopted. In reference to inoculation, the author considers it a great advance in veterinary science, and shows that great benefit has been derived from its employment more particularly as a prophylactic; but he does not hold with the yearly inoculation of the lambs at a time when the malady does not prevail, indeed he considers it dangerous in the highest degree. The question of the spontaneous origin of the sheep-pox has, owing to the different outbreaks in the district, often occurred to the mind, and it may be supposed it would be easily settled considering the rapid development of disease in the respective flocks (consisting of some 250,000 head in 1864), but this is not the case. If we bear in mind that the malady is of rare occurrence in the western provinces of the kingdom, and that every outbreak has been clearly traced to the introduction

of it from without, I appeal here to one of the most important productions of Professor Garlach ('Thierarztliche Praxis'), if we also bear in mind that this malady has not appeared in Silesia since 1810, notwithstanding the increasing number of sheep and flocks since that time, and that before 1853 it was unknown, though the number of sheep must have been considerable in the district, great doubts are thrown on the possibility of a spontaneous origin. Although the author says, "I have had for many years my eyes on this, for the sanitary police, most important object, I have never met with an instance that could possibly be considered as of spontaneous origin. On the contrary, in every case, when as practical veterinary surgeon I was consulted, I always found that infection was a much more probable cause than spontaneity of origin."

Finally, when the malady has firmly established itself in a district, no fair or well-grounded opinion could be formed. The author is persuaded that the spontaneous origin in Pomerania never occurs, that the malady is always imported from Prussia, and that the infection is kept up by the annual inoculation of the lambs, thus constantly renewing the contagion.

There are, however, some veterinary surgeons who not only hold the spontaneous origin of the sheep-pox in East Prussia for certain, but even assign as causes of its development the state in which the sheep of the small proprietors and the labouring classes are kept,* the condition of the soil, the manuring, mode of cultivation, &c. But the same would hold good for Pomerania, where all these conditions of small proprietors and labourers who have a number of sheep which are sent to pasture with other large flocks, as is the custom in East Prussia, obtain.

The summary of the author's conclusion is that in the districts of Rummelsburg and Stolp, the sheep-pox appears to have been unknown up to 1853, and that it now prevails in permanency in the latter districts as well as in East Prussia. That the malady is not of spontaneous origin in these districts. That its permanency is to be attributed to the injudicious annual inoculation of the lambs. That when the disease breaks out, inoculation of the whole flock is the best remedy. In the absence of proper lymph that from the natural pox or even the blood may be used with impunity for the purpose of inoculation; by this means the course of the malady is cut short. That the best place for the inoculation is the ear. That when the operation is properly performed,

* Almost every one owns a few sheep in the country.

the losses do not exceed 5 per cent. That the government measures are inefficient to prevent the spread of the disease. That in the western provinces of Prussia it is of rare occurrence, and in some it is almost unknown.

Under these circumstances care should be taken in the importation into England of sheep from those districts. In these railway times it is difficult to prevent the movement of infected animals, and great risk will be incurred unless the Prussian government adopts stringent preventive measures, not only in reference to diseased sheep, but also to raw hides, wool, &c.—*Magazin für die gesammte Thierheilkunde.*

ROYAL COLLEGE OF VETERINARY SURGEONS.

MEETING OF COUNCIL HELD APRIL 7TH, 1869.

PRESENT:—Principal Spooner, Professors Simonds, Brown, and Assistant-Professor Pritchard, Messrs. J. C. Broad, Ernes, Fleming, Gowing, Greaves, Harrison, Hunt, Hunting, Lawson, Moon, Robinson, Wilkinson, and the Secretary.

In the absence of the President,

It was moved by *Mr. Wilkinson*, and seconded by *Mr. Gowing*—

"That Professor Spooner take the chair."—Carried.

The minutes of the preceding meeting were read and confirmed.

Mr. Wilkinson said he did not know whether he was in order, but he wished to refer to a subject on the minutes, and connected with some observations made at the last meeting with reference to the capacity of the examiners.

The Chairman asked Mr. Wilkinson if he proposed to make any alteration in the minutes.

Mr. Wilkinson said he did not. The statement to which he referred was such an important one, that he thought it ought to be more clearly embodied in the minutes, but he would not press that. It was a matter that was, perhaps, more particularly personal to himself than to any other member of the Board of Examiners.

The Chairman observed it was too late for any observations to be made.

Professor Simonds wished that the discussion might be allowed to go on. He disapproved very much of the manner

in which the minutes were sent to the *Veterinarian* for publication.

The Chairman said that was a question which could not be discussed without notice. If the Council wished to hear what Mr. Wilkinson had to say before proceeding with the regular business of the meeting, well and good; but the question must be put on the agenda.

Mr. Wilkinson said—the statement which he wished to bring before the attention of the Council as having been made at the last meeting according to the way in which it had fallen upon his ear and upon the ear of the reporter was to this effect, that the examiners were inferior to their duty. Now, the Board of Examiners was composed of different classes. There were the most eminent of the medical world sitting upon the Board to whom the remark could not of course apply. There were other examiners selected on account of their practical ability who officiated in Scotland, and he did not think the remark could apply to them. Therefore it became confined to the few members of the Board who had the honour of sitting in that room to examine. Those members were six in number. Some of them were now present, and of course they could do what they pleased in this matter; but he felt himself in a very peculiar position. He was not only a member of this Board of Examiners, but also a member of a board which held examinations at Woolwich under the authority of the War Office. Now, if he was not fit to examine the pupils that were brought before this Board in London or in Edinburgh, he was not fit to examine the pupils at Woolwich. What made the assertion, or rather accusation, more remarkable was that the President and every member of the Council gave a tacit assent to it. That was what he felt most; and on this account, if he had not been over-persuaded by some of his friends, he should have felt it his duty to send in his resignation at once as a member of this Board. The examinations, however, were close at hand, and it would be, perhaps, rather an awkward thing to cease just at this period; but unless the Council would vindicate its own Board, which it had itself elected, by passing a resolution, or something of that sort, to show that it was satisfied, he did not see what any member of the Board could do otherwise than resign.

Professor Brown said he was as desirous as Mr. Wilkinson could possibly be to vindicate the position of the Board of Examiners, but he was decidedly impressed with the idea that Mr. Wilkinson's feeling arose from misapprehension in some measure. He believed the words used were "The examina-

tions are behind the teaching of the colleges." He understood that to mean that the examinations, as at present conducted, did not comprehend precisely the subjects, or did not go to the precise extent to which those subjects were taught at the colleges by the various professors; and so far from feeling aggrieved at this statement, he at once accepted it as an unquestionable truth, for the reason that, referring to his own experience as an examiner, he was quite aware that the examinations were not at all up to the level of the teaching. Presuming that any examiner were to examine up to the level of the teaching given at the colleges in the present day upon the subjects of chemistry and materia medica, for example, he had no doubt at all in his mind that nearly every pupil sent up would be rejected.

Mr. Lawson said he certainly had taken the very same view of the subject as Mr. Wilkinson, and thought it a personal affront to the present members of the Court of Examiners to be told that they were behind the teaching of the present day, and that they should be chosen from the teachers alone.

Mr. Ernes observed that he did not exactly know what Mr. Wilkinson had been driving at. In his (Mr. Ernes') suggestions he had given the greatest credit to the examiners, but he had stated that the great fault was in their not being allowed sufficient time.

Professor Simonds said he looked upon the published account of the proceedings of the Council as anything but a satisfactory description of what took place. He would go further than that, and say he thought the time had arrived when they should have a report drawn up by the Secretary, and submitted for revision to a sub-committee before it was sent to the periodicals for publication. The sub-committee should consist of the President and Treasurer, and one member of the Council. With regard to the subject alluded to by Mr. Wilkinson, he (Professor Simonds) had looked carefully through the report, and it did not appear that anything had gone out to the profession which would militate against the Board of Examiners or any one of its members. He was inclined to think that, although his friend had been exceedingly guarded in what he had said, he had made allusion to some statements which fell from him. Now, understanding that to be the case, he would at once say that nothing was further from his mind than to reflect at all upon the efficiency of the Court of Examiners; but he did say, and he must repeat it, that unless a man had been a teacher himself he was not quite in a position to become an examiner.

The Chairman asked if the reports were published prior to the minutes being read before the Council and signed.

Professor Simonds replied that it was generally the case. It was very true, if they compared the minutes with the published report, a little alteration would be found in the wording, but no alteration with regard to the arrangement of the matter.

Mr. Gowing observed that he thought it an irregular step if the reports were furnished before they were entered in the minute book, as any gentleman might feel himself aggrieved by matters going before the public which had not been certified by the Council as correct.

Mr. Fleming said the reports which appeared in the *Veterinarian* were so meagre that the members of the profession who were not present at the meetings could know very little about the proceedings of the Council. The reports ought to be more extended.

Professor Simonds proposed the appointment of a Committee upon the subject of the reports.

The Chairman said the question appeared to him to resolve itself into two parts: first, whether or not a report should be published issuing from the Council of its proceedings, and, secondly, whether such report should not be of a fuller nature than it had heretofore been. Mr. Gowing's remarks were very pertinent, if the publication in the *Veterinarian* was to be considered as constituting the minutes; but from subsequent remarks it appeared that the published reports had nothing in reality to do with the minutes. He was inclined to agree with all those gentlemen who had advocated a far more lengthened report being published; and in the event of that being decided upon, he concurred with Professor Simonds in the proposal that it should not be left to the Secretary, but that there should be a committee of the Council to superintend the preparation of it.

Professor Simonds said the managers of the *Veterinarian* wished to receive a report in a readable form, which they could send off to the printer at once without alteration.

Mr. Wilkinson asked whether the Council would incur any legal responsibility for what was stated in any report sanctioned by them.

The Chairman said they undoubtedly would be responsible.

Mr. Wilkinson considered that a serious matter.

Mr. Ernes said the committee would take care not to publish anything that was against the law.

Mr. Hunt said what was required was merely a truthful

report. He presumed the Council were responsible for their own actions, and were not ashamed that those actions should go forth to that portion of the public which was interested in them. Whether a committee should be appointed or not was a question for the Council to decide. The journalists themselves would take care to prevent anything going forth in an improper manner.

Professor Simonds said that was the very kind of responsibility which the managers of the *Veterinarian* wished to avoid.

Mr. Gowing asked if Mr. Coates's signature to the reports at present sent did not involve the responsibility of the Council quite as much as if there was a committee.

The Chairman said it did.

Mr. Gowing said that being so, the appointment of a committee was a matter of little importance.

Professor Brown said the appointment of a committee would not increase the responsibility. The reports ought to be furnished to the *Veterinarian* in such a shape as not to require alteration.

It was moved by *Professor Simonds*, and seconded by *Mr. Hunting*,

"That a committee be appointed, consisting of the president, the treasurer, and one of the vice-presidents, to supervise any report which shall be drawn up by the secretary with a view to its publication in the *Veterinarian*."—Carried.

The Secretary laid on the table a copy of a work entitled 'The Horse Owner,' by Mr. Armitage, which that gentleman had presented to the library.

It was moved by *Mr. Ernes*, and seconded by *Mr. Hunting*,

"That a vote of thanks be awarded to Mr. Armatage for his presentation."—Carried.

The subject of the forthcoming examinations was then considered.

Letters were read from Drs. Taylor and Sharpey naming the days on which it would be most convenient for them to attend the meeting of the Court of Examiners.

It was resolved that the London examinations commence on the 19th of April, and be continued on the 20th, 21st, 26th, 27th, and 28th, if necessary, and that the Scotch examinations take place on April 14th and following days.

It was also resolved that the special meeting of the Veterinary Court of Examiners be held in Edinburgh at the Freemasons' Hall on Thursday, April 15th, at 4 p.m.

A letter was read from Dr. Dunsmure relative to Mr. Cairns, and also one from Mr. Dawson, both of whom hold

the Highland and Agricultural Society's certificate, requesting to be informed when a meeting of the Court of Examiners would be held in Edinburgh, as they were desirous of presenting themselves before the Board of Examiners, and also asking for information as to the amount of examination fee.

The Secretary stated he had informed these gentlemen that the special meeting would be fixed by the Council, and that they would be required to forward a notice to the honorary secretary of the Scotch Court in Edinburgh, to whom they were to pay their fees, and produce their Highland and Agricultural Society's certificate, on the day of examination.

Letters were read from Dr. Dunsmure on the arrangement of the meeting of the Scottish section of the Court of Examiners. Also one on the subject of the rejected candidates from the Glasgow School, in which the Principal desired to be informed whether any additional fee would be required.

Reference was also made by Dr. Dunsmure to the case of a Mr. F. W. Prentice, a student of the Edinburgh Veterinary College, who was a candidate for examination and had been rejected by the Board of Examiners in London.

Dr. Dunsmure wished to know whether an additional fee would be required in this case.

The Secretary informed the Council that he had written to Dr. Dunsmure, after consulting the President, that the examinations might be held at the time specified.

Mr. Prentice being an exceptionable case, the *Secretary* stated that he would lay the subject before the Council for their instructions.

The Chairman said it would be necessary that the applicant should present a certificate from the school at which he had subsequently studied.

It was decided by the Council that Mr. Prentice be allowed to present himself before the Board of Examiners without the payment of an additional fee, and that the rejected candidates produce their certificates previous to examination.

A letter was read from Dr. Wilson Johnstone, M.D., of Edinburgh, a surgeon in the Bengal army, desiring to be informed whether he could present himself before the Board of Examiners in London or Edinburgh from the 20th to the end of March, previous to going out to India.

He was informed that no meeting of the Court of Examiners would be held in London or Edinburgh until the middle of April. That he would be required to give the usual notice and fee to the honorary secretary of the Scottish Court, and

produce a certificate of having been educated at one of the recognised schools.

Mr. Alexander Strachan, of Mansfield Fyvie, gave notice of his intention to present himself before the Scottish section of the Court of Examiners in April. He had made a previous application last year after the usual examinations were held, enclosing a certificate from the late Professor Dick.

He was referred to the honorary secretary of the Scottish Court of Examiners for the necessary instructions, and informed that his certificate had been forwarded to that gentleman.

A letter was then read from Mr. Robert Laidlaw, of Albany, New York, holding the Highland and Agricultural Society's certificate, obtained in 1840, desiring to be informed what course should be adopted for the obtainment of the diploma of the Royal College of Veterinary Surgeons.

The Secretary stated that he had informed the applicant that he was probably unaware that he was already a M.R.C.V.S., having graduated at Professor Dick's school previous to the obtainment of the Charter of Incorporation.

The Council directed the Secretary to forward to Mr. Laidlaw, in the United States, a copy of the new register, in which his name is recorded.

The Registrar next proceeded to read over the list of deaths; five names having been recorded since the last meeting of the Council.

Professor Simonds mentioned the decease of Mr. John Steele, of Biggar, Lanarkshire.

The Secretary then read a letter from Professor Simonds, urging the necessity of the Continental schools being furnished with copies of the new register.

Professor Simonds said as it was only a question of postage he moved, "That a printed copy of the new register be sent to the authorities of the Continental schools," which was carried.

The Secretary informed the Council that there was only a limited number of copies of the new register on hand.

The Secretary was authorised to have 100 additional copies printed when required.

The Secretary then stated that letters had been received from several members of the Royal College of Veterinary Surgeons, complaining that persons in their immediate neighbourhoods had usurped the title of members who had no claim thereto.

The Chairman said he had received letters to the same effect. It was quite clear that there was no power to pro-

secute persons so designating themselves, at least with any degree of success.

The Council were of opinion that the only way to deal with such cases would be to give publicity to the facts, and, in the event of any application being made to the Secretary, he would state whether or not the person assuming the title was a member of the Royal College of Veterinary Surgeons.

The Finance Committee reported that the vouchers and receipts for payment during the preceding quarter had been examined and found correct. The quarterly balance sheet of the Treasurer's account was submitted. The present liabilities amounted to £79 14s. 7d., which the committee recommended should be discharged. A balance of £538 6s. 5d. would remain in hand.

It was moved by *Mr. Lawson*, and seconded by *Mr. Fleming*—

"That the report and the quarterly balance sheet of the Treasurer's account be received and adopted."—Carried.

Cheques were ordered to be drawn for the current expenses and for the examiners' fees.

The arrangements for the forthcoming Annual Meeting were next considered.

It was moved by *Mr. Wilkinson*, and seconded by *Mr. Lawson*—

"That the President, Messrs. Brown, Ernes, Fleming, and the Secretary, be appointed a committee to prepare the annual report."—Carried.

Messrs. E. Woodger and C. Lowe were appointed auditors.

A letter was then read from Mr. George Morgan, of Liverpool, asking for the use of the Council Rooms in Red Lion Square for a Meeting of the National Veterinary Benevolent and Mutual Defence Society, on Monday, May 3rd, from 11 to 12 a.m., so as not to interfere with the Annual Meeting of the members of the profession.

It was moved by *Mr. Wilkinson*, and seconded by *Mr. Fleming*—

"That Mr. Morgan's request be acceded to."

Professor Brown moved an amendment, seconded by *Assistant-Professor Pritchard*—

"That the request be not acceded to, as it might prove a bad precedent."

The amendment, having been put from the chair was lost, and the original motion carried.

The Chairman, at the desire of the President, consulted the wishes of the Council in regard to an alteration being

made in the usual hour for convening the future meetings of the Council.

It was moved by *Mr. Wilkinson*, and seconded by *Mr. J. C. Broad*—

"That, for the future, the meetings of the Council should be convened for 5 o'clock, instead of 6 o'clock."—Carried.

The subject of the Anniversary Dinner was next introduced.

It was decided that Mr. J. C. Broad consult with the President as to the desirability of the dinner being held at Freemasons' Tavern, and that they be appointed the stewards.

The Secretary read a communication from the Yorkshire Veterinary Medical Association, enclosing a resolution expressive of the advisability of requiring of all candidates, on examination, a certificate of three years' apprenticeship to a Member of the Royal College of Veterinary Surgeons prior to his entering any of the authorised schools, and also an educational test. The Secretary was desired to communicate with the Yorkshire Veterinary Medical Association that their resolution was adjourned for future discussion.

The special adjourned meeting having been resumed,

It was moved by *Professor Brown*, and seconded by *Mr. Fleming*—

"That the discussion on the mode of conducting the examinations be further adjourned."—Carried.

By order of the Council,

WILLIAM HENRY COATES,

Secretary.

WEST OF ENGLAND VETERINARY MEDICAL ASSOCIATION.

THE last General Meeting of this association was held at the King's Arms Hotel, Dorchester, on Thursday, March 25.

The President, T. D. Gregory, Esq., of Bideford, in the chair.

Among the members present were J. D. Barford (Southampton), Jos. Norris (Dorchester), and J. A. Collings (Hon. Sec., Exeter). Mr. James Rowe, of Dorchester, also attended.

The minutes of the previous meeting were read and confirmed.

Letters of apology for non-attendance were received from Messrs. Broad, Aubrey, and Gould.

The reply of Mrs. Cornelius to the letter of condolence, forwarded by the Association on the loss of her husband, was read.

Mr. James Rowe, of Dorchester, was proposed as a member but the Hon. Sec., seconded by Mr. J. D. Barford, and elected.

Messrs. James Austen, of Exeter; Samuel Newman, of Havant; and James T. Handy, of Chipping Sodbury, were severally proposed and unanimously elected members of the association.

A communication from Mr. George J. Gould, of Southampton, relative to the next meeting being held in that town during the visit there of the Bath and West of England Show (first week in June) was considered, but the proposition was finally objected to, on account of the short time which would intervene and the advisability of holding every annual meeting at some central place on the main line.

The preliminary business being concluded, Mr. J. D. Barford proceeded to deliver his opinions on "The Comparative Merits of Pure and Cross-bred Animals." Mr. Barford's remarks being of a very interesting and practical character, were received with marked interest and atttention. The essayist commenced by observing that his subject, although perhaps somewhat more agricultural than medical in its nature, yet on that account was not less important to veterinary surgeons. He regretted very much that more attention was not paid by agriculturists generally to this subject; the very frequent examples of the careless manner in which the breeder crosses his animals, are sufficiently evident to all. The qualities to be perpetuated in breeding and crossing, horses especially, are soundness of constitution, combined with symmetry of form. In respect of the latter, some points are of more importance than others. He considered a good chest to be one of the chief. A standard of excellence should be established with regard to both symmetry and soundness of constitution. He looked upon the Arab horses as his standard of excellence in these respects, and if breeders kept this type of the pure-bred animal in view they could not much err. Speaking of the plans of breeding at present adopted, he gave preference to the in-and-in system. He acknowledged that it has been and now is by many severely deprecated; he was not so great an opponent of it, but, on the contrary, considered that it might be followed with considerable advantage, provided always that soundness in the parents be insisted on. When once excellence is obtained, we should preserve it by breeding in-and-in. But, notwithstanding, it becomes occasionally necessary to depart from this rule and cross, in which case the cross should be back to the original pure-bred animal; and it should not be continued to the second remove.

In crossing, Mr. Barford believes the influence of the female predominates over that of the male, and consequently he pays more heed to purity on the part of the dam than on that of the sire. Among numerous other qualifications desirable, good action or true harmony of motion in progression occupies a prominent place.

A very profitable discussion followed, which was participated in by all the members present, at the close of which the president thanked Mr. Barford warmly and sincerely for his address, more

particularly for his kindness in coming to the rescue when he had been several times disappointed in obtaining a paper for the meeting. He considered the subject of the day's discussion—although it may be somewhat extra-professional, not the less important to them as veterinarians. He quite agreed with Mr. Barford that sufficient attention was not paid to the breeding of the animals by agriculturists, yet there are many men who devote a considerable amount of skill and capital, who had been and are most successful in establishing and keeping up the pure breeds of our domestic animals. Coming, as he did, from a part of the country where one of the most beautiful and symmetrical of our breeds of cattle (the North Devons) is to be found in all its purity, he could bear testimony to the care that was exercised by such men as the Quartly's and Davey's. Climate and soil have much to do with preserving certain breeds, as it was very well known to those who have opportunities of watching its effects—instance, how much the mountain sheep of Exmoor differ from the pure Leicesters of the richer pastures; the Shetland and Exmoor ponies from the dray horse bred in Lincoln and Northamptonshire, and the tendency of these breeds, in the course of generations, to adapt themselves to localities and climates. With regard to the principles of *in and in* breeding he agreed in a very great measure with the essayist, *species* should not be confounded with *breeds*. The progeny of two different species were hybrids, and nature had kindly interposed to prevent their fecundity. The hare and the rabbit, the dog and the fox, the horse and the ass, may commingle, but their progeny is usually sterile. By careful selection of parents of the same species, although differing in a great measure in shape and form, new *breeds* may be established in a few generations, becoming, as Darwin would say, fixed in their type. To carry out this system effectually it is found necessary to breed from families closely allied, always bearing in mind that infirmities of constitution must be avoided. With respect to the crossing of breeds, much advantage, in many cases, may be derived from it, but he somewhat differed from the lecturer inasmuch as he (the president) believed that the cross should be on the side of the female, and that the purity of breed should be on the side of the male, as he regarded the influence of the latter as dominant, especially in external form. He instanced this in the crossing of the Southdown ram with the Leicester or palefaced ewe. The great majority of lambs would be undoubtedly blackfaced. Again, the horn ram with the Notts ewe, the lambs would show the horns; but try the contrary cross, and horns on the heads of the lambs would be found the exception. Again, the progeny of the (Red) North Devon bull with the party-coloured shorthorn or Guernsey cow very seldom indeed showed any white; but try the opposite, and the colour would follow the bull. *Extreme crosses* should be avoided, especially in breeding horses. The thoroughbred mare or the small pony should not be mated with the heavy carthorse, nor should the contrary be tried in the hope of hitting the happy medium, for in nineteen cases in twenty the attempt

would end in disappointment. He believed, however, as a rule the crossbred young animals would most resemble the purest parent. Have, therefore, one parent pure, and avoid going beyond the first cross; mate two mongrels and no one could venture to predict the result. Very much more might be said upon that interesting subject, and he (the president) thought it would be highly advantageous to the members of the profession (as well as to agriculturists), especially those residing in breeding districts, were more attention paid by them to the principles of breeding.

The next meeting is fixed for Exeter during the visit there of the British Association in July; due notice of the time and place of meeting will be given.

J. A. COLLINGS, *Hon. Sec.*

NORTH OF ENGLAND VETERINARY MEDICAL ASSOCIATION.

THE twenty-second quarterly meeting of the above Society was held at Mr. Gray's, "Adelphi Hotel," Newcastle-on-Tyne, on Friday, the 16th of April, 1849, at 4 o'clock in the afternoon.

The members present were—Messrs. M. Hedley, President; C. Hunting, H. E. Wilkinson, D. Dudgeon, H. Hunter, R. Bryden, D. Macgregor, T. Thompson, S. Scott, A. Mann, T. Foreman, and Wm. Temple.

The minutes of the preceding meeting were read and confirmed.

Letters from Mr. Peele, West Hartlepool, and Mr. Marshall, Glanton, were read, regretting their inability to attend the meeting.

Mr. Hunting, London, and Mr. Armitage, Leighton Buzzard, sent a paper each, to be read and discussed at the meeting. The former "On Veterinary Education," the latter "On the Thermometer as an Aid to Diagnosis in Veterinary Medicine." Both papers were warmly received, and elicited a very spirited discussion, in which most of the members took part.

A cordial vote of thanks was awarded to both the essayists for their able papers.

It was proposed by *Mr. Wilkinson*, and seconded by *Mr. Bryden*, that both the papers be sent for insertion in the *Veterinarian*.

Mr. Hunting, of South Helton, said that, owing to Mr. Armitage's paper coming out for sale in the form of pamphlet, in the course of a few days, he (Mr. Armitage) had desired that his essay should not be reported.

It was then moved, that Mr. W. Hunting's paper should be sent —Carried unanimously.

Mr. Dudgeon proposed that the following resolutions be forwarded to the Council of the Royal College of Veterinary Surgeons; seconded by *Mr. Macgregor*, and carried unanimously.

"The members of the North of England Veterinary Medical Association, by resolution adopted at their meeting on the 16th of April, respectfully suggest to the Council of the Royal College of Veterinary Surgeons that one mode of advancing the educational and scientific status of the profession is to institute examinations, written as well as oral, more comprehensive in character and more extended as to time than they are at present. Further, they beg to suggest that an examination for honours, conferring an extra professional dignity on those who attain them, would be of great advantage, and an inducement for men of high attainments to enter the profession."

JOHN MICKLE, *Hon. Sec.*

[Mr. Hunting's paper "On Veterinary Education" contains many remarks which, however well intended, would give personal offence; hence we feel compelled to decline to publish it.]

IRISH CENTRAL VETERINARY MEDICAL ASSOCIATION.

A LARGE and influential meeting of the members of the veterinary profession in Ireland took place in the committee-room of the Royal Dublin Society, Kildare Street, Dublin, at 7 p.m. on the 5th inst. Several members of the medical profession interested in the advancement of veterinary science in Ireland were present.

Too great praise cannot be given to the Council of the Royal Dublin Society and its efficient secretary, Dr. Steele, for their assistance and support in carrying out the laudable objects of the meeting. That Society has veterinary progress at heart, and everything has been done on its part which could be done for the furtherance and success of the meeting. The earnest efforts of Mr. Greaves and Mr. Whittle (of Manchester) will be ever gratefully remembered by the members of the association. Such generosity and perseverance surely should arouse the apathetic members of the veterinary profession.

Mr. W. Murphy addressed the meeting as follows:

Gentlemen,—It affords me no small degree of pleasure to have the privilege of first addressing you on this interesting and, I may add, auspicious occasion, more particularly when I inform you of my being deputed to move to the chair a gentleman long known, and highly esteemed and respected by me, and I am sure by many of you, as a distinguished and valued member of our profession, who has come with one other professional gentlemen from Manchester, specially to aid us in our first step towards the establishment of a Veterinary Medical Association in dear old Ireland. The idea of this association originated with my friend, Mr. F. F. Collins, Royal Dragoons, who has taken no small degree of trouble in bring-

ing us together this evening. There are many amongst you, Gentlemen, more capable of performing the part allotted to me, but there are none who possess a greater desire, or feel more sincerely, for the welfare and advancement of the profession than I do. We are taking a step to-night which should have been taken long ago, but 'better late than never;' if we all unite hand and heart in the undertaking, success will be placed beyond doubt. As I hope, Gentlemen, to hear the most of you advance your opinions, which I beg you will do unreservedly, I shall not further trouble you, but beg to propose that Mr. Greaves, of Manchester, take the chair.

Carried with acclamation.

Mr. Greaves said—Gentlemen,—In being requested to take the chair and preside at this meeting of the veterinary surgeons of Ireland, I feel that you confer upon me a very marked compliment. I accept it as an honour greater than I ever contemplated enjoying: but to this honour there is attached the very great responsibility of directing the proceedings of this meeting into a channel through which its ultimate success may be reached. We are called together this evening to discuss the advisability of forming a Veterinary Medical Association in Dublin. There are, doubtless, many gentlemen present who are strong *advocates* of these associations. We shall be happy to hear their views expressed. There are others also who probably entertain contrary views: to such likewise we shall be glad to listen. If, however, you decide upon forming an association the next thing you will have to consider will be the election of a president, and I sincerely hope that your election will fall upon some gentleman whose position and influence will be a guarantee for the upholding of the honour and best interests of our common profession, whose urbanity, courtesy, and good sense will, whilst it elicits unreserved discussion, cement the whole of the members of the veterinary profession in this our sister isle. Your next consideration will be the election of your vice-presidents, treasurer, and secretary. The gentlemen present can be enrolled as members subsequently. A code of rules or bye-laws must be drawn up for your guidance, fixing your mode of nomination and election of members, the amount of subscription, and the periods of meeting. Before I resume my seat I may be permitted to make a few remarks upon the objects, uses, and results of kindred associations in England. I am happy to inform you that we have in England and Scotland about fourteen distinct Veterinary Medical Associations. I have been concerned a great deal in the formation of these associations. I have been elected President of three of them, and Honorary Associate of three others. I have exerted my humble abilities in their behalf, because I firmly believe that they are calculated to produce a lasting benefit to our profession. I therefore recommend them strongly. I do it, gentlemen, with all the sincerity and earnestness of which I am capable. It will gladden the hearts of every member of these associations in dear old England to find that you, the sons of Erin, have resolved to dash to the groun

whatever petty jealousies, enmities, antipathies, revilings, and rancours may exist amongst you, and substitute in their stead the observance of an affable, kind, gentlemanly, honourable, and generous conduct.

These associations, when conducted in a proper spirit, have two distinct characteristics, which appear to me to stand forth more prominently than the rest. The first is their *social aspect.*

The opportunities they afford veterinary surgeons of meeting together, becoming better acquainted with each other, and, take my word for it, we shall find, almost in every case, that there is not a single member but who possesses some good traits of character, some kind and generous sympathies hidden in his nature, which we little dreamt he possessed. After a while we find that friendship has taken the place of disrespect. These associations tend to smooth down many asperities. Depend upon it, the exhibition of this friendly spirit will teach the public to respect us, and will help to place our noble profession in a higher position than it has hitherto obtained.

The second characteristic to which I have referred is "*their practical and scientific aspect.*" A member undertakes to bring before each meeting of the Association a description of some disease, in respect of which he may have had considerable experience; he explains clearly and unreservedly his views and opinions; a discussion follows. Thus do these meetings tend to stimulate thought, and excite emulation; different methods of treating disease are constantly brought before us, much valuable practical knowledge developed by experience is brought to light which otherwise would never have appeared, and the inevitable result is lasting intellectual profit and pleasure.

I would strongly advise that you maintain a proper discipline and method in conducting your meetings; do not get into the habit of conducting them loosely or carelessly, as it ultimately lessens their interest; and may God speed the good work already commenced!

Mr. Collins, Royal Dragoons, said—Having been referred to by our worthy chairman, I deem it my duty to address you on this auspicious occasion. The very great intellectual and professional benefit I have from time to time derived from attending veterinary medical associations during my tour of duty through England, led me some time ago to form a determination to take the earliest opportunity of ascertaining how far the members of the veterinary profession in Ireland would co-operate in the establishment of a veterinary medical association in this country, and I feel, indeed, proud to state that, having communicated with the whole of the members of the profession in Ireland, at least as far as I could, there has not been a single response but what has contained an expression of best wishes for the success of the undertaking, and a hearty desire to co-operate in the formation of an association; and further, I feel proud to state that my friends Mr. Greaves, of Manchester, and Mr. Whittle, of Worsely, knowing the advantage

attending such societies, and having an earnest desire for the welfare of our common profession, have, at considerable personal inconvenience and expense, shown a truly philanthropic spirit in coming amongst us this evening, the evening of our first meeting, to impart their influence, zeal, and energy, in launching forth our Irish Veterinary Medical Association. I likewise thank most sincerely the members of our sister profession who are present for giving their countenance and support to our undertaking.

Meetings for the furtherance of a common purpose are at all times fraught with benefit; the interchange of ideas, the presentation of truth in new phases; the smoothing of egotistical asperities; the welcome greetings of professional brethren must all tend to good results.

The members of our profession have been too long estranged; the spirit of discord and alienation too persistent; we have not kept pace with the professions around. The desire for a thorough revision of feelings, ideas, sentiments, and professional bearing, a wish that our noble calling should rank and be recognised as a profession in the true sense of the word, and that the name of veterinary surgeon should be a passport to respect, has impelled me to make exertions to advance the profession to which I have the honour to belong.

Mr. Malcolm then addressed the meeting as follows:—Although I rise with a great deal of diffidence, still I feel that I should not allow an opportunity like the present to pass without endeavouring in a few remarks to promote the objects of the Association for the formation of which we have met here to-day. Several years ago, when I first became a member of the Lancashire Veterinary Medical Association, I well remember the gulf which separated many members of the profession, and prevented them from interchanging that mutual intercourse which, in my opinion, not only tends to promote the interest of a profession, but I might almost say is its very well-spring. Gentlemen, the Association referred to was but a very short time formed when the good results at once became apparent, and many who were enemies became the best of friends. This is only a single instance which came within my own personal experience; but young as I then was, I could not help noticing with pleasure the good results which accrued. Gentlemen, I have often asked myself the question how it was that in a profession such as ours, that some one did not take the initiative and endeavour to found and form a veterinary medical association in this country? But it is better late than never. Soon after the Association already referred to had been formed, another, to which I also have the honor to belong, sprung into existence. I allude to the National Veterinary Benevolent and Defence Association, and have no hesitation in saying that each and every member of our profession should be enrolled in it. I speak thus, for I myself was the recipient of one of the benefits for which the Society was formed. Gentlemen, I presume that most, if not all of you, have heard of the case in which I was sued for the value of a horse which was alleged to

have died from tetanus, caused by my malpractice and neglect after castration. The colt was operated on in the ordinary way with the caustic claims, went on very well for fourteen days, when he showed symptoms of tetanus, from which he eventually died. As I before remarked, I was sued for the value of the animal, and feeling within my own breast that the demand was unjust, I put the case into the hands of the Defence Association through my valued and much respected friend Mr. John Lawson, M.R.C.V.S., Manchester. The Association instantly took active measures to protect me, and, through me, the rights of our profession. Two eminent members came over to Ireland to give evidence on the question at issue, and the result was, the chairman at sessions dismissed the suit with costs, remarking that the case should never have been brought into court. Now, gentlemen, see the beneficial results to me of the Defence Association. A comparative stranger in Ireland, I was assailed in character as well as in a pecuniary point of view. Immediately I submitted the case to the Association, they came at once to my relief. There is another topic to which I would briefly draw your attention—it is the frequent difference of opinion on soundness; where one veterinary surgeon will pass a horse as sound, a second will say he is unsound, and the result may be that an action is instituted, and the two veterinary surgeons are examined on either side, and contradict each other on their oaths. What follows? Gentlemen, you can judge for yourselves; but what will the public say and think about the diversity of opinion? I feel assured that the full development of this Association will tend to prevent such controversies. I feel, gentlemen, that I have trespassed too much on your valuable time, but I cannot conclude without impressing on your minds the absolute necessity of pulling together in order to insure success. Look at every other profession! Has not each of them its different associations and societies for its advancement? And why should ours be backward? Is it not a cheering thing to think that when adversity frowns upon you in the battle of life, you have still in an association such as this a refuge to which you can look forward with hope, and which will receive and console you under your difficulties. Yes, gentlemen, let us be up and doing, and place ourselves and our profession in that position which we should occupy. Good men have gone before us, and much good did they do. But that time was theirs—this is ours.

> "Let us then be up and doing,
> With a heart for any fate;
> Still achieving, still pursuing,
> Learn to labour and to wait."

Mr. J. Farrall, *Mr. J. Murphy*, *Mr. W. Pallin*, *Mr. T. Lambert*, and *Mr. J. King* also addressed the meeting in most energetic terms, urging the formation of an Association, and the benefits which must accrue therefrom.

The *Chairman* put the question to the meeting, Is it expedient that a Veterinary Medical Association should be established in Dublin? It was unanimously agreed that it was.

Mr. Collins proposed, *Mr. Farrall* seconded, that the veterinary surgeons in Ireland form an Association to be called the Irish Central Veterinary Medical Association, having for its objects:

The elevation of the social position and professional status of veterinary surgeons generally;

The establishment, promotion, and maintenance of a good and friendly feeling amongst its members;

The protection and supervision of their mutual interests;

And the reading and discussion of scientific subjects relative to veterinary science and art.

Carried unanimously.

Mr. Collins proposed, *Mr. King* seconded, the Honourable Montague Mostyn, from his influence and social standing, his urbanity and amiability, his thorough knowledge of the profession he has adopted, as a most desirable and proper person to fill the first presidental chair of the Association.

Mr. James Murphy proposed that Mr. Collins, from his knowledge of the workings of the Associations, and from the personal knowledge the Irish veterinary surgeons have of him, and from the energy he has displayed in bringing about this meeting and formation of an Association, become its first president.

Mr. Collins stated that before the last resolution was put to the meeting he must crave their indulgence for a few moments, and observed that he should commit a grave error of judgment towards the Association did he permit himself to be nominated for presidental election. Having the interests of the profession at heart, he felt he could better advance such by occupying some minor office, and begged most respectfully to decline being put in nomination for the chair.

The previous resolution was then put, and carried unanimously.

The chair was vacated by Mr. Greaves after a vote of thanks had been passed, and was occupied by the newly elected president, the *Honorable Montague Mostyn*, who said,

Gentlemen,—Thanking you for the distinguished honour you have done me in electing me to the honorable post of president, the duties of which position I will endeavour to fulfil to the best of my power during my term of office, I will not take up your time after the excellent remarks made by Mr. Greaves and Mr. Collins as to the purport of our meeting this evening. Coming as so young and unpractised a member of the profession, after older and more scientific members, any remarks I could make on the many and varied advantages that have accrued to the profession from the establishment of similar associations in England and Scotland would be superfluous. These meetings tend powerfully to awaken that sympathetic and true professional feeling which leads to mutual support, differences are smoothed over, and errors in reason and practice rectified by discussion.

I feel greatly the disadvantage of being, to a great extent, a non-practieal man, having originally, as an amateur, during the time I was a subaltern in the Royal Dragoons, taken the science up only

as a pastime; gradually I became more interested, drawn on by the varied nature of our studies, till, eventually, I obtained the diploma.

At this late hour I will not enlarge on any remarks I might feel inclined to make on the able circular of Mr. Collins, but request him to read over the proposed rules of the Irish Central Veterinary Medical Association, of which I have the distinguished honour of being the first president.

Previously, however, elect the remaining office-bearers of the Association.

Mr. M. Murphy, sen., Mr. D. Paley, Mr. J. J. Farrall, and Mr. J. King were elected vice-presidents; Mr. W. Pallin, treasurer; and Mr. F. F. Collins, hon. secretary. There were seventeen members likewise enrolled.

Mr. Collins proceeded to read over the bye-laws, which were discussed separately, and carried.

The next meeting of the Association will take place in the week of the Annual Horse Show, which is to be held in Dublin during the summer, when the president of the Association will deliver an inaugural address, and Mr. Pallin will read a paper upon "The Chronic Diseases of the Lungs."

The meeting took place under most favourable auspices, a foreshadowing, it is to be hoped, of the future of the Irish Central Medical Association.

PARLIAMENTARY INTELLIGENCE.

THURSDAY, *April 22nd.*

IMPORTATION OF DISEASED SHEEP.

Lord R. Montagu asked whether it was true that a cargo of 1800 sheep had arrived in London from Antwerp, and that several of them were found to be infected with sheep-pox; and whether another cargo of sheep, from Antwerp, landed at Harwich, were found to be suffering from the same disease.

Mr. W. E. Forster said it was true that two cargoes of sheep had arrived from Antwerp—one at London and the other at Harwich—in both of which it was stated that one or two sheep were infected with sheep-pox. Steps were immediately taken to ascertain the truth, and officers of the Customs and of the Veterinary Department of the Council proceeded to make inquiries. According to the report of Professor Simonds, a cargo of 351 sheep had arrived at Harwich, of which three were found to be suffering from sheep-pox. This fact was discovered, not only before the sheep had left the wharf, but before there was any possibility of their having any communication with other sheep. Steps were at once taken for the slaughter of the sheep, and orders were given that the

wharf was not to be used until it was thoroughly disinfected. The same course was pursued with regard to the cargo that had arrived in London. This cargo consisted of 1800 sheep, of which 22 were suspected of being infected with the same disease; one or two of them being undoubtedly affected with it. The entire cargo of sheep were slaughtered before they had any communication with other sheep. The House ought to be informed that every step had been taken in both cases which would have been taken if the Order in Council lately repealed had been in force, which provided that all sheep should be slaughtered on landing. Everything had been done that was necessary; and care had been taken that not only all the sheep that were diseased, but all the sheep with which they were in communication, should be slaughtered. There was reason to believe that both the cargoes came from the same party at Antwerp, and that they had been separated that they could be more easily landed and evade discovery.

Lord R. Montagu wished to know whether the Privy Council intended to issue any orders with regard to sheep coming from infected districts abroad.

Mr. W. E. Forster said the regulations now in force were quite sufficient.

PRESENTATION OF A TESTIMONIAL TO PROFESSOR PRITCHARD.

THE students of the Royal Veterinary College who form the private class of Wm. Pritchard, Esq., Lecturer on Descriptive Anatomy, having resolved to present that gentleman with a testimonial expressive of their appreciation of his labours in their behalf, selected from amongst themselves the following to act as managing committee:

Mr. Fred. Geeves, *Chairman.*

Messrs. George Pyett, J. H. Bennett, Joseph Oakley, Wm. Jackson, Joseph Plunkett, James Wheeler.

Mr. T. S. Brigham, *Hon. Secretary.*

Mr. John Taylor, *Hon. Treasurer.*

All preliminary matters having been arranged, the presentation took place at the Freemasons' Tavern, on the evening of the 26th of March, when the students and their friends, numbering nearly eighty, entertained Professor Pritchard at a dinner. Mr. Geeves in the chair; the vice-chair being occupied by Mr. Wm. Jackson.

After the cloth had been removed, and the usual loyal and patriotic toasts duly honoured, the chairman, in a neat and appropriate speech, presented the testimonial, accompanied with the

following address, tastefully engrossed, and signed by the contributors:

"To Professor Pritchard.

"We, the undersigned members of your Private Class beg your acceptance of the silver claret jug and inkstand herewith presented, as a slight token of the respect and esteem with which you are regarded by us, and as a lasting remembrance of our appreciation of your high talents as a teacher, and kindness to us as a friend, both in the exercise of your professional duties and also in your continuous and untiring efforts to impart to us that knowledge that will alone enable us to become practical as well as scientific members of the profession we have embraced.

"We unanimously desire that our warmest thanks for innumerable kindnesses should accompany this Testimonial; and we, at the same time, unite in wishing you a long and prosperous career, attended with health, to enable you to reap the full advantage of the rewards that are so justly your due.

(Signed) [Here follow the signatures].

Professor Pritchard responded in an eloquent and feeling manner, expressing his gratification that the simple fact of performing his duty should have gained for him such a mark of esteem.

The following toasts were proposed and responded to, viz.:

"The Royal Veterinary College and the Professors," "The Board of Examiners," "The Town and Country Practitioners," &c., and a very pleasant evening was spent.

NEW MEMBERS OF THE PROFESSION.

At the several meetings of the Court of Examiners of the Royal College of Veterinary Surgeons, held on April 19th, 20th, 21st, 26th, and 27th, the following gentlemen, students at the Royal Veterinary College, London, received the diploma of the College and were admitted members of the profession.

April 19th.

Mr. Charles Henry Arnold . .	Cheetham Hill Road, Manchester.
— Thomas George Chesterman .	London.
— Michael Moss	Sittingbourne, Kent.
— John Frederick Geeves . .	Sheffield.
— Samuel Bignold . . .	Dowham Hall, Norfolk.
— James Wheeler . . .	Rookley, Isle of Wight.
— John Ward	London.
— Sidney Smith	Wrentham, Suffolk.

April 20th.

Mr. William Coveney	Tenterden, Kent.
— John Parker	Middleton, Derbyshire.
— William James Masters	Lymington, Hants.
— William Stanford Harrison	Filby, Norfolk.
— Joseph John Plunkett	Dublin.
— Arthur Holl	New Buckenham, Norfolk.
— John Clark James	Thornbury, Gloucestershire.
— William Jackson	Sheffield.
— Joseph Gibbs, Jun.	Taunton, Somerset.
— George Paradise Mallett	Thornbury, Gloucestershire.
— John Symes	Wincanton, Somerset.
— William Dawson Sartin	London.

April 21st.

Mr. John Hutchins	Great Eccleston, Lancashire.
— Richard Rowe	Plymouth.
— Tom Sunman Brigham	Millington, York.
— John Clark Gillingham	Spettisbury, Dorset.
— George Augustus Hall	Colchester, Essex.
— George Hopkinson Pyatt	Nottingham.
— James Bede Polding	Bury, Lancashire.
— Charles Sutton	Alwent, Darlington.
— John Taylor	Nottingham.
— Tom John Symes	Yeovil, Somerset.

April 26th.

Mr. Charles Gorton	London.
— Samuel Henry Bennett	Haveringatte Bower, Romford.
— Peter Paul Thomas	Plymouth.
— Allan Murray Wilson	West Freugh, Stranraer, N.B.
— Thomas Powell	Newport Pagnell, Bucks.
— Samuel Herman Carter	Callington, Cornwall.
— Samuel Robert Sartin	London.
— James Entwistle Mather	Pilkington, Manchester.

April 27th.

Mr. James Thurston	Fressingfield, Suffolk.
— James Lomas	Disley, Stockport, Cheshire.
— John Martham Thorne	Greenwich, Kent.
— Charles Offer	London.
— Joseph Bryne Coleman	Melbourne, Australia.
— Joseph O'Connor	Dublin.
— John William Flitt	Watford, Herts.

At the meetings of the Court of Examiners of the Royal College of Veterinary Surgeons, held in Edinburgh, on April 14th, 15th, 16th, and 17th, the following gentlemen, students of the Edinburgh and Glasgow Schools, passed their examinations, and received the diploma of the College.

April 14th.

Mr. Peter McCulloch . . .	Coat Bridge, Glasgow.
— Robert Johnstone . . .	Lockerbie, Dumfriesshire.
— Andrew McGeoch . . .	Paisley, Renfrewshire.
— David Allan	Clarkston, Busby.
— James Gillespie . . .	Kingsbairns, St. Andrew's, Fife.
— Samuel Locke . . .	Manchester.
— William Macindoe . .	Glasgow.
— Robert Scott	Bothwell, Lanarkshire.
— Alexander Lawson Loudon .	Boston, U.S., America.
— John Wilson Johnstone, M.D. .	Bengal Army, Montrose.

April 15th.

Mr. James McGavin . . .	Johnstone by Glasgow.
— John Douglas . . .	Dunoon by Glasgow.
— Francis Russell . . .	Ballynahinch, Ireland.
— George Kirkby . . .	Sibsey, Boston, Lincolnshire.
— Abraham Geo. H. Thornby .	Newton Heath, Manchester.
— John Gerrard . . .	Veterinary College, Edinburgh.
— Malcolm Walker . . .	Luss, Dumbartonshire.
— Stuart Murray Wilson . .	Old Trafford, Manchester.
— John Ed. Wyldebrown Fletcher	Douglas, Lanarkshire.
— William George Schofield .	Pontefract.
— Michael Patrick Dolan . .	Cashel, Co. Tipperary.
— James Cairns . . .	East Wemyss, Fifeshire.
— Robert L. Dawson . . .	Strathdon, Aberdeenshire.

April 16th.

Mr. Andrew Spreull . . .	Milngavie, Stirlingshire.
— Hugh Brock	West Greenland, Caithness.
— Thomas Greaves . . .	Knott Mill Manchester.
— John Bridge	Bury, Lancashire.
— John Fawthrop . . .	Keighley, Yorkshire.
— John Carmody . . .	Ennis, Co. Clare, Ireland.
— David Haigh	Shepley, Huddersfield.
— Philip Deighton . . .	North Driffield, Yorkshire.
— Charles Stanley Bowler . .	Warsop, Mansfield, Notts.
— Allen Marking . . .	Topperfield, Halstead, Essex.

April 17th.

Mr. Charles Cartwright . . .	Llanasa, Holywell, Flints.
— John Jonathan Bagley . .	Hunmanby, Yorkshire.
— James Fraser	Woodstock, Canada.
— Frederick William Prentice .	Great Totham, Essex.
— Samuel Lewis Pallin . .	Carlow, Ireland.
— William Capes . . .	Bridport, Dorset.

OBITUARY.

A MELANCHOLY accident occurred at the Club Hotel, Sale, South Australia, on the 8th of January last, by which Mr. Steele, veterinary surgeon, a gentleman highly respected in the district, and a mechanic named Murrell, lost their lives through inhaling foul air in a well. Murrell had gone down the well for the purpose of fixing a pump, and was suspected to have lost his balance and fallen to the bottom. Mr. Steele was near the spot at the time, and immediately descended in search of Murrell; but he also met with the same fate. Captain Patten then went down to try and bring up the bodies, and just recovered them in time to save his own life, as he was all but dead when drawn up, but after a while he recovered.

As a mark of respect to the deceased Mr. Steele all the shops in Saletown were closed on the Saturday following, and on Sunday funeral sermons were preached in the various places of worship. The funeral took place on Sabbath afternoon, and was an unusually large one. Over thirty carriages and forty gentlemen on horseback, and a great concourse of mourners on foot, followed the remains of Mr. Steele to the Sale Cemetery, the funeral procession being over a mile in length. Mr. Steele is deeply and justly regretted by all who knew him. He was a native of Biggar, Scotland, and the only son of Mr. John Steele, veterinary surgeon, who resides there. Mr. Steele has been in this colony for fully five years, and always bore a very high character.—*Gippsland News.*

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Communications and Cases.

LAMINITIS AND ITS TREATMENT.

By G. Fleming, V.S., Royal Engineers.

Mr. Broad's reply to my remarks on the subject of laminitis and its treatment, leaves but little material for further discussion. I gave extracts from the writings of Professors Bouley and Lafosse to show that exercise, though without special shoes, is recognised by them as beneficial to feet affected with laminitis; and I at the same time gave two examples corroborative of this fact drawn from my own experience. I am a firm believer in the value of exercise during the acute stages of the malady, and our distinguished French colleagues afford us a reason,—or, if you like, a theory, for this. Mr. Broad, I think, gives MM. Boulcy and Lafosse scant justice in his allusions to their writings, but this may have been an oversight. At any rate both these gentlemen insist on the good effects to be derived from exercise. I have never tried the turpentine frictions mentioned by Professor Boulcy, though I havc not the least doubt that he has witnessed their beneficial operation, or he would not recommend a trial of them.

I cannot discover that Mr. Broad offers any explanation as to the manner in which heavy bar-shoes produce a salutary effect in acute laminitis. He quotes Mr. Greaves as having expressed his views on this matter in the *Veterinarian* for April. I find the statement to be as follows:—"Mr. Broad recommends strong shoes in all weak feet, with the view of

warding off concussion. Upon this same principle I may remind you, if an anvil be placed upon your chest, men may strike with sledge hammers with all their might upon the anvil, without hurting you in the least, the thickness and weight of the anvil breaking the concussion."

I must confess that I cannot find anything in this to account for the necessity for applying heavy shoes in laminitis; and as an apology for attaching lumbering masses of iron on either weak or strong feet, it is, in my opinion, unacceptable; for the simple reason, that iron attached to horn, and brought into violent contact with the ground, *increases concussion,* and this increase takes place in proportion to the amount of that metal. This must be a fact patent to all who have studied mechanical philosophy, and it is exemplified in many ways in objects connected with our everyday requirements. The force of impact, or the impinging of a heavy iron shoe on a stone pavement or hard road, must give far more jar to the limb than would occur if the hoof was unarmed, or protected by a much lighter iron plate. The illustration Mr. Greaves gives has no reference to the subject, unless we admit that the horse's feet garnished with iron clogs are the sledge hammers. They certainly cannot be compared to the anvil, nor yet to the human chest beneath it. If we are desirous of lessening concussion, we must diminish the large amount of hard material usually attached to the hoofs, and allow as much of the horn to meet the ground as we possibly can, or substitute for it something even more elastic.

I could never understand why heavy iron shoes should be recommended as preventives of concussion, seeing that the plea for them is founded on a complete fallacy, theoretically and practically. This fallacy has dominated farriery for several centuries, and has proved a fruitful source of mischief. It should find no apologists among scientific men, as it is diametrically opposed to the teachings of science.

Mr. Broad recommends heavy shoes for weak feet, and after cutting their soles and frogs I do not suppose the unfortunate horses would travel so well in what are called light shoes. It would be contrary to all theory, as well as practice. If there is any description of hoof that demands merciful treatment, it is a weak flat one with a very large frog. Why should it, already weak, be deprived of the horn that is to make it strong? This is as inexplicable to me as the recommendation to attach a heavy shoe to it. If the foot were allowed to remain uncut in sole and frog, it would soon be anything but a weak flat foot; but to mutilate it because it

is weak and flat, and then surcharge it with a clumsy jarring mass of iron that strains limb and crust, is surely a mistake, theoretically and practically.

If I were asked to produce a case of foot disease—such as laminitis, to order, I think I could not do better than follow Mr. Broad's method of shoeing a foot of this description. Take a horse with weak flat feet, pare these well, and attach to them very heavy shoes resting only on the crust, with the usual large number of good-sized nails; then on a hot day in July, drive or ride the animal for thirty, forty, fifty, or even sixty miles on a hard pavement, and if it is able to repeat the journey next day, my slender amount of experience goes for naught.

Mr. Broad asks, "Does not a sportsman with his gun find that he can walk all day in a stout heavy pair of boots more comfortably than in his dress boots?"

Here, again, it is difficult to find any relation between the illustration and the subject under discussion. What is incorrectly, but usually termed the horse's foot, cannot be compared with the foot of man, inasmuch as man's foot is, in comparison with the horse's hind limb, the whole extremity from the hock downwards. Besides, the horse naturally has a hoof on what we may still call its foot, which is far better adapted for travelling than the sportsman's shooting boot, as it is both strong and elastic, and needs nothing but protection to its margin. By injudicious treatment, such as paring, it becomes flat and weak, or those conditions, if congenital, are maintained, or even aggravated, by cutting and rasping, and the horse is then reduced to the plight of a sportsman in dress boots.

If the reasons for resorting to heavy bar-shoes in cases of acute laminitis be founded on Mr. Broad's arguments, I fear they will be far from satisfactory to those of the profession who like to preserve the *juste milieu* between theory and practice. For myself, I am far from denying the utility of Mr. Broad's method of treatment, which nevertheless appears to require several modifications. When I find my own method less successful I will willingly give it a trial, even though I may not be able to satisfy myself as to the way in which very heavy shoes nailed to, and carried about by, inflamed feet, act in subduing the acute inflammation. It is very unlikely, however, that with my present method of shoeing any cases of laminitis will occur among the horses under my care. Weak flat feet are allowed to grow strong, and are shod with the smallest possible quantity of iron properly applied, so that concussion is reduced to a minimum.

Theory is the ruin of my practice, so far as the experience of disease goes.

A word as to the 1865 case I quoted as a practical example of my method of treatment. It was one of those cases in which Mr. Broad would, I think, have unhesitatingly given an opinion adverse to the existence of the animal. The horse could not have been fitted with his two pound shoes: even now he could not carry them; he had not crust sound enough to sustain the weight of a four ounce shoe, and of course we had to wait until enough grew down to hold four or five very small nails. This growth does not usually take place in this part of the world in from two to six weeks, and I am sure Mr. Broad's shoes could not be retained without nails. With common sense treatment, feet which have the soles convex will more or less recover their original form; but, for the reasons given above, I should never for a moment think of effecting this by paring, and the application of heavy shoes. The system is opposed to theory, and, so far as I have witnessed, has proved unsuccessful in practice.

I trust Mr. Broad will not think, for a moment, that the remarks I have made on his method of treating laminitis have been advanced in a captious spirit. Nothing has been, or is, further from my intention. My only object at first was to support his views, in so far as they related to a portion of his treatment, with which I was acquainted practically, and otherwise. If the discussion has led me beyond this, I trust it has been none the less useful. Many valuable papers are constantly appearing in the pages of the *Veterinarian*, and which are passed by without comment, but which would be greatly enhanced if discussed and analysed, and in this way made more noteworthy and profitable to the members of the profession generally.

However widely we may differ in our practice, I am sure I know Mr. Broad far too well, and value his friendship far too highly, to imagine for an instant that he would put any other construction on my motives in this discussion, than that which should ever actuate us in advancing our useful science, the welfare of which we both have so much at heart.

FISTULOUS OPENINGS BETWEEN THE UTERUS AND INTESTINES IN A COW.

By B. Kettle, M.R.C.V.S., Market Drayton.

I forward for your inspection, by train, the uterus, bladder, vagina, and a portion of the intestines of a cow. As specimens of morbid anatomy—so far at least as the uterus and intestines are concerned—I consider them highly interesting and very unusual. I regret, however, that I can only give you a brief and imperfect outline of the case.

Some time last month my friend, Mr. L. G. Walters, V.S., of Newport, asked me if I could kindly attend for him during his temporary absence from home, and it was whilst thus engaged that the subject of these remarks was brought under my notice.

The cow was the property of Mr. Chapman, of Tunstall, six miles from Newport. She had lately failed a little in her appetite, and the day before Mr. Walters was sent for had strained considerably. When I saw her on the day following, I found the symptoms much aggravated. Besides the straining, the pulse was weak and irritable; the vagina was greatly increased in colour and very sensitive; a dirty discharge was also coming from it. I was informed that she had aborted a little before last Christmas, but that since that time she had, under generous keep, been doing well, indeed, putting on flesh, as her owner expressed it.

Being struck by the peculiar character of the matter discharged from the vagina, I explored this passage, and also the rectum. Nothing unusual was detected in the latter, but I found the os uteri would fairly admit the introduction of the index finger, and that the discharge, which was fæcal in character, was proceeding from the uterus. I could find no lesion of vagina or rectum. It appeared that at the commencement of her illness a large portion of feculent matter was observed to be coming through the vagina, which would sufficiently account for the irritation and straining

My diagnosis could be none other than that a communication existed between the uterus and bowels, probably as the result of abscess. I pronounced against the possibility of the animal's recovery, but recommended that she should be kept until Mr. Walters had seen her. This was done, and the result was that Mr. Walters ordered her to be destroyed.

The *post-mortem* examination disclosed a very remarkable state of things. Mr. Walters found, on cutting down upon the enlarged portions of intestines, some of the bones of a calf, and also that several communications existed between the uterus and the intestines. You will find some of the bones of the calf left *in sitû*. Others of them, together with the parts now sent you, Mr. Walters very kindly forwarded for my inspection.

As I hope shortly to enlarge upon this case, I will not now trouble you with any further remarks.

[The uterus in this case had undergone such an alteration of form as to have an appearance of possessing three, rather than two, horns. In one of these, and partly covered by a thick layer of the mucous membrane, several bones of a fœtus, including some belonging to the head, were found. An adhesion existed on the outer side of the cavity, containing the fœtal remains, and the peritoneal surface of the intestines. The continued pressure of the sacculated bones led to the production of fistulous openings into the intestines, through which it seems that several of the bones had ultimately passed into the intestinal canal. Retention of a dead fœtus, and especially if death takes place early in utero-gestation, is not uncommon. No doubt the cow was pregnant with twins, and that one only was aborted on the occasion referred to.]

ABSCESS IN THE KIDNEY OF A COW.

By S. B. Phillips, M.R.C.V.S.

The subject of the disease was a cow belonging to Mr. Chesworth, of Longslow.

I was called to see her on the night of March the 10th, the messenger saying he thought she had an attack of milk fever. Upon making inquiries I found she had calved without any difficulty on the 1st of March; she had always been a healthy animal.

The symptoms I found to be, constipation of the bowels; coma; coldness of the extremities; dry muzzle; cold tongue. Pulse about 60.

I administered a purgative, threw up an enema, gave a diffusible stimulant, and left orders for cold water to be applied to the head constantly.

11th.—On calling early in the morning I was pleased to observe that she turned her head towards me on entering

the shed. Bowels were now relaxed, and altogether the cow seemed much better. Gave an aromatic tonic, and as she refused all food ordered gruel to be given several times during the day.

12th.—I found my patient now standing up, and the man in attendance informed me that she had been straining very much, especially when voiding her fæces; she was very much swollen round the near hip and along the course of the lumbar vertebræ. I applied a blister on these parts, and gave Tinct. of Opii, and left instructions for her to be kept quiet.

13th.—The cow was very much worse with regard to the straining. I examined her rectum. I found the intestine forced very much to the right side by some enlargement. I also felt the obstruction per vagina. I gave a sedative, and informed my client that I had not much hopes of her recovery.

14th.—Seeing no improvement I advised my client to have the animal destroyed, but, as he wished me to continue treatment, she remained in the state I have described until the 7th of April, when death put an end to her sufferings.

On *post-mortem* examination I found the diseased kidney I send: it was not in its natural position, but in the posterior part of the pelvic cavity; an abscess had formed, and when opened at least six quarts of purulent matter issued; this was the enlargement which had been pressing against the rectum. The other kidney was in its proper position, and seemed comparatively healthy.

ŒSOPHAGOTOMY.

By James Ritchie, M.R.C.V.S., Kincaldrum.

On the 18th of March last I was requested to attend to a case of choking, the subject being a young cow six months with calf.

On my arrival I was informed by the empiric already in attendance that he had failed three times in succession to pass the probang the whole length of the œsophagus; to use his own words, he only reached the brisket; at the same time he assured me the obstruction was farther on than the neck portion of the gullet. Being thus far informed I did not make any examination, but attempted to pass the probang. Having more faith in the instrument I had than in the one

that had been tried previously, to my surprise, when the instrument had just entered the œsophagus, I found it impossible to pass it further, so I at once manipulated the upper portion of the neck and detected a large turnip, apparently whole, which was taken by the farrier to be the *knot of the thraple* (larynx). On ascertaining this I tried to push the obstructing body down with the probang, but failed. Tympanitis not being so great as to endanger the life of the animal, I proposed to leave her alone for a time, merely horning over a little oil every now and then, but it returned by the nostrils. I also advised that a trocar should be in readiness in case of the cow getting worse. The swelling, however, entirely disappeared the same day.

Next morning I was informed that the cow could not swallow anything, but that the obstruction had gone. I felt doubtful of this, and made a visit late in the afternoon, and found the swelling all gone, but the cow apparently getting exhausted and the turnip as firmly fixed in its seat as ever. All simple means having been tried and failed, our only course was to perform œsophagotomy. This being decided upon I made a longitudinal incision through the skin, and on dividing the tissues I was again surprised to find a lacerated wound of the gullet over the obstruction, so large that I was able to remove the turnip from the œsophagus without the use of the scalpel. I put in a few interrupted sutures of strong thread, stitched up the external wound with metallic wire, and put a tight bandage round the neck. No solid food was given for eight or ten days; the wound was dressed twice a day with carbolic acid lotion. A few hours after the operation the cow drank a small quantity of gruel. On the 20th March she partook of but little nourishment, but after that her appetite improved. On the 23rd the bandage was removed, and gruel allowed her to drink, when a good part escaped at the wound. 25th.—Bandage removed and the cow allowed to drink, but nothing escaped. 27th.—She has commenced to eat her litter and everything she can get within reach of; some disorganization of parts has taken place. Had the disorganized parts removed and wound cleaned, and again bandaged, and allowed to heal up. 2nd April.—Allowed turnips and straw; swallows with perfect ease; the wound almost healed up. The animal to all appearance is little the worse for the operation.

THE PRINCIPLES OF BOTANY.

By Professor James Buckman, F.L.S., F.G.S., &c.

(*Continued from p.* 331.)

As the production of the seed is a crowning act in the life of a plant, so it will be the last organ that we shall have to describe.

The seed is the reproductive organ of the fruit and is enclosed in the pericarp, having its own particular integuments, the general term for which is the *testa ; e. g.* the skin of the bean or pea, the skin of the chestnut. The body of the bean when the testa is removed is called the *albumen,* and is the nutritious part of the seed. At one side of the bean will be found a rounded point, the *radicle*, which in germination proceeds downwards, and afterwards becomes the root, while a bunch of embryo leaves, the *plumule,* is the commencement of the future plant.

Seeds are fastened to the *placenta* by an attaching ligament called the *funiculus,* terms the meaning and significance of which will be readily understood by the anatomist, who, indeed, will view the seed as an embryo. In the bean will be seen an oval spot where the umbilicus was attached ; this is termed the *hilum.*

At the end of the hilum of the bean will be seen a minute orifice ; this is called the *micropyle,* and its presence in peas and beans causes these seeds to readily harden when exposed to the atmosphere. All the parts of seeds, as is the case in other plant organs, vary much in form, size, colour, and consistence ; differences which render some seeds economically valuable, while others are quite useless.

A further examination of the *albumen* of the bean will show it to be readily split into two distinct portions. *Cotyledons* which in turnips, mustards, &c., form the first cotyledon leaves ; whilst in wheat or barley the *albumen* is not capable of splitting, and its first leaves are in all cases the expanded plumule. These facts, which are united to others of great significance, as the distinctions in the growth both of wood and leaves, form the basis of the classification of flowering plants into *monocotyledons* and *dicotyledons.*

Professor Lindley formed another large class of the naked-seeded plants which comprehended the Conifera, called *Gymnogens.* In the lower tribes of plants the seeds are more simple in structure, being for the most part simple

cells, and hence the term sometimes given to them is that of *Cellulares.* In these it would appear that some decomposable matter is necessary to the formation of new individuals, having which a "little leaven leaveneth the whole lump;" such is the action of yeast in bread, yeast itself being a plant of a simple cellular structure. The seeds of all plants are remarkable for retaining vitality for a greater or less time, quite independent of the parent, and hence they afford a ready means of transporting new plants to a distance either by accident or design; and that they may be the more readily transferred to a distance, many seeds will be found to possess a variously formed winged apparatus that can readily be acted upon by the wind on the one hand, while most seeds are capable of floating on the water on the other.

Much has been said and written upon the longevity of seeds, but we incline to the belief that though it would be difficult in all cases to assign the limit at which the seed of any plant would retain its vitality, yet there is reason to conclude that the assertion that seeds taken from Egyptian mummies have germinated is founded upon a fallacy, and in all such cases we should require very clear proof before giving our assent.

Viewing the matter practically, we know that seeds reserved for use diminish in vitality year by year, as our experiments with turnip seeds have sufficiently shown. The following table is the result of experiments with ten sorts of turnip seeds saved in 1859-60:

Germination of ten sorts of Turnips in 1860 *and* 1862.

No.	Name.	Came up 1860.	Came up 1862.
		Per cent.	Per cent.
1	Mousetail Turnip, 1859	96	46
2	White Globe, 1859	86	44
3	Green Round, 1859	96	94
4	Red Globe, 1860	90	58
5	Yellow Tankard, 1859	92	62
6	Smart's Mousetail, 1860	98	62
7	Green-topped Stone, 1860	84	88
8	Sutton's Green Globe, 1860	98	80
9	Green-topped Scotch, 1860	90	86
10	Early Six Weeks', 1860	90	70
	Came up average	92	72
	Failed	8	28

The above are the results from seeds of two and three

years old. Mr. A. Decandolle experimented on 368 species of seeds fifteen years old; of these only seventeen genera and four of the species came up, and the general results of a series of experiments carried out at the instance of the British Association for the Advancement of Science were, that only a small per-centage of seeds came up of so small an age as twenty years, while in no instance did seeds germinate that had been kept for two centuries; and reasoning from this the late Professor Henslow was "led to doubt the case which had been relied on so much of the growth of mummy wheat by Mr. Tupper from seed supplied him by Sir Gardner Wilkinson." He further states that in a sample from the same source "which he had inspected grain by grain, he found among it two grains of a different variety from the rest; these were perfectly fresh, whereas the others were dark-coloured, with decided indications of decomposition and partial charring. Upon inquiry, he was able to ascertain that the sample was a portion of a large stock which had been taken from a catacomb some years previously, and had been exposed for sale in the jars of a corn merchant at Cairo. There could be no doubt an accidental admixture of a few recent grains left in the jars had taken place. In samples supplied by Sir G. Wilkinson to the late Robert Brown for the purpose of experiment, the latter had found in it a few grains of Indian corn; he thought it not at all improbable that the samples he had examined, and those furnished by Sir G. Wilkinson, might have formed portions of the same stock."—*Reports, British Association,* 1860.

The fecundity of plants is a subject of great interest, as many important matters are explained by its due consideration. We therefore give a list of the numbers of seeds we have estimated some of our common plants to produce:

Common Red Poppy	60,000
Bladder Campion	24,000
Sow Thistle	25,000
Groundsel	48,750
Yellow Toadflax	47,200
Larger Plantain	24,000
Common Nettle	100,000
Foxglove	640,000

This list will be sufficient to show the enormous powers of reproduction some plants possess, and from its consideration we may easily conclude how it is that weeds continue to infest the soil, for if one plant, nay often a single flower should ripen its seeds, enough would be produced to after-

wards occupy a considerable space. Thus the produce of a single flower of the following plants would be as under:

	Seeds.
Sow Thistle	150
Groundsel	150
Yellow Toadflax	118
Foxglove	800
Broomrape	1,000

Couple with these facts also the one that some of the common plants produce their seeds from seed in a few weeks, and may, indeed, have two or three generations in a season, and we have a solution to the commonly repeated story that from however deep you dig up soil, as from wells and mines, you bring up weed seeds, the truth being, wherever we have investigated these assertions, that one or two seeds have developed an unnoticed plant or plants, and as these have seeded on a fresh soil their rapid and complete growth of almost every seed is secured. This subject like that of the asserted longevity of seeds is one which requires rigid scrutiny before we assent to all that has been advanced. Experiment has shown us in the case of wheat sowing that the best results are obtained at two inches, but below four scarcely ten per cent. of the seed will come up; of the non-germinating most of it soon dies, but some would maintain its vital powers for many months. In nature, seed of course, is sown on the surface of the soil, in which case much of it is lost from various causes. In experiment it is buried, and so far screened, and, according to the experiments of Petri, beyond the depth of one inch, with a fast decreasing proportional of germinal power.

Table of the Germination of Seeds.

Seeds sown to the depth of	Came above ground in days.	Number of plants that came up.
½ inch.	11	Seven eighths.
1 „	12	All.
2 inches.	18	Seven eighths.
3 „	20	Six eighths.
4 „	21	Four eighths.
5 „	22	Three eighths.
6 „	23	One eighth.

Temperature has a great deal to do with germination; thus during the present spring we have had some oats several

weeks in coming up, while barley sown in warm weather was up in four warm days.

Seeds are, however, very variable in this respect, for whereas mustard and cress will germinate in a few hours, the *Haws* of the white thorn and some of the seeds of sloe fruits will take from one to two years.

In practice we find that all seeds will germinate more readily by being soaked in water previous to sowing.

The temperature at which seeds germinate has formed a subject of inquiry by several observers. If the temperature be too low seeds cannot germinate at all, and if too high they grow so fast as to become weak and spindly; it is, therefore, a point between these extremes that will be best suited to plants, and this point would seem to vary with the individual specimens.

Edwards and Colin found that wheat, barley, and rye could germinate at 7° centigrade (44·6° Fahr.), and that grain of the same description did not apparently suffer by being exposed for a quarter of an hour to a temperature equal to freezing mercury. Such grains were afterwards placed in a proper situation, and germination took place as usual. Considering that particles of fæcula of which seeds consist are not liable to bursting below a temperature of 75° centigrade (167° Fahr.), these observers were led to ascertain how near an approach to this extreme temperature might be made without destroying vegetable life. Seeds of various cereal and leguminous plants were placed for a quarter of an hour in water of this temperature and they were all killed; five minutes were afterwards ascertained to suffice for the destruction of three in five. Less elevated temperatures were next experimented on. Wheat, barley, kidney beans, and flax, were killed in twenty-seven minutes and a half by water, at 62° centigrade (143·6° Fahr.); a few grains of rye and some beans required a longer exposure to be destroyed. When the temperature was lowered to 52° centigrade (125·6° Fahr.), most of the seeds in experiment retained their vitality, but even this was fatal to barley, kidney beans, and flax.*

The disruption or softening of the external tissues or coverings of seeds greatly aids the process of decomposition of seed, which is the prime element in their digestion; and, indeed, without this, either by cooking or bruising, seeds can pass through the stomach of animals without having their vitality impaired. Hence, as a matter of economy, corn

* See Lindley's 'Introduction to Botany,' vol. ii, p. 262.

given to horses and cattle should always be bruised. On the farm where tail corn is used up, as this is frequently mixed, with the seeds of weeds too small to insure their being bruised, we always boil the whole together for full half an hour before using it for feeding purposes; and were this system more practised, so many weed seeds would not find their way about the farm as we everywhere see to be the case.

These remarks will show how much practical matter may be derived from the study of seeds; but this will appear in even a stronger light when we examine the subject in its chemical relations, which we hope to do in our next paper.

EDUCATION AND EXAMINATION OF VETERINARY STUDENTS.

By X. Y.

I READ with much pleasure in the *Veterinarian* for March and April the inaugural addresses of Messrs. Greaves and Gibson to the Liverpool and Lancashire Medical Association, also the remarks thereon by the members present, on the subject of the education and examination of veterinary students; but why this should have been so long from being put into practice I am at a loss to conceive, so much having been written on the respectability of the veterinary profession, I may say, since the first issue of the *Veterinarian*. And what has been done? comparatively nothing. True, a Charter has been obtained by which it is now a recognised profession, but will any one tell me that it has been the means of causing a better class of young men to enter the colleges? No. And so long as there is no *preliminary* examination, and the present low scale of fees, there is no inducement for the better class of young men to enter. I was lately asked by two M.R.C.V.S.'s to look at another member whom we met in a fair, and as we stood behind him, surveying him from head to foot, one of them says, "there is a specimen of a member of a liberal and enlightened profession;" and certainly he had more the appearance of what we call in this country a butcher's swab. But I have seen many who can put M.R.C.V.S. after their names, and dress decent, yet from their education and low habits formed are no credit to any profession. You may say, turn to the medical profes-

sion, and you may see those who reflect no credit on it; true, but it is no fault of the heads of that profession if one of their members falls; they have been educated and still retain some characteristic of the gentleman; but what are you to expect from those who have been brought up, as Mr. President Gibson says, "with the lowest of the low?" and yet men of this class are still admitted, who are unable to spell correctly or put a dozen words properly together. How truly Mr. President Greaves depicts the position of the fifteen-months student, showing clearly the necessity of a practical examination; but I would say that it is not within the walls of the veterinary schools that they can have the opportunity of becoming *au fait* in the performance of operations, unless a third session is added to be devoted to practice, and by all means a close practical examination before obtaining the diploma. I believe then the profession would rise in the social scale; and justice be done to the public as well as to the pupil, whose diploma sets forth what in reality he is not, "fully competent to practise the art and science of veterinary medicine and surgery."

And now permit me to say a few words on the fourth clause of the proposed "Veterinary Medical Act." I read that Mr. Gibson thinks that the act recently obtained by the Pharmaceutical Society might be a guide in relation to the fourth clause as regards parties practising without a diploma, and that "there are many who would willingly pay a fee, and undergo a modified examination, and produce certificates of competency from influential men by whom they have been employed."

And in the April number Mr. Walley, after giving a correct version of the Pharmaceutical Act, says, "Nearly all chemists and druggists are necessarily educated and respectable men, while there are many farriers and cowleeches who cannot write their own names. Such men as these should not be admitted, unless, indeed, they can pass a good oral and practical examination, but those who have received a good education, and can produce certificate of character and competency, should be registered in the same way as the chemists and druggists." Now as to the first part of Mr. Walley's in reference to farriers and cowleeches, in the name of common sense why admit such under *any* circumstances at a time when the whole body of the profession are crying out for educational tests in the new aspirants for the diploma? The thing is absurd, but, indeed, there are few of this class would trouble you.

Having my name in your list of "Contributors," and

having written to you before on this subject, you are aware I am one of those practising without a diploma, and I am induced to write again on the same subject, seeing that a great number of the profession are inclined to do us justice, and I would respectfully press the matter before the profession. They would find that there would not be so many press forward before the appointed ordeal as might be expected. I know most of the members, as well as those *uncertificated,* in the north and west of Ireland at present practising as veterinary surgeons, and I am sure there are not more than *five* who would be at all likely to present themselves; they have always practised and been recognised as veterinary surgeons, and holding a respectable position; one of them I believe holds the certificate of the Highland Society, and another has spent two sessions at the Veterinary College; each of us are engaged in practice, have families, and could not leave our business for any length of time. I see a Veterinary Medical Association is about to be formed in Dublin, and I would respectfully suggest that a board, composed of a few of the city veterinary surgeons, including some of the vets. of the garrisons quartered there, should be appointed to examine such candidates as would present themselves, subject, of course, to such conditions as might be laid down by the Council of the R.C.V.S., but, by all means, they should have the power to reject any candidate for want of education and social position.

I remain, &c.

Pathological Contributions.

PLEURO-PNEUMONIA.

Since the publication of our last number the severity of this disease seems to have abated in the London dairies, but in the home counties, and also in Nottingham and Yorkshire in particular, it continues to widen the area of its existence. We learn that the malady has assumed a very malignant type on a farm near to Northallerton, and that it is also attacking one animal after another on a dairy farm in the neighbourhood of Nottingham. As we have so frequently remarked, nothing short of stern legislation will keep this contagious and destructive disease in check.

CATTLE PLAGUE.

Down to the middle of May we have information that the cattle plague was prevailing extensively in many parts of Lower Austria, Hungary, Transylvania and Galicia. It is also reported to be raging to an alarming extent in Turkey, in Asia, and great fears are entertained that it would again be conveyed to Egypt. During 1868, 35,519 animals are reported to have been attacked with the plague in Roumania and adjacent Turkish provinces, out of which 18,708 died.

Reports have also reached us of the existence of a very fatal and contagious disease among both cattle and sheep in the country around Erzeroum in Asia Minor, but the information is not sufficiently explicit to enable us, at present, to state the true nature of the malady.

SMALLPOX OF SHEEP.

According to our advices from the Continent, the smallpox of sheep prevails in many places, some of which are far removed from each other. Thus we learn that the malady still exists both in East and West Prussia, and that it was reappearing in other parts of the kingdom. Pomerania and Hanover are also infected. The province of Drenthe in Holland is still slightly suffering, while Schleswig-Holstein is reported as being free of the disease. The malady has also shown itself in Southern Italy, especially in the districts surrounding the towns of Cotrone and Gallipoli. In the neighbourhood of Brindisi fewer cases are said to exist than during last month.

SCAB OF SHEEP.

This parasitic and highly contagious disease is reported to be prevalent to an unusual extent in many parts of Northern Europe, especially in Pomerania. An export trade in cattle and sheep has, we learn, sprung up between Leith and Stettin, one of the chief ports of Pomerania, by which an increased risk is run of infected sheep finding their way here, as not only scab prevails in the neighbourhood of Stettin, but the smallpox is believed not to be yet extinct.

DEATH OF LAMBS FROM TICKS.

It is seldom in this country that we notice any serious ill consequences arising from an attack of ticks, *ixodes ricinus*, although in more southern climes, particularly in Brazil and other parts of South America, it is a frequent occurrence even for oxen to succumb to the irritating and exhaustive effects of these parasitic epizoa. Temperature has no doubt much to do with the multiplication of these parasites, and the great heat which prevailed last summer, followed by the mildness of the winter, favoured both their reproduction and preservation in unusual numbers in England. During the last month we have been consulted respecting the death of several lambs, in the county of Kent, from attacks of ticks. Portions of skin were sent us which may be described as being thickly covered with these epizoa. Their size varied considerably, many being as large as beans, while others were not bigger than kernels of wheat. They were still firmly holding on, their sucking organ being deeply planted in the skin; nor could they be detached without breaking and leaving this in the common integument. The covering of wool so completely concealed most of them from observation, that the true cause of the death of the lambs was not at first understood. Two varieties were chiefly met with, the *ixodes rubidus* and *ixodes plumbeus*. Dipping the lambs in a diluted mixture of carbolic acid was found effectual in destroying the parasites. We record these cases as the first coming to your knowledge of animals sinking under the irritative and emaciative effects of ticks.

Mr. Charles Morgan, V.S., Nonington, near Wingham, to whom we are indebted for specimens of the parasite, says, in his communication, that "they had attacked sheep and lambs, both on upland and marshes, and that one farmer found a large quantity on some colts which were at pasture on a marsh near to sheep."

PARASITIC DISEASE.—THE STRONGULUS ARMATUS.

A case of extreme emaciation of more than usual interest has recently come under the notice of the Professors at the Royal Veterinary College. An aged blood-mare, thoroughbred, was admitted into the Infirmary a few weeks since, suffering from some obscure disease, the most prominent

symptom of which was continuous wasting. Prior to her admission she had been for several months under the care of a veterinary surgeon, but without any benefit being obtained. Her weak and irritable pulse, haggard appearance, fastidious appetite, and great emaciation, led to a diagnosis of the case being one of *tabes scrofulosa*. After remaining in the infirmary about two months, during which time trial was given to various remedies, her owner consented to have her destroyed.

The *post-mortem* examination showed that she was a prey to entozoa; thousands of strongyles—*strongulus armatus*—being located in the intestinal canal, particularly in the cæcum and colon. The coats of the intestines were thickened in places from the burrowing of the worms into the sub-mucous tissue to deposit their ova. The mesenteric arteries were enlarged throughout, and their coats indurated and greatly increased in thickness. On slitting them up they were found to contain a large number of young strongyles, sexually immature, which had produced extensive disease of the inner coat of the vessels and an aneurismal condition of the mesenteric artery at its origin from the aorta. A remarkable feature in the case is that none of the medicinal agents led to the expulsion of any worms from the intestinal canal; hence a difficulty in forming a correct diagnosis. The mare had bred several foals, and appeared to be in perfect health until after the weaning of the last one. Originally she was an animal of great value, having cost her owner several hundred pounds.

An allied case in a yearling thorough-bred colt was seen by Professor Spooner, at the Willesden Paddocks, almost immediately after the death of this mare. The young animal was the subject of rheumatismal inflammation of the joints, but its emaciation and weakness were so great that it was at once suspected that some other cause was in operation. Within a few days the animal died, and the carcass was forwarded to the College for examination.

The autopsy revealed the fact that myriads of strongyles were located in the large intestines, and that their sexually immature broods had found their way into the branches of the mesenteric artery, causing extensive disease in the coats of the vessels.

TRICHINIASIS IN SWITZERLAND.

M. Zündel, of Mulhouse, writes that trichinæ have made their appearance in the canton of Ticino, at Ravecchia, near Bellinzona, and that several persons had suffered from trichiniasis, five of whom had died. Professor Zangger, of the Veterinary School, Zurich, had instituted an inquiry on the spot, and discovered trichinæ in some pork obtained from a "ready-cooked pork-shop."

It is not known by what means the entozoa were imported into Switzerland; but the researches of Professor Metzdorf have shown the presence of trichinæ in rats killed at the common slaughter-house in Zurich. M. Zündel adds that similar researches made at Mulhouse have not shown either the flesh of pigs or rats to be affected with trichinæ.

CRUSTA LACTEA IN LAMBS.

Our attention has been called to some interesting cases of skin disease which have shown themselves in several parts of the country among the lambs. The disease has most of the characters of so-called *Crusta Lactea* of the human infant; indeed, it appears to be identical with it in its pathology. The parts affected are chiefly the face, eyelids, and ears; on the latter especially the crusts are thick, and of a dark colour. In some lambs the eyes suffer considerably, and a glutinous discharge comes from the conjunctiva, which glues together the lids. In a few cases the disease extends down the neck of the animal, after having existed for a few weeks; but in the majority it is confined to the head and face. It is accompanied with much irritation, and the young animal frequently breaks the crusts, and causes slight hæmorrhage from the surface, by scratching and rubbing the parts. Death has followed in a few instances from irritative fever. The attack generally comes on when the lamb is about three weeks old, but only about half a dozen cases are usually found in a flock of 150 to 200. The disease does not yield readily to treatment. We have found it necessary to bring the lambs with their dams into the sheds, so as to protect them from the sun, and also inclement weather. Good nursing is required, and also careful dressing and cleansing of the affected parts. The application of the oxide-of-zinc ointment has proved bene-

ficial. In some cases advantage has resulted from the exhibition of the bicarbonate of potash to the ewes, after the use of a saline aperient.

THE APPLICATION OF DRY EARTH TO FISTULOUS WOUNDS.

Mr. G. A. Oliphant, V.S., Royal Artillery, writes us that, "having observed an extract from the *Lancet* in our last issue, respecting the application of 'dry earth' to wounds, and having recently given trial to it, he sends a short notice of the case." About a month ago Mr. Oliphant was induced, at the suggestion of a medical friend, and also, as he says, having had experience of the use of dry earth for sanitary purposes in India, to give trial to the agent in a long standing case of "poll evil," in which only partial success had resulted from his previous treatment. "After a few days' application of the earth, the discharge, which was before thin, dark-coloured and fœtid, became less in quantity, more of the character of laudable pus, and perfectly inodorous. The wound also began to fill with healthy granulations." Although the cure is not yet complete, Mr. Oliphant has every reason to hope that such will soon be effected.

LUSUS NATURÆ.—DOUBLE-HEADED CALF.

Mr. W. Wilson, Broughton, Lancashire, has forwarded to us the upper part of the neck of a fœtal calf with two heads attached to it. The heads are of equal size, and closely resemble each other. They are fully developed. Mr. Wilson writes that the presentation was a breech one, and that delivery could not be effected until the greater part of the fœtus was removed by dissection. He further says that this is the fourth case of the kind which he has met with during twenty-five years' practice. "The first calf was delivered alive, but only survived about half an hour. The two next were born dead; and this one had to be cut away. Generally the heads are unequal in size, but in this case they are a *beautiful pair*."

An examination of the vertebræ showed that, with the exception of the atlas and dentata, the bones were of natural shape. The dentata did not much differ from the normal

form; but the ring, or body, of the atlas was curved from below upwards at its anterior and middle part, and had attached to the extremity of this curved portion an extra piece which was carried with a sweep upwards and backwards to join the body of the bone superiorly. This interposed portion of bone contributed on either side to the formation of the concavities for the attachment of the two occipital bones. The spinal marrow was not bifid, as only a common but enlarged cavity existed in the atlas.

MOLLITIES OSSIUM.

We are indebted to Messrs. Crowhurst, Brothers, M.R.C.V.S., Canterbury, for a specimen of softening and enlargement of the lower maxilla of a mare. The animal is described as being five years old, and to have been free from disease until about six months ago, when she was brought under Messrs. Crowhursts' care for a sprained tendon. Subsequently to this date she fell away in condition, particularly during the last three months; her mastication being very imperfect. A sudden attack of cerebral disease led to her death.

On making a *post-mortem* examination it was found that all the bones of the head, with the exception of the nasal bones, were softened to an extent as readily to admit the point of a knife being thrust through them. The inferior maxilla was not only softened, but enlarged throughout; and the alveoli had undergone such changes as led to the molar teeth being pressed downwards to a level with the bone. All the other bones of the body appeared to possess their normal density. The mare was the property of a miller.

In our April number we published an interesting article on *Mollities ossium*, from the pen of Professor Brown, in which allusion is made to cases of the disease which came under the care of Professor Varnell and Mr. Shave, M.R.C.V.S., Chelmsford. In these instances, also, the horses were the property of millers, which would lead to the inference that the origin of the disease was due to something deleterious in the food usually supplied by such persons to their animals.

The microscopical appearances in Messrs. Crowhursts' case were identical with those described by Professor Brown in the paper referred to.

Facts and Observations.

Virulent Corpuscles.—M. Chauveau, the indefatigable veterinary pathologist, has just placed before the Academy of Sciences of Paris a paper wherein he gives full details of the manipulations by which he succeeds in separating virulent corpuscles from the serum, or menstruum, in which they float. He succeeded in isolating such corpuscles from the pus of a pulmonary abscess affecting a horse suffering from glanders. The author transferred the corpuscles to distilled water, inoculated the latter to two animals, and they soon perished with glanders. It would be worth trying whether carbolic acid would not destroy the activity of the corpuscles.—*The Lancet.*

Creasote in Typhoid Fever.—It seems now settled that carbolic acid, and, in general, the results of the destructive distillation of wood or tar, shall be tried in all complaints. We are now doing, to a certain extent, what Raspail loudly advocated. He was a learned chemist, but did not belong to the profession, and conceived that animalcules were the cause of all maladies; hence he proposed a universal panacea in the shape of *camphor*. The working classes in France still swear by Raspail. Now we find Dr. Péchollier, of Montpelier, using creasote in typhoid fever. More than sixty patients were thus treated with apparent success, and the author considers that with creasote the contagious influence is lessened.—*Ibid.*

Official Issue of the New Nomenclature of Diseases.—We understand that arrangements are being made at Her Majesty's Stationery Office for the distribution of eopies of the new "Nomenclature of Diseases," to every legally qualified member of the medical profession in the kingdom.—*Ibid.*

Potted Beef.—A man of the name of George Pindy, a dealer in tripe and potted! beef at Birkenhead, has just been sentenced to six weeks' imprisonment and hard labour for having in his possession meat unfit for human food.—*Medical Times.*

London Corpse Dust.—At the meeting of the *Academie des Sciences* it was stated that M. Freycinet, a mining engineer, in his work *on Sepulture in its Relation to Public Health,* declares as a result of the calculations he has made of the soil of London that it contains 50,000,000 kilogrammes of human remains.—*Ibid.*

THE VETERINARIAN, JUNE 1, 1869.

Ne quid falsi dicere audeat, ne quid veri non audeat.—CICERO.

THE ANNUAL MEETING OF THE MEMBERS OF THE VETERINARY PROFESSION.

HISTORY repeats itself, at least we have authority for the assertion, and if we had possessed sufficient faith in its ultimate truth to stereotype our remarks on the Annual Meeting in the *Veterinarian*, June 1, 1868, we might very well have spared ourselves the trouble of setting up an article on the same subject in the present number, as there was nothing new either in the matter discussed or the results which were arrived at. Last year we felt constrained to inquire in respect of the proceedings of Council, "What has been done?" and again the question forces itself upon our attention, urgently, but in vain. Year after year the Council holds quarterly and special meetings, always in accordance with the provisions of the Charter, discusses important subjects connected with the political, scientific, and social welfare of the profession, and publishes an annual report for the edification of the body corporate.

At the annual meeting it is customary for the proceedings of Council to be censured more or less severely by one of themselves, and even the construction of the report is generally criticised by a member of the committee appointed to draw it up. Some half-dozen of the members of the profession follow suit, a sort of cross-examination of imaginary witnesses is kept up for a short time, and the meeting proceeds to what seems to be the real business of the day—and for the conduct of which many members travel hundreds of miles—*namely*, the election of six members of Council in place of those retiring by rotation; and as most of the retiring members are re-elected, the amount of work actually done is not quite in proportion to the trouble involved.

What the feeling of the profession may be on any one of the points which are brought forward for discussion may be

conjectured, but it can never be determined. Under no circumstances can five per cent. of the members be got together. Of the sixty or seventy veterinary surgeons who assemble on the first Monday in May, in Red Lion Square, seldom a tenth part expresses any opinion, and as Mr. Smith, of Norwich, pointed out at the last meeting, without a resolution it is impossible to discover what the feeling of the assembled members is in reference to the subjects submitted to them.

Mr. Hunting attempted an innovation by proposing an amendment to the report; his intending seconder, however, did not, in the course of his remarks, formally second the proposition, and consequently it was not put from the chair, or we might have had to record the unprecedented circumstance of the rejection of the annual report.

The report, however, was adopted, and we are left as much as ever in the dark as to the feeling of the profession upon the subjects which were referred to as having been under the consideration of the Council. All we do know is, that precisely the same points were discussed last year, and with exactly similar results; and so it may be to the end of time, unless the members of the profession emerge from the state of apathy into which they have fallen, and take action to secure those much needed reforms which the Council admit their incapacity to accomplish.

To censure the Council, however, for lack of energy would be absurd, for are we not told at every annual meeting that the representatives of the corporation have no power to interfere with education, or to institute preliminary examinations, or, in short, to do anything beyond the routine business of meeting in ordinary and discussing the very important question what to do, without ever being able to decide how and when to do it?

If the Charter is really obstructive, instead of quoting its provisions against every suggested improvement, let it be consigned to the shelves on which the archives of the Institution are allowed to rest in undisturbed dust, and let another Charter be obtained which will allow the representatives of the corporation to do something more than

meet and discuss "matters of importance to the interests of the profession."

Other societies enjoy freedom of action quite independent of the existence of restrictive clauses, but we, with a fortitude which deserves a happier fate, perpetually sacrifice our best interests at the shrine of legal rectitude. Are we so overwhelmed with the recollection that our profession is legally constituted, as to fail to perceive the necessity for acquiring something beyond the barren right to the name and title of Veterinary Surgeon, or must we always be content to remain inactive in order to avoid clashing with the provisions of the Charter?

Extracts from British and Foreign Journals.

ON INCREMENT OF ANIMAL HEAT.

By Benjamin W. Richardson, M.D., F.R.S.

During the past few years we have employed, as practical Physicians, a precise method of medical research—I mean the method of determining the animal temperature by means of the thermometer, and of estimating the value of these thermometrical readings in the natural history of disease. The research has crept upon us in an insidious way. It has been headed by no single individual as the opening of a new system. There is no Harvey in the case, no Laennec, no Jenner. In one sense the study is, indeed, the oldest in Physic. The word "fever" and the word "inflammation" each alike testify to the antiquity of the research. We, therefore, who of late have been observing the variations of the "calor vitalis" in disease, have been doing little more than refine on the past, assisted greatly in our work—lifted into it, indeed—by those wonderful preliminary researches, in respect to the natural temperature of animal bodies, which John Hunter, Pallas, Fisher, Scoresby, Despretz, Metcalfe, and, above all, John Davy, have left to us.

We have learned, however, for ourselves many new facts of late years. I may call them facts of precision. We have

brought our instruments for observation to great perfection, and we have so attentively determined the temperature of the body in many diseases, that we know the thermal range of such diseases well.

With all this we have much to learn: we have yet to arrive, in relation to animal heat, at what I may venture to call the engineering part of the question. We not only want to learn the bare fact that in such and such a malady there will be manifested such and such a temperature, but we want to be profoundly acquainted with the meaning of the whole subject. We want to know whether the rise of temperature or the fall of temperature, from the normal standard, is a cause of the other attendant phenomena, a coincidence or a sequence. We want to learn, above all things, again, what variations from the natural thermal standard, above it and below it, the animal body will sustain; what symptoms will run with each variation; what extremes of temperature will impede or stop the animal mechanism. I hope to elucidate these questions somewhat, and I propose to-day to consider one of them so carefully as to leave on the mind a definite major fact and some minor facts. I propose to inquire what increment of animal heat will positively prevent motion in an animal, and when we have found out satisfactorily I would next try to discover the reason why a certain increment of heat did, as we shall see it will, prevent motion. Before proceeding further, however, let me, having directed the eye to the point towards which we are bending our way, make one or two preliminary explanations.

1. Let me first explain that, in speaking of the increment of animal heat, I am not speaking of the degree of heat outside or surrounding man or other animal, in which life can or cannot be sustained, but that I am treating of the increment of heat which the animal body itself can bear. I shall, it is true, produce in some instances an increment of animal heat, of heat within the animal body, by the addition of heat from without, but this only as a ready means for learning a fact; for I shall also show, in another lecture, that increment of heat in the organism may be induced in an ordinary temperature or medium by various changes in the body itself, as it is in every day disease. I press this explanation earnestly, because without it we shall not understand each other: think, then, nothing of the external temperature; think only of actual animal temperature; think of thermometrical readings only as they are derived from the animal body itself—from the mouth, the throat, or other part.

2. Next let me explain that the direct readings of the thermometer which we are able to take from the most accessible parts of an animal—from the open cavities—are not of themselves accurate readings of the mean temperature of the whole of the body. If we take a reading from the mouth of an animal, and another reading from the stomach, or if we take a reading from the lower third of the rectum and another reading from the upper third, we shall find a difference in favour of the more internal part of good 2° Fahr.; or, if we take a reading from the mouth or rectum, and compare it with the reading from one of the serous cavities, or from the centre of the body of a large muscle, we shall again find a difference in favour of the more internal part of good 2° F. If we take our readings from the outside of the body, and compare those readings with the readings from the internal cavities, the difference will be twice greater still, or even more. For these reasons I myself, in research, have given up readings from external parts altogether; and when I read from the mouth, rectum, or, in the bird, from the cloaca, I feel it is necessary from direct observation, to add 2° F. in order to express the mean of the body at large. When, therefore, I speak of the maximum of animal heat in any given case, it will be understood I speak of the mean degree of heat of the whole body of the animal.

3. In the third place I would point out that in culminating the increment of heat, however produced, in any individual animal, it is necessary to date, not from a general rule or principle respecting the assumed natural temperature of the animal, but from direct observation made immediately preceding the experimental investigation. It is a common idea that all warm-blooded animals possess and maintain a given standard of animal heat under different conditions. This is an error which repeated experiment soon puts right. Thus I find in pigeons kept with every care, well fed, well protected, there are variations of temperature ranging from 106° to 109° F. This range of full three degrees extends to all other animals of warm blood which I have studied, and we may, I think, note as a fact that in animal bodies there is an allowance made for fluctuations of temperature, an allowance for expansion and contraction, if we like to express the matter so, of three degrees on Fahrenheit's scale. Hence, in making any given research, we are bound to note the actual temperature of the animal for a period of an hour at least before we induce unnatural increment of heat, and to reckon from the figure thus registered. By this mode of procedure we shall discover in many places natural differences in animals of the same kind, natural differences of

range itself. I have one pigeon, for instance, which has a natural range of temperature running from 107° to 111° F., the mean being 109°. I have another pigeon in which the natural range is from 105° to 107°, the mean 106° F.

4. In considering the temperature of the animal body in different individuals of the same species, age must be carefully taken into account. I believe it will be found in the course of further experimental inquiry that each period of life is marked by a distinct thermal range, and that what would be a natural thermal reading at one period of life would be unnatural at another. In the case of the two pigeons noticed above, age is probably the cause of the difference, for the bird with the lower temperature is three years older than its neighbour with the higher temperature. Metcalfe, who made a series of observations as to the temperature of kids and goats, cats and kittens, and young and old horses, drew a similar inference. Thus in a she-goat three months old, he found the temperature of the body was 107°, while in the mother of the same animal the temperature was 104°. In a kitten two months old the temperature was 105·5°; in a vigorous, nearly full-grown cat, 104°; in a full-grown cat three years old, and mother of the kitten, 103·5°; and in a cat in the nineteenth year, 102°. In a horse four years old, he found a temperature of 104°, and in a mare twenty years old 100° F. In the human subject, a sufficient number of observations have not been conducted to enable one to speak with precision on the ranges of temperature according to age; but the general fact that there is variation, and that there is persistent decrease in the advanced periods of life, is proved. It will take some years of careful and patient research to observe and write down the all-important details bearing on this subject. It is clear that in the aged there is not merely an objective decrease of heat—that is to say, not a mere decrease of sensible heat—but a decrement also of specific heat, so that the body in advanced life is less able to oppose great fluctuations of atmospheric temperature.

5. The condition of the body in respect to fatness or leanness is another modifying influence to be remembered in estimating animal temperature. As a rule, a body in good condition has a higher standard of temperature than a body that is badly nourished, or than a body that is unduly loaded with fat, and one very important observation deserves to be made in relation to the presence of fat in young and active bodies. The observation is this—that whenever in such subject there is within the organism a cause at work leading to an undue accumulation of heat, there is, owing to the imper-

fect conductive power of the subcutaneous layer of fat, a more rapid increment of heat. For this reason children who have a thick layer of adipose matter run most risk in acute inflammatory disorders and in exanthematous diseases; indeed, in these the temperature of the body may be raised to the point of dissolving the fatty matter itself, so that the blood may have free oily substance floating in it. As I have already stated in a previous lecture, free fat is often found surrounding fibrinous separations in young children who have died from acute inflammatory disease.

6. Again, let me urge the importance of watching the influence of season on the thermometrical readings of the animal body. In sound states of health there will always be a slight increase of mean temperature of the body during the heat of summer, and a decrease of the mean temperature during the cold of winter. It is true that nature does much to equalise; that the free action of the skin and lungs in the hot, and the slow action of the same organs in the cold months, specially, tends to equalisation. But a difference ranging from one degree and a half to two degrees Fahrenheit must still be allowed, and it must be borne in mind that an extreme increase of animal temperature in the cold months is a much more serious matter than the same increase in hot months of the year. Further, there are some months which are specially critical in these respects; there are months when animal increase is enormous. Thus the late Mr. Milner, of Wakefield, in a research the most severe and exact of its kind I ever remember to have read, discovered that in the month of March there is a loss of weight in the body equal to 0·95, and in August an increase equal to 0·70, the loss commencing in October and going on to April, and the gain commencing in May and continuing until August, the *great* loss and the great gain being equally sudden and determinate at the close of their periods—*i. e.* in March and in August. These same periods it is of moment to remember in relation to fluctuations of animal temperature. An unusual rise of temperature during the present month, for instance, when a process of waste is naturally progressing, is specially dangerous; it means increase of waste with diminution of reserve power.

7. Lastly, when we turn from man to different classes of animals, it is essential to bear in mind the differences of arrangement for the conduction of heat from the outer surface of the body. An animal thickly and persistently covered with fur, or wool, or feathers, and which has an imperfect cutaneous mechanism for disposal of water by evaporation, will, *cæteris paribus*, have a higher temperature than another

animal which, covered in the same way, does not lose water by the perspiratory process. And again an animal, like man, who has a surface very lightly covered by nature, and at the same time a most elaborate cutaneous excretory surface, will have, *cæteris paribus*, a lower temperature than both other classes. As showing this fact, let me write down a table which includes direct observations of my own, and which gives these observations corrected by those of Dr. John Davy, Pallas, Despretz, and Metcalfe.

Temperature of Animals compared with Temperature of Man.

			Degrees, Fahr.
Mean temperature of	Man	. . . .	98
,,	,,	Sheep	104
,,	,,	Goat	104
,,	,,	Ox	101
,,	,,	Horse	100
,,	,,	Cat	102
,,	,,	Dog	102
,,	,,	Rabbit	103
,,	,,	Guinea Pig . . .	102
,,	,,	Pigeon	108
,,	,,	Common Fowl . . .	108
,,	,,	Duck	108

In recording these figures I have placed before you mean results. In the case of pigeons the mean is derived from ninety-four observations, in the human subject from one hundred observations. In all there have been found individual differences, due to external temperature and other disturbing influences; but I believe the general deduction is accurate, and that the table is reliable.

On looking over this table we might, *à priori*, suspect that those animals which have the highest natural temperature will most readily suffer from increment of heat on being surrounded with air heated beyond their own natural temperature. This is the fact; and upon it we may try to determine two distinct points—first the temperature of the external air which is fatal from excess of heat, and secondly the increment of temperature of the animal body which is fatal.

In respect to the first of these determinations, I may state at once that, other things being equal, the power of an animal to live in a raised temperature is proportionate to its power to convey away heat by evaporation of water. Of all animals man, perhaps, possesses this power in the most marked degree. His skin and lungs are so actively called into play in heated air that he can survive in a temperature which

seems, on mere statement, incredible. But animals such as the fowl, the pigeon, and the cat, whose bodies, surrounded by good non-conducting material, eliminate water slowly, are very differently constituted, and are charged with a fatal increment of heat with comparative readiness. For example, I myself entered a hot-air bath the temperature of which reached 212° Fahr. In this air the albumen of an egg coagulated in ten minutes. I had, however, no difficulty in living under this condition for twenty minutes, and I came out of the ordeal uninjured; but a fowl in the chamber with me, breathing the same air, was struck instantly by the heat, in three minutes was insensible, gasping, tetanic; and, taken out at once into air at 65° F., was unable to recover. At what temperature a man would die from exposure to heated air is not as yet known; but respecting the lower animals the facts are within reach. In the case of the pigeon, the duck, the common fowl, the cat, the guinea-pig, and the rabbit, the temperature of 145° to 150° Fahr., is sufficient to lead to fatal increment of animal temperature. Great variations nevertheless may be observed in the opposition to increment of heat offered even by these animals. If the animals be allowed free motion of body, there is resolution of heat into motion, and therewith a capacity for living action, which may be wonderfully pronounced. In fact, experimental observation based on the temperature of the air only would be fallacious and useless.

To arrive, therefore, at exact facts respecting the increment of heat in animals, we must let the observation of surrounding temperature hold a secondary place. If we take care to impede the radiation of heat from the body of an animal, we may produce fatal effects even from summer heat. If we do not take this precaution, we must increase the temperature. Under either condition we shall do no injury until the body of the animal itself is elevated in temperature up to a given degree; in other words, whatever may be the outer temperature, a certain increment of heat within the body itself must be reached before there is danger.

Can this fatal increment of heat be determined with any degree of exactitude? Is it variable or steady in different animals? Is it marked, in intensity, by outward symptoms or signs?

To these questions—which, indeed, are first principles in the physical reading of disease—I give an affirmative answer. The fatal increment of animal heat is readily determined; in warm-blooded animals it is more variable than the natural variations of ordinary animal temperature, and it is marked

by certain external signs, which, from stage to stage, steadily indicate its degree.

Fatal Increment of Animal Heat.

The increment of heat in a warm-blooded animal which proves fatal is from 11 to 12 degrees on Fahrenheit's scale. I have never seen a recovery under any after condition when once the increment of 12 degrees has been reached, and I seen a fatal result from 10 and 11 degrees. The rule seems to be subject to so few variations it may be accepted as practically absolute. In animals having naturally a difference of temperature the rule holds equally good. Thus a pigeon having a natural mean temperature of 108° will succumb when the temperature of its body is raised to 120°, and a pigeon having a natural mean temperature of 106° will succumb when its temperature is raised to 118°. A rabbit having a temperature of 104° will succumb when its temperature is raised to 116°, and a cat having a temperature of 102° will succumb when its temperature is raised to 114°. In brief, the 12 degrees of heat on Fahrenheit's scale added to the natural degree of heat of the animal becomes the fatal degree. I believe the same rule applies to man.

In order to determine the fact I have named, an amount of labour and care has been required which at first sight might seem improbable. Judge for yourselves how far possible sources of error have been excluded, and pray, if you see a fallacious step, tell me of it. We use for our research an inner chamber of glass. The chamber is water-tight; it has a movable floor covered with thick felt. It is placed in an outer chamber coated with felt. It is fed steadily with air warmed by passing through a metallic coil, and so accurately does the current of air carry its charge of heat, that for any number of hours the variation of one degree is not observed, The air is, moreover, undergoing the most perfect change, so that the accumulation of carbonic acid is not possible. We place the subject for observation in the inner chamber, surrounding it, gently, with some non-conducting woollen substance, or a soft pillow, and it is unnecessary under such circumstances to make the air in any degree painfully warm or difficult to breathe; for when the conditions for radiation from the body, and for the loss of force by motion, are cut off, the accumulation of heat is quick enough, without any forcing of the process against time.

Of the Symptoms Produced by Increment of Animal Heat.

When by the exposure to air of a high temperature under the conditions named above, or when, from any other cause, the temperature of the body itself is increased, a train of symptoms follow which are as simple in their character as any in nature, and which cover whole fields of what is called medical experience. The first sign we observe is the accumulation of heat itself; the *fever*, I may most properly call it, in order to retain an old and significant name. But the fever is not to be considered as a mere symptom; it is truly a symptom, but it carries with it, when it is properly understood, all the rest of the symptoms. It is primary, the others follow and are dependent upon the primary.

Next to increase of heat, and the first result upon such increase, is increase of involuntary motion, motion of respiration, motion of circulation. This increase of speed in the two grand sets of muscles, the prime movers of the body, is as much a quick driving from excess of heat as is the driving of an engine from heat in the furnace. Thus the pulse increases with the increase of heat in the body, both in tension, and in rapidity of stroke, and it falls, with fall of temperature, either in tension or rapidity, or both. This excess of motion in many cases is of immediate service to the organism; it is an equalising process; it prevents to a marked extent the further increment of heat; it employs or uses up the force.

When the accumulation of heat is moderate and slow, the increase of motion is frequently succeeded by free elimination of water from the body; and here again is a most effective equalising agency. Indeed, this process of elimination once started, it is very difficult to sustain or advance increment of animal temperature. By this equalising process of evaporation, we are enabled, in the Turkish bath, to resist those extremes of heat which I have already spoken of as endurable.

But when the accumulation of heat is rapid and determinate, instead of free elimination from the excreting and secreting surfaces, there is the opposite condition of dryness, or, as is commonly said, suppressed secretion. In all acute inflammatory conditions, we know this suppression of secretion to be a bad sign. What is the meaning of it? The meaning is most simple, and is this. Under a given accumulation of heat, as near as I can estimate an increment of from seven to eight degrees, there is an act of contraction of the whole ar-

terial system, and especially of the extreme or terminal parts of the arterial vessels: the vessels resist; there is obstruction —congestion some would call it—and, as a necessary consequence, there is diminished excretion or secretion from the excreting and secreting surfaces. On this follows that accumulation of water in the blood itself, to which I called your earnest attention in my last lecture. Upon the accumulation of water follows that tension of the arterial pulse, which runs so steadily with suppressed secretion. Upon this often follows rapid accumulation of fluid in serous cavities or exudation of fluid in the least resistent organs—the cellular exudations of local upon general inflammation.

At this stage there may be another series of symptoms suddenly developed: as if the rapidly speeding engine had been suddenly reversed, there may be slower motion, gradually falling temperature and collapse. The change indicates in nearly every instance that there has been separation of fibrine in the heart. The separation has stopped or arrested the current of blood at the main, and, virtually, all is over. In the human subject we recognise by external signs this condition constantly; in the inferior animal we produce it synthetically, and determine it with precision. Here, in illustration, is the dead body of a cat. In this animal there was, during life, an induced increment of heat, or fever. The fever progressed until the mean temperature of the animal had reached an increment of nearly 10 degrees; then the animal began "to sink." She might have struggled on hopelessly for hours, as human bodies do, but we could in her case put her quickly to death, in sleep, by making her inhale the vapour of ether. We did so, and at once we laid bare and laid open the heart. See what has happened. The right cavities are almost filled with a firm separation of fibrine. Of the many similar specimens from the human subject which have been before us there is not one specimen more distinct than the specimen in our hands.

If, in your leisure, you will turn to my work on the coagulation of the blood, you will find that, in the year 1854, I performed the very same experiment I have performed at the present moment. Then, however, I used pure oxygen for the inhalation, and my idea at the time was that the inhalation of *oxygen* was the cause of an increase of fibrine, for I was ignorant of the direct and potent effect of simple increase of animal temperature. Now, with a better knowledge, I know that the oxygen played only a secondary part; that, in fact, pure oxygen is not essential; that no more and no less is required than increase of heat within the organism.

If the increment of animal heat be induced with such

rapidity that the fatal increment is reached directly, we have an extension of contraction from the involuntary to the voluntary muscles, and therewith general convulsions, which will soon become tetanic in character. At last there is a general rigidity of the muscles and death from permanent spasm of the muscles of respiration and of the heart.

To complete the history of the symptoms brought on by increment of heat within the body, there are, as the fatal increment of heat is approached, evidences that change is taking place in the nervous centres, for the animal becomes comatose. There is little difficulty in explaining the cause of the coma; it is due to the contraction of the vessels which supply the brain with blood, and to the subsequent changes in nervous matter incident to withdrawal of blood. To use a common expression, the brain and nervous centres die; to use a more accurate expression, their parts sink into molecular rest or inertia.

Such is induced inflammatory fever. We are meeting with the identity of it in every day of practice on the human subject. We never see a case of acute inflammatory disease, but we see the increment of heat. What we have to feel in all its fulness and to appreciate in all its breadth is the grand truth that every symptom, primary or secondary, is dependent on the accumulation of the force we call heat; and, that the whole of the phenomena we observe, up to death itself, are due simply and solely to the inability of the body, from some accident or other, to dispose of that active force which the body in perfect health sets free for the mere purpose and intent of ministering to the production of those processes which are summed up in the term life.

Phenomena after Death from Increment of Heat.

Rigidity.—Animals which have died from increment of their organic heat soon become rigid, the rigidity being strongly pronounced. This is in strict accord with the many previous facts I have noted respecting the influence of heat in bringing on rigor mortis. The rigidity extends generally —wherever, in fact, there is muscular fibre—and it is so determinate in the arterial system that if immediately after death a tube be placed in the aorta, and water be injected, the extremest force, short of a force that will rupture the vessels, fails to push the fluid round the circulation. The rigidity remains also a long time.

Temperature.—At and immediately after death, the tempe-

rature of the different parts of the body is, with one exception which I shall name specially, very equal. I have had the thermometer in every important structure within five minutes after death from increment of animal heat, and have watched the rate of cooling for an hour to find a perfect equality of temperature in all parts save one. In the bodies of the large muscles, in the intestines, in the blood, in the heart, in the structure of the lungs, in the liver, in the spleen, in the kidney, the distribution of heat is the same, and the rate of cooling, the conditions of exposure being alike, is the same.

But there is one exceptional fact, and I must refer to it with equal earnestness and caution. It is this fact—that if immediately after death the bulb of a fine thermometer be plunged into the cavities of the trunk of the body, or into the vascular organs, or into the muscles, and at the same moment another thermometer (which has been tested and found to work uniformly with the thermometer employed for the trunk of the body)—if the bulb of this second thermometer, I say, be plunged into the centre of the brain, there will be found a difference of temperature in the brain from that which is found elsewhere. The temperature of the brain is *lower* than that of any other part of the body. The brain may be found even five degrees lower in temperature than the other parts; and I have many times, by exchanging thermometers—by taking one thermometer out of the brain and putting it into the place occupied by another thermometer in the centre of the pectoral muscle—seen the thermometer in the brain fall and the thermometer in the muscle rise. Nay, I have raised the mercury of a thermometer at one moment by plunging the bulb of the instrument into muscle, and have brought down the mercury at once by removing the instrument from the muscle, and plunging it into the substance of the brain.

This fact is, to my mind, very singular. It may point to some unknown physiological law, or it may mean nothing but quick cooling from ready radiation. Yet the brain is not exposed, for the instant the drill has made entrance through the skull, the bulb of the thermometer fills the place which the drill occupied, and if there be more rapid radiation of heat from the brain than from the trunk, owing to the difference of mass (a view which our friend, Dr. Sedgwick, who has watched this experiment with me, maintains), even then the fact is of value, because what occurs after death will also occur during life, and the practical result will be that the brain of an animal living in an atmosphere below the temperature of its own body, will have a lower tempera-

ture than the muscles and organs of the trunk of the body. I should add that the observations on the relative temperatures of the brain and trunk were determined on the pigeon, rabbit, and guinea-pig.

Brain.—After death from increment of animal heat, the brain is found, as far as I can say, simply pale. I have never been able to find any exudation or congestion, or other lesion. It seems to me as if by contraction of vessel the organ had been for some time before death deprived of its blood, and this view is borne out by the symptom of coma which precedes death. This absence of blood may be a reason for the lower temperature of the brain immediately after death.

Lungs.—The lungs after death from increment of heat are florid and free of congestion, when, previous to death, there has been no separation of fibrinous mass in the heart. In cases where fibrine has separated on the right side of the heart, the lungs are found pale or white, as is so often seen in the human subject after death from similar cause. I have not found any structural disease of lung.

Heart.—The heart is found in one of two states, varying with the mode of death. In cases where the increment of heat is rapid, and the death occurs from tetanus, the heart is found empty of blood, and so firmly contracted on itself that it feels like a stone. In cases where the death is from separation of fibrine, the heart is often distended with coagulum, but the muscular walls are not flaccid, and they soon pass into rigidity.

Blood.—The blood is found in one of two conditions. In cases where the fatal increment of heat is very rapidly developed, the blood, immediately after death, is quite fluid in the heart and vessels, but on removal it coagulates very firmly, and without any undue delay. In cases where the increment of heat is reached slowly, the blood is found with the fibrine in part separated, as we have seen in the specimen before us. The same facts may be observed in the human body suffering from inflammatory fever, and the recognition of them in the inferior animal, under known conditions, aids us greatly in understanding what seems, without such aid, to be an insuperable difficulty. There may be death in inflammatory fever from rapid increment of heat and extreme contraction of vessel before the fibrine has separated, and before there is accumulation of water in the blood to favour separation of fibrine. There may be death from slower increment, with separation of fibrine as the final and conclusive part of the fatal process.

We were careful in observing microscopically the blood taken during life from animals showing increment of animal heat. We took mixed or capillary blood, and Dr. Sedgwick, with great care and nicety, got specimens of it at once in the field of the microscope. The phenomena are the same as have been so often observed in the blood of men suffering from increment of heat during inflammatory fever. The corpuscles run together in firm rolls, and by aggregation produce a surface almost uniform, through which, in channels made by separation of rolls of corpuscles, a thin exudative fluid freely courses. The appearance, indeed, is like that of blood coursing through the capillary canals in the foot of the frog, and might, at first glance, be mistaken by any one who had not seen the corpuscles aggregate. You will find on the microscope table specimens of the blood prepared for examination by Dr. Sedgwick. Lastly, in respect to the blood, the colour of the venous is raised, under increment of heat, towards the colour of arterial blood.

In every sense—in respect to colour, in respect to separation of fibrine, in respect to running together of the corpuscles, the blood, during induced inflammatory fever, is the same as is the blood of the patient who is suffering from ordinary acute inflammatory fever.

Other Visceral Organs.—The large abdominal organs in cases where the increment of heat is rapidly induced are found free of congestion and rather florid, but they show no indication of physical disorganisation. In cases where the increment of heat is slow, and where there is separation of fibrine from arrest of circulation through the right side of the heart, slight congestion of the abdominal organs may exist. There is congestion of kidney in the cat which we have examined to-day. In the cat and in the rabbit the urine, if any be in the bladder, is found richly charged with albumen. A specimen of this kind, with the albumen precipitated by heat and nitric acid, is on the table.

There are many matters of detail which might be added to what I have now spoken were there time for details. There are also many new paths into which we could strike. I could lead you, for example, at once to the proof of the many ways by which increment of animal heat may be induced without exposing the body to the direct action of air raised in temperature. But to-day I must rest content in endeavouring to bring out, and as I hope clearly, these two leading truths:—

Firstly. That the fatal increment of animal heat is deter-

minable, and may, with very slight variations, be calculated from the natural temperature of the warm-blooded animal.

Secondly. That the phenomena or symptoms included under the term inflammatory fever, when divested of all obscurity, when traced to their cause, are phenomena resulting from accumulation or increment of animal heat, and are differing phenomena according to the degree of increment and the rate of its progress towards the fatal degree.

VACCINATION DIRECT FROM THE COW.

It is a matter of much regret that so little has been done in England towards the determination of the value of the practice of what is known as "animal vaccination." We learn from Dr. H. Blanc, who has made personal inquiries upon the subject on the Continent, that experimenters abroad seem at length to have satisfactorily vindicated the superiority of the mode of protecting the human subject against smallpox by transmitting to him cow-pox direct from the heifer, and that animal vaccination is now generally encouraged in Paris, Brussels, Naples, Marseilles, and other places, on that account. As in this country we are, one and all, dissatisfied with the scanty supply of lymph, and its indifferent character, in the face of the greater need of a large extension of vaccination and revaccination, and a widespread prejudice in the public mind as to the possible transmission of serious disease by these operations, we should earnestly ask ourselves whether we cannot at once profit by the doings of our Continental brethren, and rid ourselves of our present inconvenient position in regard to the general question of vaccination. It may be that animal vaccination has not been practised, merely from the want of opportunity, and not simply from disinclination to adopt it. Dr. Blanc, we believe, is now prepared with heifers affected with vaccinia, from whom a supply of lymph may be obtained; and he is himself seeking to carry out the practice of animal vaccination extensively. The advocates of the new practice urge, not only that its adoption at once prevents the possible transmission of diathetic diseases and other ailments arising from the use of degenerated lymph, but that the prophylactic properties conferred upon man by vaccination are lessened in direct proportion to the more or less complete abstraction of lymph from

the vaccine vesicles—a fact which constitutes a grave and yet scarcely appreciated objection against the existing mode of vaccination; and, together with Dr. Blanc, they are convinced by their own observation that direct vaccination from heifer to man, with cow-pox free from all possible contamination, and deprived by a succession of inoculations, on its own ground, and by passage through the systems of younger animals, of its first rather too violent action, is so good and efficient that it must before long be generally adopted. Dr. Lanoix, of Paris, has already made, with general success, more than 40,000 vaccinations on this plan. He and others have found no diminution in the activity of the virus of the cow-pox transmitted from heifer to heifer; nevertheless, the adherents of animal vaccination have made it a rule to renew the cow-pox each time a spontaneous case occurs, thereby solving the important problem of the regeneration from time to time of vaccine lymph. One other powerful reason adduced in favour of animal vaccination is the possibility of obtaining at any time an abundant supply of good lymph on emergencies. In a few days the inhabitants of a town could be vaccinated and revaccinated in so short a time, and on such a scale, if necessary, as to admit of the possibility of mastering an epidemic which even threatened to be serious. A good instance of this occurred recently on board one of the French Transatlantic steamers. The *Tribune Médicale* of the 18th of April says, that in 500 persons revaccinated on board the "Nouveau Monde," from an inoculated heifer sent from Paris, 250 presented well-developed pustules, and were protected, "although living in a confined space, infected by the presence of three cases of smallpox." By all means, then, let us make trial in England of so promising a remedy, and let us at once set about the collection of facts upon which to form for ourselves a correct conclusion as to its efficacy. We wish Dr. Blanc success in his endeavours to search for the truth.—*Lancet.*

THE NECESSITY FOR ESTABLISHING A VETERINARY INSTITUTION IN IRELAND.

At the meeting of the "Royal Dublin Society," His Excellency the Lord Lieutenant (Earl Spencer) took occasion to remark in his speech at the distribution of the prizes for cattle, &c., "that there was one other point which he

considered of great interest in connection with live stock in Ireland.

"I believe," said his Excellency, "there is in this country no veterinary college. Now, I certainly think it is of vast importance to the owners of stock that there should be a competent and able body of men to advise them as to the health of their cattle, and not only so, but that they might be able in a moment of emergency to assist the government to investigate the causes of disease and extinguish contagion, if it should exist. There can be no doubt that there are many able veterinary surgeons in this country—many who have come from the veterinary colleges of England and Scotland; but I think it would be of great advantage if there was a veterinary college or a veterinary department under a body established in this country; for I have no doubt that many who have a desire to enter the veterinary profession, when they find that they must go across to England or Scotland for the purpose, are prevented from doing so, and a field for useful work is thus closed to many Irishmen.

"I have often regretted, too, that there is not more sympathy and union between the medical and the veterinary sciences. I believe if there was more of union and sympathy the result would be mutually advantageous to both professions. The veterinary science would derive great benefit from the vast knowledge and experience of the higher profession, and, I believe, on the other hand, medical science and research would be advanced considerably by the facts learned from experiments on animals.

"I remember, having had the honour of being on the Cattle Plague Commission, that we carried out very extensive experiments in the relation to the diseases of cattle. We had several distinguished medical gentlemen on our commission, and with their consent many curious experiments were made in relation to disinfection—the indications of disease, the particular remedies to be applied, and the way of tracing their operation, and I believe very important discoveries were made not only in veterinary science, but also in the treatment of human maladies. I will not—I think it would not be my place to do so—say how this institution could be obtained; but I believe it would be a great advantage to this country if it had a veterinary or some department in that line formed in Ireland."—*Irish Farmer's Gazette.*

CENTRAL CHAMBER OF AGRICULTURE.

THE CONTAGIOUS DISEASES (ANIMALS) BILL.

A COUNCIL meeting of the Central Chamber of Agriculture was held on Tuesday, May 4th, at the Salisbury Hotel, Fleet Street, Mr. C. S. Read, M.P., in the chair. Among those present were the Earl Fortescue; Lord Egerton of Tatton; Hon. G. Milles, M.P.; Mr. Greene, M.P.; Mr. C. W. Hoskyns, M.P.; Col. Tomline, M.P.; Major Parker, M.P.; Mr. Corrance, M.P.; and several other members of the House of Commons.

The Chairman, in opening the business, called attention to the circular sent out with regard to the Contagious Diseases (Animals) Bill. On Monday night the Bill had been recommitted, at the request of Mr. W. E. Forster, M.P., so that certain amendments to which the Government had agreed should be grafted in the Bill. Many other amendments had been put on the paper, and among them one for a separate market for the sale and slaughter of stock in the metropolis had been conceded by the Government. They ought to be most grateful for this concession on the part of the Government. He wished to say, however, without meaning any offence, that even yet their danger was not over, and they must urge upon every member of Parliament to watch, that this promise of the Government was not kept to them in the letter and denied them in the spirit. It is quite possible to have a separate market so small and so inconvenient, that only suspected and suspicious cattle should go there, and that only low butchers should attend it. In all probability such a market would fail, and no cattle would come to it. What they really wanted was a good market at the waterside, to which all stock from the centre and east of Europe should come. Arrangements were being made by which the Corporation of London would be allowed to increase their tolls at the Islington market; the toll on bullocks from 3½*d.* to 6*d.* each, and on sheep in the same proportion. The hon. gentleman concluded by expressing his thanks to Mr. W. E. Forster for the cordial spirit in which, on the part of the Government, he had met the representatives of the agricultural interests of the country.

SHEEP SHEARING.

By A Practical Farmer.

The season for sheep shearing having come round, a few remarks and suggestions upon its best practice may not be inappropriate. It is very important to every flockmaster that his "pile of wool" shall be got up in the best way, and in the most cleanly and attractive manner. The sale of his year's wool is to every sheep-grazier one of the most anxious and watchful items of his business. It brings in annually a good round sum. It is made up in one bargain; is weighed up in a few hours, and the carriage, and the little trouble associated with the packing and delivery of the sheets make it one of the most pleasant and interesting days of a farmer's business. To secure a "good pile of wool" requires great care and attention throughout the year on the part of the sheep-owner. In the early spring every sheep must be carefully "dagged," *i. e.* the parts about the tail and breech, &c., to be clipped short, and all dirt and wool removed, so that the sheep can void its dung, &c., without further injury to the wool; and this cleanliness should be promptly attended to by the shepherd, till clip day arrives. The effectual washing of the sheep is another very important item in flock management. By far too little attention is paid to this department of the wool management. It is indispensable in securing a good pile of wool that it be well washed—not that the sheep is just passed through the "sheep-dike," but that every sheep be well soaked in the vat compartment of the "sheep-dike," and also be thoroughly scrubbed by hand, and "sheep-poy," and the wool repeatedly squeezed and twisted and twirled about upon the sheep before he is allowed to take his final swim to the landing place. It has latterly become the practice in many districts to wash the flock in large oblong tubs or vats. The vats are constructed to hold about two sheep at a time. They are sufficiently filled with clean water continually supplied as required to enable the sheep to swim freely about, so as to get well soaked. Two men, one on either side, take the sheep in order as they are put into the vat, scrub them well, and squeeze the wool, turn them over and over, and then pass them individually on to two other men, who stand by the landing-board or ladder; they squeeze out much of the water and pass them out. For

convenience this great tub is let a foot or two into the ground, by which the sheep are more easily lifted in. This course takes a considerable time, but every sheep may be carefully and properly washed by the process, for which the wool will amply repay the extra trouble and cost. The sheep should not be shorn for several days after washing. The warmth and sweating of the sheep after washing improves the wool and restores the "yolk." They should not be permitted to travel over dusty roads, or lay about in dirty gateways or sheep-folds; in fact, the wool ought to be kept clean and bright throughout. It is very desirable to choose mild, but not hot weather for sheep-shearing. If the weather is cold, sheep are apt to take harm from any little injury done by the shears to the skin. Swelling and gangrene will sometimes take place in showery weather. If the season is hot and "sunny," flies are very troublesome, often causing much irritation, and occasionally serious loss from inflammation in rainy weather. In all woodland districts it is desirable to shear the flocks early in the season, in order to prevent injury from fly-galls. The little black flies are their greatest enemies, and swarm upon and around every "snip" in great numbers. It is of great importance that every "snip" that is skin-cut from the shears, should be properly dressed as soon as the little accident occurs. For this purpose a little dusting with powdered quick-lime is effectual. It not only dries up exuding moisture in the wound, but also forms a thin coating over it. This dressing is preferable to a liquid caustic, and is so readily applied by thumb and finger from a pot hung up within reach of every shearer, that it ought to be generally adopted.

It is a very pleasing thing to every flockmaster in looking over his flock to find them satisfactorily shorn. The animals look so much better, and it is a real pleasure to view a flock well shorn. It is very desirable to give every encouragement to sheep-shearers, and the public competition instituted in many districts has done much good service in this particular department of farm labour. It is truly a trial of skill and care, and not a little surprising that every "stroke" of the shears shall be exactly equi-distant, and meet at the same point along the back, so as to show one continuous line nearly all round the sheep. Some of the large Cotswolds and Lincoln sheep have been shown at our large meetings beautifully shorn, the "strokes" being about three to the inch, and as accurately cut as if regulated by machinery. Some flockmasters in the southern counties will show us sheep which are shorn in fastastical style, having "strokes"

in squares and circles, and along the backs and sides, in various ways. This looks more fanciful than business-like, and must occupy much time to little purpose.

In performing the operation of shearing, the left side of the sheep is placed against the shearer's left leg, his left foot at the root of the sheep's tail, and his left knee at the sheep's left shoulder. He then commences with the shears at the crown of the sheep's head; his next course is to open out the breast and shear the belly, taking each side alternately; then returning to the neck he cuts a straight line from the throat to the breast, and then shears the left side of the neck down to the shoulder; this done he next shears a part of the left thigh; he next takes the shears into his left hand, changes his position from left to right, or directly opposite to his first position, turns the sheep round, which is still sitting on its rump, and commences shearing the right side from neck to rump in equal circular "strokes" to the middle of the back, taking great care to stop his stroke exactly upon the spine; when he reaches the thigh he lays the sheep upon his side, puts his leg over the neck to hold him down, and then shears breast and tail. This done, a little wool is drawn together and placed so that the sheep may sit easier; he lifts it up, and then with the right hand shears the left side in the like manner. Many sheep-shearers just take the animal in the opposite way, and shear contrary sides first. This is immaterial, being only from right- to left-handed as it suits the man best. Culley says, "begin at the back part of the head so that the shears make their way down the right side of the neck to the middle of the breast; the head of the sheep is then laid over the shearer's left knee, and, beginning at the breast, he clips the underside of the throat upwards to the left cheek; then takes off the back of the neck, and all the way down below the left shoulder. He then changes to the contrary side, and makes his way down to the open of the right flank. This done, he returns to the breast, and takes off the belly, after which it matters not which side he clips, because, being able to clip with either hand, he meets his shear-point exactly in the middle of the back, all the way, until he arrives at the thighs and legs. He then places the sheep on its left side, and, putting his right foot over the neck, and the other forward to the undermost hind leg, clears the right side; then turning the sheep over finishes the whole."

These are the usual modes of sheep-shearing, but workmen often differ in their practice, according as they study expedition and their own convenience. The shearers ought in-

variably to be allowed a clipping-board or platform raised a few inches from the ground, and this should be covered with a stack or machine-cloth, doubled so as to form a sort of cushion for the sheep to lie upon during the operation. The shearers have not to stoop so low, and they have more power over the sheep, which is no light thing in shearing flocks of large sheep. A good hand will shear from thirty to forty average sheep per day. The fleece should be wound up as it is taken off. If considerable quantities are put away to await "the wool winder" they become hopelessly intermingled, and many are torn in attempts to separate each individual fleece, and therefore must be wound without accuracy. The winder should aim to make large, fine-looking fleeces.—*Mark Lane Express.*

MISCELLANEA.

HOPS FOR COWS.

A FRENCH farmer has found that the addition of a quantity of hops to the fodder of his cows produces a large increase in the production of milk.

THE PRICE OF A HORSE.

THE following is an exact copy of a promissory note dated at Concord, Massachusetts, Nov. 25, 1793:—"For an old horse which I have bought of Mr. Isaac Dow, I promise to pay him three dollars in wheat or flour at cash price; but if the horse does not live to get to Lebanon, and three days after he gets there, I am to give but two dollars for the horse. Witness my hand."

Analysis of Continental Journals.

By W. Ernes, M.R.C.V.S., London.

EXPERIMENTS MADE AT THE IMPERIAL ACADEMY OF MEDICINE WITH THE COW-POX, AND OTHER ANIMAL VIRUS, FROM THE 12TH OF APRIL TO THE END OF DECEMBER, 1866.

By M. Depaul,

Member of the Imperial Academy of Medicine; Director of Vaccination and Professor of the Faculty of Medicine of Paris.

Before commencing these experiments, the commission minutely inquired into the origin of the cow-pox matter which it was about to use. There was only at its disposal that which had been imported from Naples, and had been used for several months by M. Lanoix; and though there was no cause to suspect its goodness or purity, the commission would have been pleased to find no objection to it. To arrive at a correct result it was resolved to offer a premium and write a special note to country practitioners, when a fortunate chance put the commission in possession of that which was so ardently sought for. We have already shown what took place in the Department of the Loiret, and the means which were taken by the director of the vaccine department of the Academy not to lose this chance. Since the 30th of April we have had at our disposal the lymph from a case of spontaneous cow-pox from Beaugency, where it had occurred. From that time it was the only lymph we have used; and which we have preserved without interruption up to the end of these experiments. Moreover, since the malady of the cow and the horse, which, communicated to man has produced the vaccine, the opportunities of finding the cow-pox have not been so rare as was supposed. During our researches the following fresh opportunity presented itself to us. A sister of the order of St. Vincent-de-Paul, lady-superior of an asylum for children situated in the commune of Epinay-sous-Sénart, sent word to M. Depaul, on the 1st of December, that one of the cows of the establishment was attacked with what, in all likelihood, was the cow-pox. The director of vaccination went the next day, 2nd of December, and found that the cow had on its udder, in the vicinity of the teats, six pustules, but unfortunately

in a far-advanced period, the scabs being black and dry. As to the origin of this eruption, no information could be obtained, as the cow had been but recently purchased. Another cow, older in the establishment, and in the same shed, was examined by M. Depaul, and was similarly affected, but also in an advanced stage; however, the scabs being not quite so dry as in the former case, and consequently of a less advanced period, were carefully and separately removed from both cows and taken to Paris. On removing one of the scabs there oozed from the exposed surface a small quantity of serum, which was collected in a capillary tube; some of it was also received on glasses (plaques). The scabs and the serum were tried on December the 3rd, at the Academy, on a heifer (No. 37) without effect. On the other hand, M. Reynal, to whom M. Depaul had given two of the scabs from the second cow and two of the glasses charged with the serum, made the following experiment at Alfort on the 4th of December. The scabs were softened in a drop of cold water. With this dilution he inoculated a cow on the teats and the labia of the vulva; eight punctures were made. On the eighth day he ascertained the development of the first pustule. On the eleventh day two more appeared, which were remarkably well developed. He then inoculated another cow with the lymph taken from these pustules; this inoculation followed the usual course. From one of the pustules of this second generation he filled a tube with the lymph, which was sent to the Academy for the purpose of new experiments, but it was lost and nothing more could be done. We thus could have surely renewed the cow-pox, but the time fixed for the experiments had nearly expired; we therefore continued to proceed with that of Beaugency.

Admitting that the origin of the cow-pox cannot be contested, some have asked the question whether it would be possible to pass the lymph from heifer to heifer, and thus keep up the source and supply the wants of vaccination? What the commission has done during the space of more than eight months is an affirmative answer to that question. With a little care it is easy to obtain the same results. Four heifers were successively inoculated with the cow-pox virus obtained from Naples, forty-two with that of Beaugency, and in all these cases nothing has marred the progress of the researches. Different modes of inoculation were employed, viz. by incision, puncture, either with the lancet or the needle, and the pustules have always been equal to the number of inoculations, varying from forty to eighty. The incisions were given up early, for the sole reason that they

are larger and more painful. It seems, however, that the inoculations with the needle have a considerably less development at the outset than those made with the lancet. Experience has taught that there is no harm in the flow of a small quantity of blood; this incident occurs almost always in every case of inoculation, but is in no way detrimental to the success of it. The majority of the heifers were in good condition when they were given up by the butchers for the experiments, and nearly all remained in a state of perfect health. Some of them (four) were affected with diarrhœa when they entered the establishment; three others were attacked with the same complaint after the inoculation had commenced; two amongst the rest became very emaciated and weak, but none died. We do not count the one bought at Orleans, which had been some considerable time in the institution, and died under peculiar circumstances, which we shall describe hereafter. It must be admitted that the health of the animals has great influence over the development of the pustules. The heifers which had become weak and exhausted by the diarrhœa showed a less full pustule than those which fed well and were in perfect health. The same holds good when the vaccine is transmitted from child to child.

The pustules have never pointed before the end of the second day, but generally before the fourth. It almost always occurs about the end of the third day that the first indications are perceived. They increase in size to the end of the sixth day, and in general they attain their full development from the seventh to the eighth day, after which they rapidly become purulent and take on a marked yellowish tint. Desiccation sets in and the scabs become more and more brown, and begin to come off from the fifteenth to the twentieth day, leaving at first a depressed cicatrix of a reddish, and afterwards white, colour. As to the general phenomena, they were *nil* in the majority of the cases. In five or six of the animals a slight prostration and heat of the skin were noticed, partly in those that had been suffering from diarrhœa. It was also ascertained by these experiments, and the fact was carefully noticed, that the eruption only appeared at the punctures of the inoculation, and never spread beyond them, but we could not venture to affirm that this would be always the case; at the same time we considered it important and worthy of being recorded. The inoculations were made with the virus of two different origins, viz. that from Naples and that of the heifer of Beaugency, but the results were identically the same, either in the progress, form, or

size of the pustules. Right or wrong, many medical practitioners complain of the deterioration of the lymph, which they attribute to the successive transmission from child to child, and believe that the proof of it lies in the smallness of the size of the pustules. The commission, without pronouncing on this delicate question, had to find out whether the successive inoculation of the same vaccine, used on a great number of animals, had the effect of progressively decreasing the size of the pustules. The commission made, to ascertain the fact, forty-two experiments with the vaccine of Beaugency, and came to the conclusion that nothing of the kind resulted from it; on the contrary, the drawings of the pustules made from the last experiment showed them to be as fully developed as those of the first. The time we were enabled to keep the heifers, after a first inocualtion, only allowed us, in one instance, to ascertain whether they were apt to take it a second time in case of reinoculation; this was tried in the one bought at Orleans. The experiment was made on the 5th of June, thirty-five days after the first inoculation; she was reinoculated with the virus taken from No. 6, eight punctures being made on the inferior parts of the abdomen with a vaccinating lancet, the case being carefully watched; the result was a complete negative of a successful reinoculation.

This report goes further to show that at a small cost animal vaccination might be kept up so as to supply vaccine to all the great centres of population. The vaccinations at the Academy take place twice a week, viz. Tuesday and Saturday, and it was important to vaccinate concurrently with the animal lymph and with that obtained from arm to arm; the director of the vaccine establishment alternated these two modes of vaccination as much as the circumstances permitted, the former being employed about once a week, the details of which will form the subject of a future part of this report, which will show that the number with the cow-pox was very considerable, and that if that from arm to arm was exceeded it is explained by the fact that on certain days the number of children was greater, a circumstance over which there was no control.

As to the quantity of vaccine collected on glass plates and in tubes, it was very considerable and more than the vaccination service required. From the 15th of April to the end of December the commission forwarded to the different vaccinating establishments 2093 glass plates and 1757 tubes charged with vaccine from the heifers experimented on, to which must be added that which was given to members of the profession for

their private use, and which was not a small quantity. It did not suffice *Monsieur le Ministre* to be convinced as to the conservation of the vaccine by transmission from heifer to heifer, and thereby show that it was possible to establish a service of vaccination, and, further, that each individual animal was capable of furnishing a considerable amount of lymph for the purpose of inoculation (vaccination); it was also necessary to show that this new process of vaccination would be a safeguard against the inoculation syphilitic virus.

Vaccination has, it can no longer be denied, already produced some cases of syphilitic infection, though they are not very numerous in proportion to the great number of vaccinations made every year, but we can no longer overlook the possibility of similar accidents, and it is the duty of the medical faculty to prevent it by all the means in their power. All efforts made up to the present time have not tended to avert the danger.

Would animal vaccination have this advantage? No doubt, if it were demonstrated that the bovine species are inaccessible to syphilis. A great number of experiments already made—although with other objects in view—seem to have established the fact that syphilis is not transmissible to animals. That is the general opinion, which is founded on the authority of Hunter and the followers of his doctrines, but this has been contradicted by some concerning animals not of the bovine species; the commission has, therefore, deemed it necessary to make some experiments on the latter in order to decide this important question.

Inoculation of a heifer with syphilitic virus.

Exp. 1.—To obtain the syphilitic virus, M. Depaul went to the venereal hospital in company with M. Simounet, the doctor of the establishment. He selected a patient under the following conditions:—Age 24, entered the hospital 19th of June, was infected three weeks before admittance. The first signs of the infection were two small pimples at the base of the glans penis and the prepuce; soon after, ulceration was established on both. On examination we found two ulcers, one on the gland the other on the prepuce, the latter more extensive than the former, having the dimensions of a piece of 50 centimes; both had prominent bases and an indurated rim; discharged a sanguineous purulent matter. Besides this the inguinal ganglia were enlarged; there were no manifestations of secondary symptoms.

No specific treatment had been adopted. M. Depaul had this patient brought to the Academy on the 23rd of June. He made, in concert with M. Blot, the following experiment on the heifer which had brought the cow-pox to Paris (No. 1 of the second series). He made six inoculations in the right mammary region, which had been previously shaved. Three were made with the ordinary vaccinating lancet, and the three others by incision in the skin; for the first the lancet was dipped each time in the pus of two of the *chancres* (syphilitic sores), and were well loaded with pus; for the second, after having made the superficial incision in the skin, removed and dried the small quantity of blood from the wound, the syphilitic virus from the sores was introduced into the gaping wound; besides this two more punctured inoculations were made at the internal surface of the right ear. After the operation the animal was reconducted to the stable and carefully watched; the inoculated parts speedily dried, without showing the slightest sign whatever of inflammation. No other manifestations were observed; the animal remained in perfect health up to the 4th of August, when it was submitted to another experiment of the same kind.

Exp. 2.—This time the pus was taken from the sores of two patients selected from the venereal hospital by M. Ricord, and the inoculation was made, on the 4th of August, by M. Depaul, in the presence of MM. Ricord, Blot, and Jaquemier. The history of the patient is as follows:—F. G—, aged 25, entered the hospital August 1st; the infection was of nineteen days' standing; the commission ascertained the presence of an ulcer, the size of a 20-centimes piece, in the prepucial groove on the left side, which had the characteristic induration, secreting a sero-sanguineous pus of a yellowish colour, not very abundant. There were a great number of enlarged indolent ganglia in the left inguinal region, and some also, but not so large, in the right. The patient had not been submitted to any special treatment. Four inoculations were made with the virus from this patient, the same precautions being taken in this as in the former case.

The second patient, A. J—, aged 20, entered the hospital on 28th of July; the infection dated from four weeks previous; the *chancre* or sore had invaded the whole of the glando-prepucial groove; induration at base, salient surface, ulcerated fungoid, &c.; sero-purulent suppuration rather abundant; no secondary symptoms. With the virus from this patient four fresh inoculations were made on the same heifer, at a certain distance from the first, two by puncture

and two by incision, besides two more on the inside of the right ear. The animal was carefully watched, but not the slightest effect, either external or internal, could be perceived as the result of the inoculations; punctures and incisions disappeared without leaving any trace of inflammation.

Towards the 12th of August the animal, which was kept in the stable of the Academy, and had been in perfect health up to that time, was attacked with diarrhœa, and, in spite of every care, died on the 9th of September. The autopsy was made on the 10th in the presence of MM. Leblanc, Bouley, Blot, and Depaul. All the viscera, thoracic as well as abdominal, were examined, and the only lesion found was some trace of inflammation on the mucous membrane of the intestines.

Exp. 3.—Made by M. Depaul, the 15th of November, 1866, on a heifer three and a half months old, in the presence of MM. Blot, Ricord, Leblanc, and Reynal. The state of the patient from which the virus was taken was as follows:—D—, aged 17, indurated *chancre* at the glando-prepucial groove and the reflected part of the prepuce, erosions on the left half of the gland; commencement of reparation, but still at the period of specific secretion; lardaceous secretion purulent; specific indurated base. *Adenopathy bi-inguinal, multiple* and *indolent;* lenticular roseola on the trunk; rheumatic pains; nothing in the throat. The last coition was on the 20th of September, twelve days after the *chancre* appeared; no treatment had been adopted. Six incisions were made on the right lateral region of the abdomen near the mammary gland; these incisions were fiteen millimètres in length, partly penetrating the skin. A certain quantity of the virus collected from the sores on the blade of the lancet was deposited in each of them. The animal was kept under observation for a month, but the results were, as in the other, *nil.* At the same time that the commission was making its experiments at the Academy, M. Reynal made some on his own account at the Imperial Veterinary School of Alfort. He inoculated three cows from the *chancre* on the penis of a soldier, which had all the characters of induration and of being infectious. The virus had been furnished by Dr. Goureau, of the 99th Regiment of the Line, who attended the patient. We are also indebted to Dr. A. Fournier, whose special researches on the subject are known to every one; and we have also the record of some other experiments, which are likewise negative in their results. Several of these experiments have been made in the presence of MM. Lernoix and Danet, doctors in medicine.

Exp. 1.—Inoculation of two rabbits with the lancet. A. Eight inoculations with the virus of a simple *chancre;* no effect. B. Six inoculations with the virus of an indurated *chancre;* same result. C. Four inoculations with the mucus; same result.

Exp. 2.—Inoculation on a rabbit, made with the lancet, with the virus of an enormous phagedænic *chancre;* no effect.

Exp. 3.—Inoculation of another rabbit with the same virus; the same result, *id est nil.*

The rabbits which served for the above experiments were inoculated nine times with the virus of the same *chancre*—four times with the lancet, once on a sore produced by caustic potash, care being taken to dress the sore with lint dipped in the virus of the same *chancre*, once by incision, twice by setons imbued with the virus of the same—the results of all which were negative.

Exp. 4.—A. Three inoculations made on a heifer with the pus of an enormous phagedænic *chancre*, which, inoculated in the patient, had produced an ulcer of a phagedænic character; result *nil.* B. Inoculation on the same animal, by scarification, the same result.

Exp. 5.—Inoculation of a heifer, first, with the pus of a *chancre phagédénique*, two punctures and one incision; effect *nil.* Second, on the same animal, with the same virus and the vaccine of the cow-pox mixed, three punctures were made; development of three pustules of the cow-pox, well characterised, were the results of this last experiment. Nothing more was observed on the animal, though it was long kept.—*Recueil de Médecine Vétérinaire.*

ROYAL COLLEGE OF VETERINARY SURGEONS.

SPECIAL MEETING OF THE COUNCIL, HELD APRIL 22ND, 1869.

PRESENT:—Professors Spooner, Brown, and Assistant-Professor Pritchard; Messrs. J. C. Broad, Ernes, Fleming, Gowing, Harpley, Harrison, Hunt, Pritchard, Thacker, Wilkinson, Withers, and the Secretary.

Mr. Wm. Thacker, Vice-President, in the Chair.

The minutes of the preceding meeting were read and confirmed.

Some discussion ensued in reference to the reports sent to the *Veterinarian*.

It was decided by the Council that the minutes should in future be kept distinct from the reports furnished to the *Veterinarian*, which were to be submitted to a Committee previous to publication.

The Secretary read a letter from Dr. Dunsmure, giving an account of the recent examinations held in Edinburgh, and asking for the opinion of the Council as to whether two candidates, holding the Highland and Agricultural Society's certificates (which they had received since the suspension of the Bye-Laws by the Council) were entitled to a return of a portion of the examination fees paid on their presenting themselves before the Board of Examiners.

Reference having been made to the minute-book, it was found that the terms of the resolution limited its application to persons who were at that time possessed of the Highland and Agricultural Society's certificate.

The Secretary was instructed to reply accordingly.

Professor Spooner desired to make a few remarks upon an important subject. The President had that day called upon him and placed in his hands the 'Pharmacy Act Amendment Bill.' He had before him the charter of the Pharmaceutical Society and its bye-laws. This charter placed that society in a similar position to the Royal College of Veterinary Surgeons, whose charter stated that all parties who had subscribed to the rules therein laid down should exclusively of all others be entitled to designate themselves veterinary surgeons and members of the body corporate. The Pharmaceutical Society, however, succeeded in getting in addition to their charter an Act which rendered any person punishable who falsely assumed the title of Member of the Pharmaceutical Society. Such an Act the Royal College of Veterinary Surgeons had never got.

Well, last year an Act to regulate the sale of poisons and alter and amend the Pharmacy Act was passed, and in one of its clauses it stated that "Nothing hereinbefore contained shall extend to or interfere with the business of any legally qualified apothecary, or of any Member of the Royal College of Veterinary Surgeons of Great Britain," &c., so that it rendered any individual punishable who should sell poisons or vend them or use them if he were not a Member of the Royal College of Veterinary Surgeons. When his attention was first called to this clause he felt much gratified,

because he thought it would put a stop to any parties practising as veterinary surgeons, and vending and dispensing poisons, who were not members of the Royal College of Veterinary Surgeons. This having been noticed by the authorities in Scotland, there was now before Parliament another Bill, which was said to be an amendment of the Pharmacy Act Amendment Bill. This new Bill stated, "Whereas it is expedient to exempt from the provisions of the Pharmacy Act (1868) all duly qualified Medical Practitioners and Veterinary Surgeons in Scotland: be it enacted by the Queen's Most Excellent Majesty, by and with the advice and consent of the Lords Spiritual and Temporal and Commons in this present Parliament assembled, and by the authority of the same, as follows:—That nothing contained in the first fifteen sections of the recited Act shall extend to or interfere with the business of any legally qualified Veterinary Surgeon in Scotland." He was also told by the President that there was another amended Act coming forward, by which it was to be enacted that the Act for the prevention of the vending and dispensing of poisons shall not extend to those gentlemen who had been graduated and examined by the Highland and Agricultural Society.

Professor Spooner submitted to the Council whether it would not be advisable to take some steps to inform the parties in authority, who would have to be applied to for the sanction of these Acts, of the real standing of the case? The President of the Pharmaceutical Society, who had been communicated with, was of opinion that some steps should be taken.

Mr. Wilkinson said he should be happy to second any motion for a committee to wait upon the Home Secretary or whatever member of the Government had to deal with the subject.

Mr. Ernes thought the proper mode of proceeding was to petition to be heard against the Bills in Committee.

Professor Spooner thought that was useless now, as the Bill before him had already passed the second reading, and the third reading was fixed for the 29th instant. It might, however, be for the interest of the Pharmaceutical Society not to proceed with it in its present form, as their object would be nullified.

Mr. Ernes said this College had never been refused an Act for enforcing the provisions of their charter.

It was then moved by *Professor Spooner*, and seconded by *Assistant-Professor Pritchard*—

"That a Committee of the Members of the Council do

take immediate steps with reference to the amended Pharmacy Act now before Parliament."—Carried.

The Secretary then proceeded to read the annual abstract of the proceedings of the Council as prepared by the Report Committee for their approval.

It was moved by *Assistant-Professor Pritchard*, and seconded by *Mr. Gowing*—

"That the report be received."—Carried.

The balance-sheet of the receipts and expenditure during the past year, as audited, was laid on the table.

It was moved by *Mr. Moon*, and seconded by *Mr. Withers*—

"That the report be received and adopted."—Carried.

On the consideration of the Examination Inquiry Committee's report—

It was moved by *Mr. Wilkinson* and seconded by *Assistant-Professor Pritchard*—

"That the discussion on the Examination Inquiry Committee's report be further adjourned."—Carried.

Mr. Ernes said he thought it would be as well to adjourn, because before the next Council meeting they would have an opportunity of knowing the opinion of the profession on the subject.

The Secretary read a communication from the North of England Veterinary Medical Association, and stated that he had written a letter acknowledging its receipt, and adding that it would be laid before the Council.

By order of the Council,

WILLIAM HENRY COATES,

Secretary.

ROYAL COLLEGE OF VETERINARY SURGEONS.

ANNUAL MEETING.

THE twenty-sixth Annual Meeting of the Members, politic and corporate, of the Royal College of Veterinary Surgeons was held by advertisement, and in accordance with the provisions of the Charter, on the first Monday in the month of May, being the 3rd day thereof, 1869, at the College, No. 10, Red Lion Square, Holborn, London.

PRESENT:—The President, Wm. Field, Jun., Esq.; Professors Spooner, Williams, Brown, Armatage, and Assistant-Professor Pritchard; J. Wilkinson, Esq. (Principal Veterinary Surgeon to the Forces); Messrs. G. Balls, H. F. Batt, J. Barrell, S. Bignold, T. P. Boughton, T. D. Broad, J. C. Broad, Alfred Broad, Alfred Blogg, W. Broughton, B. Cartledge, H. J. Cartwright, M. F. M. Case, W. Cawthron, W. Clark, Matthew Clarke, J. B. Coleman, James Cowie, J. Cuthbert, J. R. Cox, W. Dobie, J. C. Dwyer, G. Durrant, W. Ernes, G. Fleming, D. Gibbon, T. W. Gowing, T. W. Gowing, Jun., J. H. Gould, T. Greaves, M. J. Harpley, W. S. Harrison, W. Helmore, R. L. Hunt, C. Hunting, W. Hunting, F. Jarvis, J. F. Jeeves, S. Knott, H. Lawrence, J. Lawson, C. Lowe, C. H. Martin, James Moon, James Moore, James Moore, Jun., G. Morgan, P. B. Phillips, J. H. Plunkett, Edward Price, Jun., Richard Pritchard, Alfred Owles, James Rowe, Jun., Alfred Rushall, S. R. Sartin, W. D. Sartin, F. R. Silvester, W. Smith, F. T. Stanley, T. W. Talbot, P. Taylor, James Taylor, John Taylor, W. Thacker, J. W. Thorne, W. Whittle, W. Wilson, S. H. Withers, H. Withers, Joseph Woodger, Joseph Woodger, Jun., Edward Woodger, and the Secretary.

William Field, Jun., Esq., the President, in the Chair.

The minutes of the preceding meeting were read and confirmed.

The President then called upon the Secretary to read the abstract of proceedings for the past year.

The Secretary proceeded to read the twenty-fifth Annual Report of the Council of the Royal College of Veterinary Surgeons, including the Treasurer's Annual Balance-sheet.

REPORT.

Since the last Annual Meeting of the body corporate the Council have had to deliberate upon matters of great importance. The result of their labours they now beg to lay before you.

The first meeting was held in May, for the purpose of electing a President and six Vice-Presidents, a Secretary, and a Treasurer, in accordance with the provisions of the Charter. The ballot for the President resulted in the re-election of W. Field, jun., Esq. The following gentlemen were elected to fill the office of Vice-Presidents:—Principals Williams and McCall, Professor Brown, Messrs. H. J. Cart-

wright, W. Thacker, and W. J. Goodwin; Treasurer, Mr. S. H. Withers; Secretary, Mr. W. H. Coates.

At the first Quarterly Meeting of the Council the vacancy at the Examining Board caused by the death of Professor Morton was filled up by the election of Professor Brown, formerly Lecturer on Veterinary Science at the Cirencester Agricultural College.

It was intimated to the Council during the Parliamentary Session that her Majesty's Government had communicated to the Highland and Agricultural Society of Scotland their refusal to grant a Veterinary Charter for Scotland; and with respect also to this subject a communication was received from the Secretary to the Board of Trade requesting a printed copy of the Charter of the Royal College of Veterinary Surgeons, in order to complete a set of documents to be laid before Parliament. In compliance with this request a copy of the Charter was forwarded. The Council had already furnished the Government with a statement of the reasons which militated against the grant of a separate Charter.

It was deemed advisable to re-employ the Parliamentary Agents and to reappoint the members of the Parliamentary Committee, in order to watch the proceedings in the event of any renewed attempt being made to obtain a Veterinary Charter for Scotland.

In taking this course the Council were not actuated by a desire to offer factious opposition to the movement which some members of the veterinary profession have deemed it desirable to initiate. The Council have always unhesitatingly used their power to prevent the obtainment of a Charter in addition to the one already existing, from the apprehension of disastrous consequences likely to follow the division into two separate, if not antagonistic bodies, of a profession which is, even in its present state, numerically weak.

The corporate body, actuated by a common motive, and held together by unity of purpose, is capable of advancing to the highest state of development consistent with its position; but if a separation into independent sections were permitted there would inevitably arise a conflict of interests, and the progress of veterinary science would be indefinitely retarded. The Council believe that any concession which justice and reason require should be made to avert the final calamity of a divided profession.

Among the subjects which have occupied the attention of the Council the revision of the present system of examining candidates for the diploma of the Royal College of Veterinary Surgeons has received the most anxious consideration.

At the meeting of the Council in January last, Mr. Ernes, in introducing the subject, referred to the insufficiency of the test in the following words:

"On looking at the bye-law which regulates the present examinations, I find that if only one question were asked on each subject therein enumerated and multiplied by the different orders of our domestic animals (to which the bye-law refers) there would be on an average about sixty questions crowded into one hour, the time now allotted to the examination, which, moreover, is held in the evening, when the mind, after the fatigue of the day, requires rest.

"Therefore it is self-evident that, however highly qualified the examiners may be for the office, the system of examination cannot be considered a test of competency, being insufficient, incomplete, and fraught with injustice to the candidate, and injury to the public.

"I would suggest, in the first place, that the examinations be oral, written, and practical; the latter to be held not only on the dead subject, but also on the living; that they should be divided into three periods, at more or less distance from each other, and that they should be limited to once a year. All special examinations to be at the expense of the candidates.

"First examination to be on anatomy, physiology, pathology (including morbid anatomy of all domestic animals).

"2ndly. Hygiene, symtomology, diagnosis, prognosis, therapeutics, surgery, the principles of shoeing, and veterinary jurisprudence.

"3rdly. Chemistry, materia medica, pharmacy, botany, and microscopy.

"It is also worthy of your consideration, whether part or the whole of the medical members of the Board of Examiners could not be dispensed with; they might, however, be of great service at the physiology and chemistry table, where it would, perhaps, be difficult to replace them with members of our own profession. Neither should the members be elected for life. The remarks the late Sir William Lawrence made on this subject to the College of Surgeons might be equally applied to us, viz.—'The examiners being appointed for life, it must often happen, as it frequently has, that the duties of the Court, which, if properly performed, would require men in the active period of life and the full vigour of their faculties, have been executed by persons nearly approaching or actually arrived at the extreme verge of existence.

"'In an imperfect and progressive science like surgery such individuals must be far behind the actual state of knowledge,

consequently unable to estimate the acquirements of those recently educated, and not the best qualified to represent the surgical profession. Hence we cannot be surprised that, although the Court of Examiners has always numbered amongst its members individuals of justly earned and acknowledged eminence, their acts as a public body have not commanded the respect of the profession at large.' "

A Committee was appointed to take into consideration and report upon Mr. Ernes' suggestions.

At a Special Meeting of the Council held in February, the Examination Inquiry Committee submitted the following conclusion:

"First: That the one hour of Examination is not sufficient to test the qualification of the student.

"Secondly: That the Examinations be oral, written, and practical, the latter to be on the living as well as on the dead subject.

"Thirdly: That the Examinations should be limited to once a year.

"Fourthly: That they be divided into three periods, and be held on different days at intervals to be determined by the Council.

"As a Bye-law already exists relative to the Special Examination, the Committee did not think it necessary to refer to that subject.

"The Committee also submit that the re-organization of the Examining Board should be considered, with the view to the substituting Veterinary Surgeons for Medical Examiners."

In reference to the question of the election of Examiners for life—

"The Committee are of opinion that the system is inexpedient."

These conclusions were considered by the Council at three Special Meetings convened for that purpose. It was admitted that the present Examinations are an insufficient test of the qualifications of candidates for the diploma of the Royal College of Veterinary Surgeons.

The Council agreed that the Examinations should be oral, written, and practical. In reference to the reorganization of the Examining Board, the Council were of opinion that the College cannot dispense with the assistance of Members of the Medical profession.

While admitting the general correctness of the conclusions at which the Committee arrived in reference to the final test, the Council see the great necessity which exists for

the student to have a good sound scholastic education, previous to his being admitted into the Colleges, that he may be enabled to pursue with advantage the study of Veterinary science.

It has been suggested that it would be desirable to adopt an independent preliminary examination, such as that instituted by the College of Preceptors, or that now conducted by the Royal College of Surgeons.

In consequence of a desire having been expressed for the publication of more ample Reports of the Proceedings of the Council, a Committee was appointed consisting of the President, the Treasurer, and one of the Vice-Presidents, to revise the Reports of the Proceedings previous to their being sent for publication.

The Registration Committee appointed by the Council had under their consideration the expense of the yearly issue of the 'Register' for gratuitous distribution, and they reported that in the event of an annual 'Register' being brought out, it would be more economical to purchase the type; and they also recommended that a certain number of copies should be annually printed in order to include the names of those gentlemen who had become members of the profession since the previous issue of the 'Register.'

The Council adopted the suggestions laid before them by the Committee, and authorised the purchase of the type, and the gratuitous issue of copies of the 'Register' to Members of the Royal College of Veterinary Surgeons.

Presentations have been made to the Library and Museum of the College by Professor Armatage, and Geo. Fleming, Esq., F.R.G.S., Royal Engineers.

Eighty-eight pupils from the different schools have received the diploma of the Royal College of Veterinary Surgeons during the past year, and four have availed themselves of the Special Examinations, making a total of ninety-two members who have been admitted into the body corporate.

The death of forty-eight members of the profession has been recorded since the last Annual Meeting. Among those most regretted by the profession is Professor Strangeways, who, during a period of nine years, occupied the Chair of Anatomy at the Veterinary College, Edinburgh.

Professor Strangeways contributed to Veterinary Science several works which gained for him the honorary degree of LL.D.

The Financial Statement is annexed. The balance in hand, after defraying the expenses of the year, amounts to £538 6*s.* 5*d.*

S. H. WITHERS, TREASURER, *in Account with the Council of the Royal College of Veterinary Surgeons,*

From APRIL 1*st*, 1868, *to* MARCH 31*st*, 1869.

Dr.

	£	*s.*	*d.*
Balance at Bankers, April, 1868	529	4	9
Examination Fees	764	8	0
Examiner's Fee refunded	3	3	0
Interest	6	16	8
Property Tax	1	10	0
	£1,305	2	5

Cr.

	£	*s.*	*d.*
Examiners' Fees and Expenses	348	13	1
Rent	60	0	0
Rates and Taxes	33	8	2
Salary to Secretary	100	0	0
Insurances	3	6	6
Advertisements	8	18	5
Printing and Type for Register	79	15	0
Stationery and Postage Stamps	17	3	6
Reporters	7	17	6
Diplomas	8	0	0
Law and Parliamentary Agents	42	8	10
Coals, Gas, and Wood	11	19	3
Drugs for Examiner's Table and Museum	0	13	1
House Repairs	3	13	0
Wages	20	0	0
Petty House Expenses	20	19	8
Balance at Bankers'	538	6	5
	£1,305	2	5

We, the undersigned, have examined the above accounts, and have found them correct,

CLEMENT LOWE,
EDWARD WOODGER, } *Auditors.*

April 13*th*, 1869.

It was moved by *Mr. Wilkinson*, and seconded by *Mr. Morgan*—

"That the report be received."—Carried.

The President said he should be pleased to hear any remarks which members might wish to make upon the report.

Mr. Ernes said there was no motion before the meeting.

Mr. Lawson moved—

"That the report be adopted."

Mr. Cartledge seconded the motion.

Mr. Helmore said he observed from the report that there had been a suggestion approved of by the Council, to the effect that the examinations should be held only once a year. He thought it was very convenient to have an examination at the early part of the year for those who had not served their full time at the examinations of the previous session.

Mr. Wilkinson said there appeared to be a slight mistake. The main examination was held in the spring, while the other was about Christmas.

Mr. Ernes said he believed it was part of his suggestion. His object in making the alteration was this:—If a candidate was rejected at the examination in May, there being no lectures at any of the schools, it was impossible for him to make up his deficiency in so short a period as from October to Christmas. He also found that the Scotch examinations were only held once a year, and that the plan worked very much better. There were very few candidates who presented themselves at the extra examination, and he was anxious to save the expense which it entailed. The Council had adopted his view.

Mr. Helmore said the amount paid for examiners' fees appeared to be a very large one—£348 13*s.* 1*d.* He presumed that arose from the frequency of the examinations. He considered that the examining board was constituted for the pupils, and not the pupils for the board.

The President explained that the examiners' fees were on the same scale as hitherto. Of course, it depended upon the number of pupils to be examined as to how many evenings the examiners attended. The amount quoted referred to the fees of the examining board in Scotland also, which were included.

Mr. Helmore asked if the idea of lessening the number of examinations arose from a consideration of the expense.

Mr. Ernes replied that that was one reason. Mr. Helmore was not correct in saying that the Court of Examiners was constituted for the pupils and not the pupils for the court.

If he read the charter he would find that it rested with the Council to regulate the time and manner of the examinations; therefore it was constituted for the Council.

Mr. Wilkinson saw it had been found of great advantage from time to time to examine at Christmas instead of in the spring only.

Mr. Helmore inquired whether any proceedings were now being taken in the matter of obtaining a Charter for Scotland.

Professor Spooner said he did not think the question respecting Mr. Ernes' suggestion was sufficiently understood by the meeting. Mr. Ernes proposed, and it was only a proposition which had been introduced into the report under inverted commas, that the examinations of the pupils from the various schools should be only held once in twelve months. The Committee of the Council had rather adopted that view than otherwise. Now, it was very true that the Council had authority to fix the periods of examination, but it was also true that they acted in accordance with the convenience of the schools. It should be borne in mind that some pupils entered at one period of the year and others at other periods, so that a young man entering into a course of lectures, say after Christmas, that was only calculated as half a course; but he had the opportunity of attending the next whole course and the succeeding half course, and he was thereby entitled to present himself for examination for his diploma. The Charter provided that, if a young man had been duly educated and presented a certificate to that effect, he was entitled to an examination. It therefore was clear that the meetings of the Court of Examiners should be so arranged as to be rendered applicable to the convenience of the authorities of the schools, and the course which had heretofore been pursued was thought very advantageous, and he for one should undoubtedly oppose any alteration in that respect. He would add to these observations the remark that he thought the Council should leave within the hands of the examining court the power to reject a pupil for three, six, eight, or ten months. Some pupils nearly passed, while others were very bad; and the examiners were the best judges as to the time for which a student ought to return to his studies.

Professor Williams said there had been no Christmas examination of the Edinburgh students, and he did not think that the Royal College of Veterinary Surgeons could afford to send a board to Edinburgh to examine two or three students only, but he would suggest to the Council the pro-

priety of having two, or three, or four examinations in London. Perhaps, however, the funds would not warrant the holding of more than one examination per annum. So far as the first portion of the report was concerned, he assented to every word of it, but he would pass on and take into consideration those propositions that had been made by Mr. Ernes and the Committee for improving the examinations. He would divide the subject into three separate questions—the preliminary examination, the manner of the final examination, and the examiners. It was suggested that there should be an independent preliminary examination, such as that instituted by the College of Preceptors, and now conducted by the Royal College of Surgeons. To such an arrangement he, as the representative of the Edinburgh College, gave his hearty consent. He thought it was unfair, on the present system, to expect schools to reject individuals who were willing to become their pupils; but if the Royal College of Veterinary Surgeons appointed a board to make the preliminary examinations, he would give his unqualified support. Then as to the method of conducting the examination—was he to understand that a student, before he could present himself, must have studied three sessions?

Professor Spooner.—The Council have no power either with regard to the previous question which you have suggested or this question.

Professor Williams.—I say, then, that the Royal College of Veterinary Surgeons is not doing its duty if it will not assume to itself the power.

Professor Spooner replied that it cannot.

Professor Williams said he had no distinct proposal to make, but he would suggest that the examinations should be conducted over three years, but that they should be on separate and distinct subjects every year; that is to say, that upon the termination of the first session the pupil should be examined upon descriptive anatomy, especially as far as the bones were concerned, upon the first principles of organic chemistry, and some other subjects which might be considered necessary by the Council; that at the end of the second year he should pass a final examination upon those subjects, and obtain a certificate of proficiency in them, and also be examined in something else; and that the third year the examination should be upon pathological subjects, both theoretical and practical, and a manual examination of the patients—the horse—in the hospital. He would have a practical examination in every sense of the word. He thought the Council should make laws of its own if it had the power;

and if it had not, then the Council should go to Parliament for increased power (hear, hear), whereby the Council should control the schools so far as the teaching was concerned and the appointment of an independent preliminary examination. Now, as to the examiners, he found that there was a suggestion that medical examiners should be dropped from the list. He had had some correspondence and consultation with gentlemen who were upon the board, and he thought that the time had not yet arrived, but the difficulty might be met by a suggestion which he had recently seen, that teachers should be appointed examiners. A man in practice was not quite competent, probably, to meet the requirements of the day in regard to some subjects, more especially in the highest branches of physiology and pathology and organic chemistry, and a veterinary teacher might be instructed to examine upon these subjects. The proposal simply was that the teacher should sit at the board to examine the students before one or two assessors, as the case may be; that he would have no vote, but that the assessors should determine whether the examination is satisfactory or not. These suggestions were quite new to him.

Professor Spooner said he made them twenty years ago.

Professor Williams assured the meeting that it was his desire to see the profession advance in every way. He did not wish to see any disruption in the profession.

Mr. Peter Taylor wished to know what was meant by the examination being divided into three periods and held on different days.

The President said he believed it was intended by Mr. Ernes to be three separate days—consecutive days.

Mr. Ernes said that was not exactly his object. He thought that the examination, instead of being on the whole of the subjects at once, should be divided, so that a young man should be prepared from day to day, or from time to time, or from year to year. He did not exactly consult the College of Surgeons, but they had a preliminary examination on physiology and anatomy, and then in a twelvemonth after they went on to a further examination. Well, the Royal College of Veterinary Surgeons might by-and-by do the same; but as the time was not yet come for that, they might still divide the examinations, and hold them at different periods, say three weeks or three days, or whatever they liked to name. He left that specially for the Council to decide upon. He knew they would be more effective if they were divided. It might be taken in this way that the examinations should be oral, written, and practical. Well,

here was already a division, for they could not in one examination carry on the three. In naming the subjects, it was very likely that some might have to be transposed from one examination to another.

Mr. P. Taylor said he thought there was a great disadvantage in having intervals between the examinations, because it would give the young man an opportunity of getting up the examination like a parrot, whereas, if he were taken on the different subjects consecutively, the examiners could more accurately determine his *calibre*. With regard to the preliminary examination, he understood that there was one. Did the Council propose to institute a more severe and rigid preliminary examination of the veterinary pupil when he was brought to the College?

The President, in reply, said—I think it has already been stated that the Council have no power to institute a preliminary examination at all. It is merely a suggestion. Our Charter does not give us the power.

Professor Spooner said—The only power we have is to consult with the authorities of the schools.

Mr. Taylor.—Professor Williams appears to want to come to some understanding for getting the power.

Professor Spooner.—And very right, too.

Mr. Wilkinson said his impression was that the examinations were to be consecutive, but that the subjects were to be divided, so that one day there should be a practical examination, another a written, and the third day in succession that the candidate should go through the final examination. That was his impression when the subject was discussed at the Council Board, and he was borne out in that by his friend Mr. Pritchard, senr. With reference to the preliminary education, it was a subject to which he had given his mind for a great many years, and his impression was that, though the Council had no power to dictate to the schools how they should admit their pupils or how they should educate them, they had a distinct power to compel the schools to make their examination more stringent, because, if they liked, they could examine the candidates upon ordinary literature.

Professor Spooner said they were not competent at present.

Mr. Wilkinson said he thought they were. If a candidate did not know the English language, the examining board had a direct power to reject him. Therefore, Mr. Taylor might rest satisfied that, when the Council was in a position—which it was not in now, in consequence of the unfortunate division which had taken place in the profession—to take

those subjects which were so absolutely necessary, means would be adopted to produce the end which he wished for.

Mr. Charles Hunting said he had read the Charter of the body corporate carefully over three or four times, and to the best of his understanding they had a perfect right to put on any test. It stated that the body corporate might alter the manner in which the examinations were conducted as they chose, and might make any bye-laws provided they were in accordance with the laws of the realm. He thought there was no law of the realm which declared that they might not say to their students, "You must read and write." He considered that, as far as the preliminary examination went, the Council ought to submit their students to a good educational test before allowing them to enter the profession. Many plans and outlines had been given of an educational test by Mr. Greaves and others, but he most decidedly objected to the teaching schools having any power whatever to interfere with the preliminary or any other educational test. Of course, he desired that the Council of the College should act with courtesy towards, and consult the convenience of, the schools; and if it was convenient to the schools, and they could supply a proper number of men to come up at Christmas, by all means let them come. There had been a suggestion made by the principal of one of the schools, that the teachers should be present at the examining board and help the examiners to examine on scientific subjects. He could understand the oral and written tests, but he could not see how the practical tests could be carried out. Who were to supply the subjects? Where were the examinations to take place? It would be useless to go to the schools and examine the pupils upon a patient whose condition had been explained to them for the last fortnight. With regard to the dissections, were they to be got from the schools? Although this College might follow the footsteps of the College of Surgeons to some extent, he did not think they could follow them in everything, and he held that it would be much better to examine the students *in toto* than piecemeal. When he was at College he found on more than one occasion men who studied one subject and that alone, and went in for a prize. He, perhaps, studied physiology, and had not the vaguest idea of anatomy. He believed that, if the proposal were adopted, a man would be thoroughly crammed for the first examination, and when he went up for the second examination, on the principles of medicine, he would not know anything about anatomy. If they wanted to make changes (and, doubtless, they were needed), let them be put on gently.

Let them alter a little the tables, but not make any sweeping changes. They might make the examinations both oral and written, and decide about the practical portion some other time. The preliminary examination was perfectly indispensable.

Mr. Helmore asked if Professor Spooner had anything to say upon the subject.

The President said Professor Spooner had already spoken.

Professor Spooner replied that he had only spoken to a specific point.

Mr. Lawson said it was very clear that the Royal College of Veterinary Surgeons had no power whatever to institute a preliminary examination. There had been a preliminary examination held at the Royal Veterinary College in London and the Veterinary College in Glasgow, and he thought it would not be unadvisable if such an examination were held at the Edinburgh Veterinary College. He agreed with those who thought that if these preliminary examinations could be instituted by the authority of the Royal College of Veterinary Surgeons rather than by that of the teachers of the schools it would be better. If they could not do all the good they wished, surely half a loaf was better than none.

Professor Spooner said he could endorse what Mr. Wilkinson had said about having this subject of preliminary examinations under consideration for a considerable time, for he knew from conversations which he had had with Mr. Wilkinson on this matter that he had deeply considered it. The result of their cogitation was to institute the preliminary education test at their institution, of which Mr. Wilkinson was one of the governors. Now that the preliminary examination had been carried on for four or five years with the most happy results, he could safely say that the pupils who had entered the College within the last twelve months had been infinitely superior to those which preceded them as regarded their scholastic education. Those examinations had, however, been very gradual; they had been rendered more and more stringent. He had always thought, and he thought still, with Professor Williams, that it was a duty which should not devolve upon the teacher, but should be instituted by an independent body, and he suggested to the governors of his College at the last meeting that the College of Preceptors should be the parties applied to to institute those examinations. (Hear, hear.) But it was not for the Royal College of Veterinary Surgeons to determine anything with regard to a preliminary examination. It was very true, as Mr. Hunting had suggested, that the Royal College of

Veterinary Surgeons might institute any form of examination they thought proper, and, prior to examining a pupil or a candidate with regard to scientific attainments, they might, if they thought well, examine him with regard to his scholastic acquirements, but it was a system which could hardly practically be carried out. Therefore it was most advisable that it should associate itself with the authorities of the teaching colleges, and that the authorities of those schools, yielding to the wishes of this College, should institute a substantial, reliable, preliminary examination as to education (applause); and that that examination, instead of being, as it had heretofore been, conducted by the teachers of the schools, should be conducted by an independent body. That could only be done by a proper understanding between this corporate body and the authorities of the respective teaching schools. (Hear, hear.) No doubt in process of time such an object would be effected. With regard to the Court of Examiners itself, it was said that the time had not yet arrived when the College could dispense with the prop and pillar of support which it had availed itself of since its commencement, but surely men could now be found within the body of the profession who were competent to determine as to the qualifications of a candidate for the diploma of the College. He would be the very last to advocate the removal from the Court of Examiners of any of those gentlemen who had so ably supported them at the physiological, chemical, and materia medica tables, but, at the same time, he would say that, so long as the pillar of support remained bound to the tree, so long would it require its aid. Remove it, and the winds might blow and it might yield to some extent, but its roots would become strengthened by virtue of its self-supporting power, and then you could throw off the extraneous aid. (Loud applause.) No more, then, would he admit members foreign to their body after this period to the Court of Examiners. He thought that the first members of the Court to be dispensed with were those who examined on physiology and anatomy. As to chemistry and materia medica, the probability was that it would be a longer period before the services of such gentlemen as were now examining upon those could be dispensed with. Then as regarded teachers being examiners, this was a tale that had been ten times told. It was well known that he, in common with some of his colleagues whom he saw around him, exerted himself in the very first instance for the obtainment of the Charter which they now possessed; he was a member of the provisional committee for that purpose. A clause was in-

serted in that Charter which specially deprived the teachers of the power of in any way acting or interfering as examiners of the pupils. Now, that was surreptitiously introduced. It was introduced without the knowledge of his colleagues at that time, or of the governors of their institution, and he had, therefore, invariably complained of the want of confidence between the members of this College and the governing bodies of the schools. The late Professor Dick had much to complain of with regard to the conduct of this Council towards him. Had it not been for that conduct none of those disturbances which subsequently followed in connection with that individual, whose name he spoke of with the highest degree of respect and reverence, would have arisen. Well, the clause having been put in the Charter, they must make the best of it. The Council had of late years done so; that was to say, they had rendered the teachers of the respective schools members of the Court of Examiners, so that they could sit and listen to the questions submitted to their pupils, and, in the event of a misunderstanding arising between the examiners and the examined, were permitted to put them right. For instance, every examiner might have his own special ideas upon certain subjects, and if those views were opposed to the teaching of the colleges then it was right on the part of the teacher to say, "That young man has answered your question in accordance with his teaching." (Hear, hear.) He always received the greatest amount of courtesy from the gentlemen at whose table he sat. He thoroughly agreed with Professor Williams in the observations which he had advanced. He was frequently in the country and met with veterinary practitioners, but he did not often meet with men who kept up their reading, and who were on a level with the science of the day, but he met with men who were imbued with the greatest amount of practical experience and common-sense. They were not men who would be competent to sit at the Court of Examiners to examine a pupil as to efficiency in matters of science, and therefore it was, there being so few men who had filled the position of a teacher in the profession, that in the introduction of the clause into the Charter of Incorporation the members of the Council might be considered to have tied their own hands, and deprived themselves of that useful assistance which they might otherwise have availed themselves of.

Mr. Helmore said it appeared to be the almost unanimous desire that there should be a preliminary examination, and he thought the thanks of the body corporate were due to the teachers of the colleges for instituting one. He observed in

the report a paragraph with reference to revising the publication of proceedings. If it was for the Journal, he should take no notice; but if it related to insertion of reports in the daily papers, it would be one of those advantages which had been lost sight of in the past. He did not think that their meetings and concerns were sufficiently made known to the public generally. As to the medical men taking part in the examination of the pupils, he quite agreed with the remarks of Professor Spooner. Medical men should be gradually dispensed with as soon as convenient. In the employment of teachers as examiners they would be following in the wake of the medical profession.

Mr. Hunting, senr., said he thought Professor Spooner and Professor Williams were both agreed that a more strict examination was absolutely necessary to the profession. All that was really required to carry this out was the unanimity of the schools.

Mr. Greaves said they were all very much indebted to Mr. Ernes for having called attention to these questions. He had had the pleasure of listening to the discussions which had taken place in that room year after year, but he had never listened to one that had been more satisfactory to his feelings than on this occasion. The question of education had been discussed over and over again, and it was time now to deal with it. The question brought forward by Professor Williams had been stated in a manner that would be cheering to all of them. There was not a man in the room but what would be ready to endorse almost every word Professor Spooner and Professor Williams had said. It would go through the profession and give satisfaction to everybody. The question of examination was dealt with and was agitated now in every quarter in England, and when he was in Dublin it seemed to be the principal question of the day. There needed to be little more said about it; it wanted dealing with, and it seemed the Council could not deal with it unless the professors of the colleges and the governors would allow them to deal with it; if they would only try to conciliate the professors or governors of the colleges and go hand in hand with them, there would be no difficulty. Let there be a proper test, but by all means let it be by an independent body—veterinary surgeons, if it was thought advisable, or if not, professors from the College of Preceptors. In reference to the practical examination of the student, when he came up for his diploma he heard the question raised everywhere, "Why is there not a practical examination?" Men might be brought into that room and be able to answer every ques-

tion that the examiners could ask him, and they would think him a remarkably clever fellow, but if he were taken into a sick-box he would in many cases feel himself at sea. He saw an objection to students being asked "What is amiss with this horse?" when he had gone into the box every day for the previous fortnight and heard the professor describe the case. He could, however, see numbers of means by which the thing could be carried out in a proper way. He had no doubt the professors of the colleges would yield to the wishes of the Council. He must say he should sooner reject a student because he was deficient in his practical knowledge than he would if he were proficient in his practical knowledge but deficient in the more scientific points of his education.

Professor Armatage said, with regard to the unanimity of the profession and the professors of the different colleges, it was already in evidence that two gentlemen belonging to two distinct schools were agreed in their opinion as to the efficacy and necessity of preliminary examinations, and Professor McCall had also expressed himself in favour of a preliminary examination, and that one was carried out at his college. The question seemed to him (Professor Armatage) to lie in a nutshell, and there was no reason for cavil or dispute respecting it. If the schools were unanimous with respect to the question of preliminary examination, why not institute something in their own cities and towns, and so test the capacity of the student? It had been the practice to get the young man to write his name prior to paying the fees, and if he could do that he could pass. With regard to the powers of the Council to test the fitness of a young man entering the profession, he had always held the opinion that if the Council did not possess the power to appoint a number of men for testing the preliminary education of the student, they could effectively carry out the test in another way by instituting a more rigid examination. He was very much pleased to see a notice of the remarks which had fallen from Mr. Ernes at the meetings of the Council. The subject had been amply dealt with by other speakers. The time had now come when, as Mr. Greaves said, they should deal with the question, and not talk about it. Members of the profession were surrounded in the villages and towns where they practised by men who took the bread from their mouths, and it became a matter of very great importance that the Council should turn out efficient men, so that they might show the world that there was a benefit in being a Member of the Royal College of Veterinary Surgeons. At the present time there was a

great number of men who were so very illiterate, although they possessed the diploma of the Royal College of Veterinary Surgeons, that twenty words in a letter were not spelt properly, nor was the construction anything like correct or intelligible.

Assistant-Professor Pritchard wished it to be understood, with regard to the preliminary examination, that he thoroughly coincided with the remarks which had fallen from his colleague. It was a very unpleasant duty for the professors of the colleges to reject the students, and, therefore, the examination ought to be under the control of some board entirely independent of the school. He thought they ought to be careful, however, as to how high the standard of this preliminary examination should be carried. If they went beyond a good sound English education, and got into the classics and other branches of learning, depend upon it, people who could afford to give their sons an education such as would enable them to pass such an examination would choose for them a profession in which afterwards they would be better remunerated. With regard to practical examinations, he did not think there was a chance of having them; there were so many difficulties in the way which he could see at a glance that he did not think they could be carried out. Mr. Greaves had said there were numbers of places that could be used for the purpose, but this was a point of expense, and that subject had been mooted already.

Mr. Ernes said that the College of Surgeons lately expressed a regret that they had not the opportunity which veterinary surgeons had of examining a living subject. Their practical examination was confined to the dead subject. He thought the difficulties would be easily surmounted. It was done in this way—a subject was dissected, or even a skeleton was dissected and laid on the table, and then the pupil had to answer the different questions which were asked him by the appointed examiners, or professor, or lecturer at the hospital. That was certainly the case with the College of Surgeons, and he believed it also to be the case with the College of Physicians to a certain extent.

Assistant-Professor Pritchard said he understood that Mr. Ernes suggested that the student should be examined by putting practical questions with regard to pathology by the side of the patient.

Mr. Ernes said that was so.

Assistant-Professor Pritchard contended there was no precedent for that with the members of the College of Surgeons. Perhaps it was not in the knowledge of Mr. Ernes

that the student was already examined practically, and the subject was placed before him to a certain extent.

Mr. Ernes said whether it was done at one time or another it did not matter. It might be done by the anatomical lecturer or professor, but that the student was so examined he was certain.

Assistant-Professor Pritchard said he saw other difficulties in the way of the practical examination.

Professor Williams said in the College of Physicians and Surgeons of England, and particularly in the College of Physicians and Surgeons in Scotland, he knew that before a student obtained his diploma it was almost an impossibility for him to have a practical examination upon a living subject, but before he had obtained his diploma he must have a certificate from a clinical teacher that he was clinically competent by acting as dresser. This had been carried out for the last three years at the Edinburgh Veterinary College.

Mr. William Smith said it had struck him that they had been discussing and ventilating a subject of vital importance to the profession, and he should like to see some good practical result from these ventilations and discussions, but he had not heard of any resolution being put; it struck him that a resolution coming from that meeting would have some force. He was not prepared to propose any resolution, but he hoped some gentleman would. They might, perhaps, be able to come to some decision upon one point, and then, at the next Annual Meeting, they might take another.

The President said he thought, after the pressure that had been put upon the Council, the Council would be compelled to take some steps with reference to this education question. He had always maintained that it was the profession at large who spoke at these meetings. They elected the Council, and it was for them to see that the persons whom they elected did their duty and carried out their views.

Mr. E. Hunting proposed—"That in the opinion of this meeting a test of candidates for educational abilities is necessary, and that that test should be applied by the Council or by a board appointed by them, at any period previous to the candidate's appearance before the Board of Examiners for his technical examination."

Mr. Boughton urged that it would be a great injustice to students to allow them to stay at College for two years, when at the expiration of that time they might be rejected on the educational examination.

Mr. Hunting said he had left it to any period; it was at the option of the student to pass at any time.

Mr. Boughton said he did not approve of it.

Mr. Ernes said his suggestions were intended for the Council, and a future Council must deal with them. He confessed that they were crude, and many things might have to be struck out. A classical education would benefit a young man, whatever he applied his genius to, but it was not absolutely necessary nor highly essential in a profession like this.

Mr. Pritchard, sen., said, as far as the practical examination on anatomy went, it was carried out at the anatomical table of the present Board to a very great extent. The subjects were put upon the table, and the student was required to give minutely a description of the bones and muscles, nerves and blood-vessels.

Mr. Morgan saw no difficulty in having a real practical examination. As to the preliminary examination, if the principals of the colleges would agree, it could be carried out, and it was now only necessary to confer with them and come to some proper understanding.

Mr. Fleming, on behalf of the Council, said they were deeply impressed with the necessity and importance of everything that had been brought forward to-day; the whole thing was still under discussion, so far as he could judge, at the Council meetings.

Mr. Hunting's amendment, not having been seconded, fell to the ground.

The motion for the adoption of the report was then put and carried.

The election of six members of the Council in place of those retiring was then proceeded with. Mr. F. T. Stanley and Mr. M. F. M. Case were appointed scrutineers.

Mr. Wm. Field, jun.,	proposed by	Mr. Cartledge.
,, W. Ernes	,,	Ass.-Prof. Pritchard.
,, M. J. Harpley	,,	Mr. J. Lawson.
,, S. H. Withers	,,	,, J. Lawson.
,, Rd. Pritchard	,,	,, T. W. Gowing.
,, H. J. Cartwright	,,	,, J. Moon.
,, T. P. Boughton	,,	,, D. Gibbon.
,, G. Morgan	,,	,, W. Whittle.
,, Ed. Coleman	,,	,, J. Wilkinson.
Prof. Brown	,,	,, T. W. Gowing.
Mr. E. O. Harrison	,,	,, G. Fleming.
,, R. Cox	,,	,, H. Lawrence.

The ballot having been taken, the President announced the result to be as follows:—

For Mr.	Field	46
,,	Ernes	35
,,	Harpley	35
,,	Withers	33
,,	Pritchard	32
,,	Cartwright	30
,,	Boughton	24
,,	Morgan	23
,,	Coleman	20
For Prof.	Brown	18
For Mr.	Harrison	18
,,	Cox	4

Messrs. Field, Ernes, Harpley, Withers, Pritchard, and Cartwright, were then declared to be elected.

Tuesday, the 25th of May, was appointed for holding the Meeting of Council for the election of a President, Vice-Presidents, and Secretary.

Mr. Ernes proposed a vote of thanks to the President.

Mr. Gowing seconded the proposition, and it was carried unanimously.

The President, in reply, said that what little he had done he had done with a hearty goodwill, and he hoped in leaving the chair he might say that the affairs of the College had not in any way suffered in his hands.

The proceedings then terminated.

By Order.

ANNUAL DINNER.

The Anniversary Dinner of the Royal College of Veterinary Surgeons was held at the Freemasons' Tavern, on the evening of May 3rd, advantage being taken of the presence of many provincial members who had come to town to attend the Annual Meeting of the Profession. The chair was occupied by the retiring President, W. Field, Esq., jun., who was supported by the professors of the London and Edinburgh Colleges, and many leading members of the body corporate. The meeting, which was of the ordinary character of such assemblies, does not call for any especial observation beyond the stereotyped one—that it was agreeable, pleasant, and, above all, convivial.

ELECTION OF PRESIDENT AND VICE-PRESIDENTS.

A Special meeting of the Council of the Royal College of Veterinary Surgeons was held on May 25th, for the purpose of electing the officers for the ensuing year.

The following was the result:

President.

T. Greaves, Esq., Manchester.

Vice-Presidents.

Professor Williams, Edinburgh.
" McCall, Glasgow.
" Brown, London.
E. O. Harrison, Esq., Army.
W. Thacker, Esq., Army.
G. Morgan, Esq., Liverpool.

Secretary.

W. H. Coates, Esq.

A vote of thanks to the retiring President, W. Field, Esq., jun., was carried by acclamation, on the proposition of Mr. Hunt.

EDINBURGH VETERINARY COLLEGE.

M'BRIDE *v.* WILLIAMS AND DALZELL.

The pursuer of this action of damages for slander having obtained a verdict, that verdict was, on the motion of the defenders, set aside as contrary to evidence, and a new trial granted. The second trial, before a special jury, resulted in a verdict for the defenders. To-day the Court held the defenders entitled to their expenses in the first trial as well as in the second, on the ground that, though the general rule was that a party losing in a first trial and gaining in a second did not get the expenses of the first, as the presumption was that his losing the first arose from some fault on his own part, that presumption did not hold here, where the evidence of malice led by the pursuer on the first trial, and the fact that that evidence was in the deed proved to be substantially incorrect in point of fact, could not have been anticipated by the defenders, the malice not being put in issue, and there being only a general averment of it on record.—*North British Agriculturist.*

THE NATIONAL VETERINARY BENEVOLENT AND MUTUAL DEFENCE SOCIETY.

A SPECIAL general meeting of the members of the above Society was held at the Royal College of Veterinary Surgeons, Red Lion Square, London, on Monday, 3rd May, the President, Peter Taylor, Esq., Manchester, in the chair.

The following gentlemen were also present, viz.:—

Wm. Field, jun., London, President of the Royal College of Veterinary Surgeons; Prof. Williams, Edinburgh; John Lawson, Manchester; Thos. Greaves, Manchester; Chas. Hunting, South Hetton; S. H. Withers, Bristol; Geo. Fleming, Royal Engineers, H. J. Cartwright, Wolverhampton; Benjamin Cartledge, Sheffield; W. H. Coates, London; A. C. Cope, London; James Moore, London; J. Moore, jun., London; Thos. R. Scruby, Royston; Ed. Price, Birmingham; Alf. Rushall, Bishop's Stortford; John Cuthbert, Leeds; Wm. Broughton, Leeds; Jas. Taylor, Oldham; Wm. Whittle, Worsley; Wm. Dobie, Birkenhead; Wm. Wilson, Birkhamstead; and Geo. Morgan, Liverpool.

The minutes of the former meeting having been read and confirmed, the President delivered the following very able address, lucidly explaining the formation and objects of the Society.

GENTLEMEN,—It is a frequent boast that we live in an age of progress. In the industrial arts, in science, in literature, in politics, and not less in medicine, changes and reforms are continually being made. The spirit of national progress is abroad; nevertheless, faulty management or defective arrangement must eventually bring discredit and even ruin on any institution or profession, whether ancient or modern. To ensure wise and useful societies, we must encourage intellectual inquiry, and forward by judicious effort the advance to that high and lofty position which we are desirous to occupy. It is also necessary from time to time to infuse some fresh life and energy into our institutions, and hence, gentlemen, we have considered it our duty to come to our great metropolitan city, so as to lay before you in a concise and simple manner the history, objects, and future mission of this new-formed Society, "The National Veterinary Benevolent and Mutual Defence Society," and in doing so I ask for your kind indulgence if I should occasionally diverge from my subject. I assure you that I feel very sensible of the high honour the Society has done me and my able office-bearers in selecting us to be the humble means of unfolding this our noble undertaking to you, who occupy so high a position in the veterinary profession. Gentlemen, many of you are members of this

Society, and we thought it would be advantageous to offer you an explanation of our working, and in doing so we hope we shall be able to gather additional power and strength, and have the benefit of your great experience, influence, and aid.

This Society may be said to be the offspring of the Liverpool, Lancashire, and Yorkshire Veterinary Medical Associations, and if it ever should occupy that high position which we are so ambitious to achieve, the honour will be awarded to my esteemed friend Mr. Thomas Greaves, of Manchester, who, by his energy and perseverance, has been the means of establishing several veterinary medical associations throughout the land. The National Veterinary Benevolent and Mutual Defence Society is primarily indebted for its existence to the late Mr. Friend, of Liverpool: let the honour be awarded to him, "who well deserves it." The late Mr. Friend, in a paper on "The Responsibility of Veterinary Surgeons," read by him at the Liverpool Veterinary Medical Association in the year 1865, suggested that we should form a Mutual Defence Society. Consequent upon this suggestion of Mr. Friend, a deputation from the Liverpool, Yorkshire, and Lancashire Veterinary Medical Societies met together to take into consideration the advisability of forming such a Society. This meeting took place on September 6th, 1865, at the Queen's Hotel, Manchester, and was presided over by your humble servant; and I am pleased to say that some of our most eminent and practical veterinary surgeons attended. After mature thought and deliberation, the meeting resolved that it was desirable to form a National Veterinary Defence Society; and, gentlemen, allow me to clear up any misconception which may have arisen. This Society was not formed to defend *all cases* which might be submitted to its consideration; that, I assure you, never was, and I firmly believe *never will* be, the object of its originators and promoters. Our motto is "Defence, not defiance." Gentlemen, our object is rather to avoid litigation, to arrange any dispute between professional men and their clients without having recourse to law. On the other hand, in the case of an unjust action we should employ all legitimate means of defence, and endeavour to preserve the professional reputation of a well-deserving professional brother. Gentlemen, although we accept the decisions of our law courts, and believe in the honesty, wisdom, and integrity of our learned judges, yet we also believe that most professional cases are of a peculiar character, and can only be properly investigated by a competent body of professional men. I say that it is my firm conviction that all professional cases can be more justly dealt with, and more equitably adjusted, by these means than by an ordinary legal tribunal; both parties would be satisfied with our decision. Supposing, however, that an amicable arrangement cannot be effected, the Society would undertake the conduct of the case in a court of justice. If we should be defeated we should submit to the verdict, and in place of seeing a member injured, or perchance ruined, we should defray the costs of the action.

Our Society consists of a President, Vice-President, Treasurer,

Secretary, and a Council of twelve members, who are elected annually at the general meeting, and by whom the whole business of the Society is carried on.

Gentlemen, depend upon it, "the more we become united, the greater will be the advancement of our profession, and the higher will be our individual positions." Our Society is especially adapted to foster amicable feelings, and to inculcate generous and liberal principles.

Gentlemen, we have abundant reasons to be proud of our Defence Society, not only on account of the valuable aid it will afford us in our difficulties, but even more on account of its moral support.

Gentlemen, our meeting to-day has been called by our worthy Secretary as the annual meeting; that is a slight error. It is a special general meeting; consequently you will only have a partial report from our Honorary Secretary and Treasurer, and we shall not elect officers for the year 1869 and 1870 until the close of this year. We, the office-bearers, have taken upon ourselves the responsibility of calling this meeting, to give an opportunity to the whole of the profession about to assemble this day in this room to give us their suggestions and advice. We also thought it would give us a good opportunity to discuss the merits of the whole scheme, as we want a greater number of members to take an active part in it; we in the provinces have no desire to monopolise the various posts of duty, knowing, as we do, that it is only right and proper that others should take part in active and responsible duties; therefore we believe the time we shall occupy in this room will be advantageously and profitably spent, in reviewing the whole structure of the National Veterinary Benevolent and Mutual Defence Society, knowing, as I do, that in some quarters there exists a difference of opinion as to the advisability of joining two Societies like the Benevolent and Defence together; and I may say that, although they are joined together under one title, and are governed by the same Council, they are totally disconnected by separate accounts, and subscriptions, and have separate rules. The Benevolent Fund can never be touched for defence purposes; and should the Defence Fund ever—and I have reason to believe it will, and before long—reach the sum of £500, £400 of that amount will be handed over to the Benevolent Fund, for benevolent purposes only; therefore you will see that the Defence section of our Society is not only the parent, but will also be the supporter, of our Benevolent Fund.

Gentlemen, I have now come to the conclusion of my address, and have to thank you for your patient hearing, and for the kind manner which you have manifested towards me. I most sincerely hope the good work which is begun, and which we are endeavouring to carry on, will prosper. Our appeals have hitherto met with liberal response. Donations to the Benevolent Fund have been received from the Lancashire, Liverpool, Yorkshire, and my friend Mr. Greaves also informs me from the Edinburgh, Veterinary Medical Associations. The Society has my sincere wishes and fervent hopes for its success, feeling, as I do, that it

will tend to increase the prosperity and aid in the elevation of our profession.

The President then called on the Secretary to read his report, which was as follows:

In accordance with the resolution passed at the last annual meeting, held at Leeds, votes of thanks were transmitted to the medical gentlemen who attended court to give evidence on behalf of the Society in the case of Rowe *v.* Malcolm, and were duly acknowledged in a friendly spirit.

A special appeal was also made by the President to those members who had, previous to this, neglected to pay their subscriptions to the Society; many responded by sending a cheque for the amount, others took no notice of the appeal, and it might well be considered by this meeting whether or not their names should be erased from the list of members.

Four hundred copies of the last annual report and list of members were printed and circulated amongst members of the profession, the moral effect of which has been to prevent many cases from going on to litigation which would otherwise have done so. The officers of this Society have been consulted in several cases, and the influence which has been exerted has prevented any of those cases being brought into court.

In order that the benevolent branch of this Society may as soon as possible lay claim to something more than a name, the President, Mr. Taylor, proposed to give to the funds the sum of £10, on condition that nine other persons do the same.

This challenge was made and published in the *Veterinarian* five months ago, but up to the present time only the following gentlemen have accepted that challenge:

Wm. Field, sen., Wm. Field, jun., John Lawson, Thomas Greaves, G. Heyes, H. J. Cartwright.

Since our last meeting donations have been received from the following veterinary medical associations, for which we feel truly grateful, and hope that other societies will not forget the claims of the Benevolent Society:—Liverpool £25, Yorkshire £30, Edinburgh (in connection with the College) £10.

The report having been adopted, the President then called on the Treasurer for the financial statement, which he introduced with the following observations:

In the subjoined financial statement it will be observed we have had to incur the expenses for the whole year, viz., the circulars for the annual subscriptions in January, sending out the annual reports, and now the circulars announcing this meeting, printing, envelopes, stamps, &c.; but as yet we have not received half the subscriptions, I wish to impress upon members the desirability of saving the Secretary and Treasurer the necessity of applying repeatedly for their subscriptions. It is said somewhere that the hope of reward

sweetens labour; that is quite true, but if these gentlemen had to fold up and address 500 circulars once or twice every year, fold up and address 140 or 150 notices a time or two every year, write sometimes fifteen or seventeen letters of a night after a hard day's work, they would find that labour is labour even when all is done for love. I ask you in all earnestness to send me your names—you who have generous impulses and who are able and willing to do good; I must thank every man who has rendered us assistance hitherto, and at the same time I am much concerned and pained to have to complain of great numbers of members, who, after having led us to believe they were in earnest for the good of the Society, have withheld their subscriptions from us; many of them, I would fain think, only for want of a little thought. There are fifty-seven members who have allowed themselves to become out of benefit; they owe £125 8s. 6d.; they have been applied to repeatedly. I should be glad if you will say what is the best course to adopt. Supposing our President makes a final application, and, if such is not then attended to, I suggest that you authorise us to "erase their names from our books;" in that case we shall become more and more select, and the members who will be in benefit will stand a better chance of reaping the advantages of so good, so worthy, and so useful a Society. Thanking you for your patience and attention, I have much pleasure in submitting to your notice the financial statement.

THE NATIONAL VETERINARY BENEVOLENT FUND.

Treasurer's Financial Statement, 1869.

	£	s.	d.
Amount brought forward from last balance in cash book, Oct. 21st, 1868 .	85	6	4
Subscriptions, &c., to May 3rd, 1869 . . .	13	4	11
Donation from Liverpool Veterinary Medical Association . . .	25	0	0
Ditto from Edinburgh .	10	0	0
Ditto from Yorkshire .	30	0	0
Bank interest, Dec. 25th, 1868	0	11	7
	£164	2	10

	£	s.	d.
Expenses from Oct. 21st, 1868, to May 3rd, 1869	3	9	
Balance in bank to the credit of the Benevolent Fund	160	13	7
	£164	2	10

May 3rd, 1869.

THE VETERINARY MUTUAL DEFENCE FUND.

Treasurer's Financial Statement, 1869.

	£	s.	d.
Amount brought forward from last balance in cash book, Oct. 21st, 1868 .	206	18	6
Subscriptions to May 3rd, 1869	64	8	11
Bank interest up to Dec. 25th, 1868 . . .	2	1	9
	£273	9	2

	£	s.	d.
Expenses from Oct. 21st, 1868, to May 3rd, 1869	14	8	0
Balance in the bank to the credit of the Defence Fund	256	16	2
Cash in Treasurer's hands	2	5	0
	£273	9	2

57 Members in arrears.
£125 8*s.* 6*d.* owing at this date, May 3rd, 1869.

Funds this day in bank—			
Benevolent Fund .	160	13	7
Defence Fund .	256	16	2
	£417	9	9

THOMAS GREAVES,
Treasurer.

The meeting was then addressed by Prof. Williams, Mr. Hunting, Mr. Rushall, Mr. Whittle, and others; after which the following resolution was proposed by *Prof. Williams* and seconded by *Mr. Rushall:* "That one more application be made to those gentlemen whose subscriptions are in arrear, and that, if not responded to in the course of one month from the date of application, their names be erased from the list of members."—Carried unanimously.

The President gave notice that at the next meeting he would move an alteration of Rule II, as far as regards livery stables and repositories.

Mr. C. Hunting intimated his readiness to become one of the acceptors of the President's challenge for £10, and his name was accordingly added to the list.

Since then the name of the Hon. Montague Mostyn has also been added, so that we are now only one short of the number.

It was unanimously agreed that the next meeting of this Society be held in Edinburgh.

After a cordial vote of thanks to the President for his able address and his services in chair, the meeting terminated.

GEORGE MORGAN, *Hon. Sec.*

LIVERPOOL; *May*, 1869.

MIDLAND COUNTIES VETERINARY MEDICAL ASSOCIATION.

The twelfth meeting of the above Association was held at the Great Western Hotel, Stafford, on Monday, April 26th, 1869.

The President, Mr. John Carless, of Stafford, occupied the chair. There were present—Messrs. H. Cartwright, of Wolverhampton; Blakeway, of Stourbridge; Stanley, of Birmingham; Litt, of Shrewsbury; Markham, of Rugeley; J. Coe, Stoke-on-Trent; Proctor, of Coventry; Ison, of Atherstone; Dayus, of Darrington; and Barry, of Lichfield.

The accounts of the Treasurer were received and passed.

Mr. Carless was unanimously re-elected President for the ensuing year.

Messrs. Markham, Litt, and Dayus, were elected Vice-Presidents in the room of Messrs. Cartwright, Stanley, and Blakeway, retiring.

Mr. Alfred Proctor was elected Honorary Treasurer, Mr. Barry re-elected Honorary Secretary.

Other business having been transacted, Mr. Litt, of Shrewsbury, read a paper on "Purpura Hæmorrhagica and Scarlatina in the Horse."

I have in this paper combined the two subjects of purpura and scarlatina, because there is a sufficient similarity in the leading symptoms of the two diseases to render it possible for one to be mistaken for the other, although they are in their nature widely different. Purpura hæmorrhagica is characterised by prostration, debility, œdematous swellings, and the development of purple blotches on the visible mucous membranes, and, indeed, in the tissues generally. It is a disease which seldom occurs primarily, generally following in the wake of some such debilitating affection as influenza. Purpura of the horse differs essentially from the affection of the same name in man. Purpura in man is not characterised by a dropsical tendency, but is closely allied to scurvy, and induced, like scurvy, by the excessive use of salt provisions, amongst other causes.

Purpura in the horse consists of an altered condition of the blood, together with extreme tenuity of the vessels and tissues of the body generally. The blood is thin and poor, deficient in fibrin, and the red corpuscles are liable to disintegration. Indeed, I believe that the purple spots so characteristic of the disease are due to the breaking up of the red corpuscles, escape of the colouring matter, and its deposit in the areolar tissue.

Symptoms.—The first symptom usually noticed is swelling, either of the extremities or about the lips, slight perhaps in the first instance, but afterwards rapidly increasing, more particularly about

the head, which is often seen of an enormous size, the lips, especially the upper, and the wings of the nostrils, being swollen to such an extent as to render the breathing difficult and suffocation imminent.

The pulse is frequent, generally over 60, and feeble.

The appetite is very variable, in some cases continuing good until the last, in others it cannot be tempted.

The secretions are diminished, the dung is hard and covered with mucus, sometimes streaked with blood. Urine is lightish coloured, thick, ropy, generally containing albumen, and frequently small blood-clots.

The Schneiderian, buccal, and conjunctival membranes show dark red or purple spots, differing in size and irregular in shape. These spots become confluent later on, and the membrane becomes one universal purple colour. The tongue is furred and dirty, mouth clammy, cold. There is often a thin sanious discharge from the nose, fetid and offensive in character, and streaked with blood.

The symptoms become daily aggravated, and on the third or fourth day bloody serum may be seen oozing through the skin of the thighs or in the bend of the heels. Partial sweats intervene, and the perspiration, being impregnated with the colouring matter of the blood, adds to the distressing appearance of the patient, which generally sinks towards the seventh or eighth day.

The *post-mortem* appearances show that effusion of blood has taken place more or less in all the tissues of the body—beneath the skin, in the substance of muscles, throughout the whole course of the intestines, on the surface of the heart, and even between the membranes of the brain.

My object in introducing this subject to your notice is mainly to elicit a discussion on the best means of treatment, and I will therefore not occupy your time with many remarks of my own on the subject.

The late Mr. Field, in his 'Records,' advocated bleeding and general antiphlogistic remedies in these cases, but I think you will agree with me that the reverse is indicated.

Aperient medicine, perhaps, at the onset of the disease, may be given, in a very mild dose. Turpentine in small doses, ʒiij to ʒvj, and repeated every five or six hours, has been strongly recommended by many practitioners, and I have used it with some benefit, but its use cannot be persevered with for any length of time on account of the excessive strangury it induces. Very great relief is derived from hot fomentations, and, indeed, it is absolutely necessary to foment almost continually, and occasionally scarify the nostrils, or they would become entirely closed and the patient be suffocated.

Porter, where the animals will drink it, and they generally will, may be given with good effect. I have given as much as two quarts four or five times a day.

Scarlatina differs essentially from purpura in that it originates in

an otherwise healthy animal. Its pathology is doubtful, and the name inappropriate, as there is but little analogy between it and the like-named disease in man. I am inclined to think that it is epizootic in character, as I had last spring several cases close together, at the same time, and others in different directions. The first symptoms are those of ordinary fever, viz. shivering fit, heightened pulse, flushed membranes, scanty secretions, &c. &c. Towards the second or third day the Schneiderian, buccal, and conjunctival membranes are found to be spotted with bright scarlet ecchymoses, those on the inside of the lips being usually larger than the others. The spots are irregular in shape, and vary in size from a pin's head to a pea, and even larger; the colour is a bright red or scarlet, and there is no tendency to the spots becoming confluent, as in purpura.

As the fever abates the extremities become subject to effusion, and raised circular blotches are seen on the sides of the neck, head, and other parts of the body.

A gentle aperient to commence with is advisable, followed by some such saline stimulant as—

Ammon. Carb. ʒj,
Sp. Æth. Nit. ℥j,
Aq. Font. ad q. s. M. ft. haust.

Night and morning.

Soft diet, as mashes, a few carrots, or a little grass only, may be given.

This treatment, and some such tonic as iron and gentian, will generally suffice to bring about a satisfactory termination to the case.

I must apologise for the very imperfect nature of the few remarks made on the two important diseases treated of in this paper, and am only sorry that some more competent person than myself has not occupied your attention this evening.

All present joined in an interesting discussion. The continued use of turpentine as a stimulant in purpura was generally condemned on account of its producing strangury. Mr. Coe strongly advocated the use of Tinct. Ferri Sesquichloridi, both from its direct effect on the blood and its astringent effect on the tissues. Mr. Barry mentioned a case in which he had derived benefit from the application of a cold solution of acetate of lead to the hæmorrhagic swellings. Scarlatina was considered by most present to be rather a rare disease in horses and cattle, as some members had not met with a well-marked case in several years' practice. A vote of thanks having been given to the chairman and the essayist, the proceedings terminated.

The fourth annual meeting will be held in July next, at Birmingham.

William Barry,
Hon. Secretary.

YORKSHIRE VETERINARY MEDICAL SOCIETY.

The quarterly meeting of the Society was held in the Committee Room of the Mechanics' Institute, Leeds, on Monday, the 26th ult., at 12 o'clock. The President, Mr. M. E. Naylor, in the chair.

The following members were present:—Messrs. T. Greaves, E. C. Dray, T. Pratt, J. Cuthbert, Jas. Freeman, J. Bale, S. F. Falding, P. Walker, W. Fearnley, G. Smith, C. Patterson, J. W. Anderton, J. Schofield, and the Secretary. Mr. P. Taylor, of Manchester, was also present.

Apologies for non-attendance were received from Messrs. Chas. Secker, D. McTaggart, J. S. Carter, R. W. Murdoch, W. Taylor, Jno. and Jas. Freeman, and Jas. Howell.

The minutes of the last meeting were read and confirmed. Mr. Pratt nominated Mr. Hain, of Thirsk, and Mr. Thornton, of Easingwold. Mr. Secker nominated Mr. Schofield, junr., of Pontefract.

Mr. Fearnley proposed, and *Mr. Walker* seconded, the motion—"That a letter of condolence from the members of this Society be forwarded to Mrs. Strangeways, of Edinburgh."—Carried unanimously.

Mr. Cuthbert proposed, and *Mr. Greaves* seconded, the motion—"That a grant of £50 from this Society's funds be given to the funds of the National Veterinary Benevolent Society."

Mr. G. Smith proposed, and *Mr. Fearnley* seconded, the amendment—"That no grant be given."

Mr. Patterson proposed, and *Mr. Pratt* seconded, the amendment—"That the sum granted be £30." After some discussion, Mr. Patterson's amendment was carried.

Mr. P. Taylor, as the President, and *Mr. Dray*, as one of the Vice-Presidents, returned thanks on behalf of the National Veterinary Benevolent Society for the donation.

Mr. Cuthbert then read a very excellent and practical essay "On the Diseases of the Hock." Mr. Cuthbert's remarks were based entirely on his own large and varied experience; he strongly recommended the operation of setoning as the proper treatment for bone-spavin, because for the last few years he had adopted this treatment and the beneficial results ensuing far outweighed those of the other modes of treatment for this affection.

Mr. P. Taylor thought that four-year-old colts were often condemned erroneously for having diseased hocks, this being the passing stage from the infantile to the adult period, but when arriving at six years old the hocks are found to be good.

Mr. Bale had been successful with setons in spavin; he operated with a needle having a rough side, so as to file down the periosteum.

Mr. Greaves had little faith in either firing, setoning, &c., in spavin; had frequently seen large bog-spavins and thoroughpins disappear without treatment.

Mr. Jas. Freeman described the *modus operandi* of the much extolled caustic operation for spavin as performed by experts in the breeding districts of Yorkshire; individually, instead of applying a caustic agent, he punched the exostosis, and smeared the seton with hellebore ointment; he generally operated upon both legs.

Mr. Pratt agreed with the treatment of Mr. Freeman.

Mr. G. Smith had seen good effects from punching the spavin when firing had failed.

Mr. Fearnley suggested that, as an antiphlogistic, the injection of morphia would be very beneficial.

The tincture of the muriate of iron was highly recommended by three or four members as an excellent application in open joints.

Mr. Dray proposed, and *Mr. Freeman* seconded, a vote of thanks to Mr. Cuthbert for his able and instructive paper, which was carried.

The President invited the members to a conversazione to be held at Wakefield on the 10th of June, stating that it would afford him much pleasure to meet every member of the Society.

Mr. Freeman kindly consented to read a paper "On Parturition" at the summer quarterly meeting.

WM. BROUGHTON, *Hon. Sec.*

NORFOLK AND EASTERN COUNTIES VETERINARY MEDICAL ASSOCIATION.

THE quarterly meeting of the above Society was held at the Norfolk Hotel, Norwich, on Tuesday, April 6th; W. Smith, Esq., President, in the chair. There were also present—Messrs. J. W. Riches, F. Low, G. G. Whincop, Norwich; W. Shipley, Yarmouth; R. Cleveland, Wymondham; E. Barker, St. Faith's; W. R. Jermyn, Bristol; and J. D. Overed, Blofield, Hon. Secretary.

Letters of apology were received from Messrs. J. Seaman, Saffron Walden; G. Waters, Cambridge; T. R. Scruby, Royston; F. Simkin, Barrow; E. J. King, Diss; T. Coleman, Blofield; D. Rattee, Hapton; and D. G. Hunting, Loddon.

The Hon. Secretary read a minute of the proceedings of the last meeting, which having been confirmed, he (Mr. Overed) was requested by the President to read his paper on "Tetanus in Domesticated Animals" (in the place of Mr. Low's paper on "Contagious Diseases in Cattle," which will be read by Mr. Low at the next meeting).

MR. PRESIDENT AND GENTLEMEN,—I feel, in justice to the Association and to myself, that an explanation is due from me as to the unexpected turn events have taken since we last met in this room, and which, so far as concerns the programme for this evening, must be viewed by all present with very deep regret, and by none more

so than the humble individual who now addresses you. Of course you are aware that I allude to the disappointment experienced at the non-appearance of our friend Mr. Low, as the essayist on this occasion; and although we congratulate him on the cause, viz. the transfer of the late Mr. Layer's extensive business to himself, we cannot but regret a result which has deprived us of the benefit of his interesting essay on "Contagious Diseases in Cattle" for the next three months, and necessitated the infliction upon you of my crude and imperfect remarks on tetanus. That Mr. Low's place is not better supplied is, I assure you, no fault of mine, as efforts have been made both by our esteemed President and myself to provide an efficient substitute, but, owing to the limited time at our disposal, and the near approach of our meeting, those efforts were unsuccessful. It was in this emergency that Mr. Smith suggested that I should come to the rescue; and knowing the improbability of obtaining the necessary aid from any other quarter, having a due regard to the claims of our Association upon the exertions of its members, and with a sincere desire to serve its best interests, I cheerfully responded to the call of duty, and now beg respectfully to present my paper on tetanus as the result. In doing so I feel that I may, under existing circumstances, reasonably claim your indulgence for the many imperfections in its composition, which the limited time at my disposal, and the daily engagements of a country practice, will, I trust, if not entirely justify, at least in some degree extenuate. For the errors it contains, either in theory or in practice, I ask not the smallest sympathy; on the contrary, as we are avowedly met for the purpose of obtaining correct information, disseminating sound views, and thus advancing our professional status, you must, to be consistent, search out and fearlessly expose and correct all errors. As members of a liberal profession, we seek truth, light, and knowledge, as opposed to the error, ignorance, and dogmatism of the charlatan, or the empty speculations and idealities of the mere theorist. In the endeavour to attain our object every obstacle must be overcome, preconceived opinions, if wrong, must be abandoned, and those only received which, having been thoroughly investigated, are found to rest on a sure foundation. Thus alone can we be true to ourselves, our profession, and those whose interests we profess to serve. Science with practice require to be nicely adjusted, that each may have its due share of attention and each its proper place. If properly balanced, they will be found to work harmoniously and successfully together, but neither alone will offer either a rational explanation of the phenomena of disease or indicate the therapeutic agents best adapted for its removal and the restoration of morbid structures to their normal and healthy condition. The remarks which I have the honour to submit for your consideration this evening will be principally of a practical character, and brevity will be observed so far as is consistent with the requirements of so important a subject as tetanus, but probably they will not be less acceptable on that account, while a decided advantage will be gained by the additional

time afforded for the discussion, which, from the acknowledged ability and great experience of many gentlemen present, will, I venture to predict, be both profitable and instructive.

Definition.—Tetanus is derived from a Greek term, which signifies to stretch, an apt illustration, permit me to remark, of the inaccuracy of, and the necessity for a thorough revision of, veterinary nomenclature, inasmuch as the parts affected are in a condition the very antithesis of extension, being, in point of fact, in a state of inordinate and persistent contraction, which involves more or less both the voluntary and involuntary muscles, and causes intense pain, which is aggravated upon the slightest impression made on the sentient or afferent nerves by violent exacerbations of two or three minutes' duration, followed by partial relaxation of the spasm, leaving the muscles in a similar condition as before. Tetanus is a disease which attacks animals of every age and condition, irrespective of sex, temperament, or clime; but in the human subject I have reason to believe it occurs more frequently in tropical than in temperate climates, and in the male than in the female. M. Hurtel D'Arboval states that the predisposition to tetanus in domesticated animals exists in the following order—1st, the ass; 2nd, the mule; 3rd, the horse; 4th, the dog; 5th, the sheep; and lastly, the ox. My own observations do not confirm this statement. Youatt speaks of it as very rare in the dog, and adds that in a large canine practice he only met with four cases in forty years, two of which recovered under bleeding, physic, and the application of a compound ammoniacal embrocation. Blaine also takes this view, and states that dogs are so little subject to tetanus that among thousands of canine patients he only witnessed three cases, all of which proved fatal. Without pronouncing decidedly on this question in the absence of sufficient data, I incline to the opinion that the ratio in which the disease exists in our patients may be more correctly placed thus—1st, the horse; 2nd, the ox; 3rd, the sheep; and 4th, the dog.

Classification.—In works by medical writers several varieties of tetanus are described; thus, when the disease appears without any assignable cause it is termed idiopathic, and when arising from injuries it is known as traumatic. Tetanus occasionally assumes a local character, confining itself to the muscles of the head and neck, and is then recognised as trismus, giving rise to the term locked jaw. The most frequent form of tetanus is that in which the head is elevated and drawn back, the dorsal vertebræ are slightly concave, and the tail partially erect and quivering; this is known as opisthotonos; when the position is reversed, emprosthotonos; and when the body is laterally distorted, or drawn to one side, pleurosthotonos; the two latter forms of the disease are, I believe, very rarely if ever seen in our patients, and therefore will not require more than a passing notice from me. Tetanus may also be either acute or chronic (perhaps subacute would be the most correct term); the former is by far the most formidable, as it is unfortunately the

most frequent, but little amenable to treatment, running its course rapidly, and usually terminating fatally in from two to five days. The latter assumes a more favorable type, is more inclined to be partial, and much more under the influence of remedial agents; but it is more protracted in its duration, seldom terminating in less than two or three weeks, frequently existing four or six weeks, and, in very rare instances, two months have elapsed ere recovery has been effected. I have deemed it proper to notice the several varieties of tetanus usually found in works upon the subject, but they are to be considered merely as symptomatic diversities of one and the same disease, for the removal of which the same remedies are recommended and the same general principles of treatment are to be put in force, while for all practical purposes it will suffice to direct our attention to the two forms of tetanus known as opisthotonos and trismus, as being the only phases of the disease that are likely to be brought under the notice of the veterinary surgeon.

Causes.—Tetanus may be caused by wounds and injuries of almost every description, and especially in those parts in which white fibrous tissue abounds, as the knees, tendons, ligaments, the orbit, involving the supro-orbital nerve; punctures of the foot, open joints; operations, as castration, nicking, docking; exposure to cold, wet, and even to hot weather, and gastric, intestinal, and uterine irritation. But although wounds in which the nerves are injured or exposed are said to be a fertile cause, it is worthy of note that the operation of neurotomy stands out as a remarkable exception to the rule; so far as my knowledge extends, there is not a solitary instance of the kind on record. The period at which the disease appears after an injury cannot with certainty be stated; in some instances it has shown itself early, before the patient has recovered from the nervous shock; in others it appears to have been produced by the intense pain and irritation of the wound, but by far the most common period is when the wound is nearly healed. To satisfactorily explain this circumstance is somewhat difficult; by some it has been attributed to the rapid cessation of the suppurative action, but I view this rather as an effect; by others to an irritation of the nerve-fibrille of the part being included in the contractions of the cicatrix, which, indeed, appears to me as the most probable theory, although by no means an established fact. As predisposing causes, Professor Spooner gives high nervous temperament and muscular tonicity, a peculiar atmospheric influence not fully understood, adding that when one case occurs others may be anticipated; this statement would appear to favour the opinion of its enzootic character, and, reasoning from analogy, I think it not improbable that in many instances some concurrent predisposing cause in addition to an injury is necessary to excite the train of symptoms by which we recognise the existence of tetanus; this, however, is a controverted opinion, and I must leave its decision to those gentlemen whose great abilities, extended experience, and scientific investigations, render them much more competent than myself to determine the point.

Symptoms.—The symptoms of tetanus are generally so well defined that the merest tyro can scarcely fail in pronouncing a correct diagnosis; there is no other malady for which it can be mistaken, and probably the only two which at all resemble it are meningitis and poisoning by the nux vomica or its alkaloid, strychnine; in the former case the inflammatory pulse, the injected membranes, and the general history of the case, will suffice to prevent mistakes, while in the latter the intermission of the spasms, the suddenness of the attack, and its fatal termination, often in a few minutes, will enable us to speak with certainty as to the true nature of the malady. By some persons various premonitory symptoms of tetanus are described, as disinclination for food and dislike to having the head touched, a peculiar brightness of the eye, anxious countenance, watchfulness, constipation, &c. But I imagine that the opportunity of observing the above rarely presents itself to the veterinary surgeon; on the contrary, when his services are required, the symptoms are generally so decided in character as to carry conviction to the mind that it is nothing less than a confirmed case of tetanus with which he has to contend. They are as follows:—The muscles of the head and neck are rigid and the mouth persistently closed, the lips compressed, and the nostrils dilated. The head is elevated, the nose protruded, and the ears erect. The eyes are drawn into the orbits, and the cartilago nictitans partly protrudes over the cornea. In the horse the pulse is usually about fifty beats per minute. The urine is small in quantity. The bowels are usually torpid, but in exceptional cases the reverse obtains. The above, I believe, correctly describes the trismatic form of the disease; but trismus, although more amenable to treatment, is unfortunately not the most frequent form in which the malady presents itself to our notice; too frequently it assumes a more general and severe type, involving the muscles of the trunk and extremities, and also those of respiration, causing the belly to be drawn up, the legs to be abducted, and difficulty in breathing. The tail is elevated and quivering. Much pain is evinced, and perspiration frequently bedews the body. These symptoms, although persistent, are greatly aggravated upon the slightest noise or alarm being made; the paroxysms are sometimes fearful to contemplate. If the malady has been caused by docking, the tail will early assume the erect position, the extremity will be swollen and present a dry and irritable appearance; this latter feature, however, is not peculiar to wounds of the tail, but rather the ordinary condition in which wounds of almost every description are found when tetanus supervenes. The ordinary duration of acute tetanus when it terminates fatally is from two to seven days; in such cases the symptoms admit of no alleviation, but, on the contrary, become more aggravated, the paroxysms are more frequent and severe, the respiration more difficult, and death closes the scene by asphyxia or by exhaustion of the vital powers, and not from anæmia, as was formerly supposed. Our prognosis will be favorable if the symptoms come on gradually, are materially influenced by the treatment employed, the paroxysms

less frequent and less severe, and especially if the case continues over the ninth day; but even now we must not expect a cure to be effected at once; the strength of the patient and the patience of the surgeon have to undergo a severe ordeal before this desirable result is attained, and from three to six weeks may be considered as the ordinary period of convalescence. The above remarks will assist us in arriving at a correct prognosis in the majority of cases, I fully believe; but, on the other hand, it must be borne in mind that instances are recorded in which the patient has succumbed so late as the fourth week, and also where ten weeks have been occupied in effecting recovery. That these are exceptional cases I am ready to admit, but they are not the less valuable, and it may be that they are of more interest to us as practitioners on that very account. In general terms, then, as regards tetanus, we opine that recovery may be hoped for after the first week, expected after the second week, and confidently predicted after the third week has elapsed.

Treatment.—The radical change which has been effected in modern times in the treatment of disease is probably in no instance more marked nor attended with happier results than in the treatment of tetanus, which until recently was included in the category of incurable diseases, inasmuch as every system of treatment that skill could devise or science suggest was found in too many instances unable either to mitigate the symptoms or to reduce the fatality; nay, it is rather to be feared that too frequently the former were greatly aggravated, and, as a consequence, the latter increased, just in proportion as the treatment was adhered to and rigidly enforced, so that it becomes a serious question, and one by no means easy to decide, whether the greater number of deaths was referable to the disease or the system of treatment by which its removal was attempted. Many thoughtful men have charged it to the treatment, which in general terms may be said to have consisted of bleeding, blistering, and physic, the evil consequences of which they denounced with unmitigated severity, and which ought no longer to be tolerated, much less perpetuated, by the members of our profession. To remedy this evil various theories have been propounded, systems recommended, and therapeutic agents employed, each of which have their advocates and are more or less deserving a passing notice here. 1st. Allopathy. 2nd. Homœopathy. 3rd. Hydropathy. And 4th. What may, perhaps, in contradistinction to those already named, be termed the negative system of treatment. The allopathic system, which until recently was represented by blisters, bleeding, and physic for the treatment of tetanus, is by no means to be understood as correctly interpreting the views of allopathic practitioners of the present day, by whom it is generally admitted to be fallacious in principle, inadmissible in practice, and injurious in its results; and although sanctioned by the usage of at least two generations, and rendered venerable by tradition, this is the inevitable conclusion at which we shall arrive after a few moments' calm reflection. It has been said that extremes not unfrequently meet, and probably this truism is nowhere more palpable than in medicine, where its

abuse and attendant consequences are sought to be corrected by the administration of infinitesimal doses on the one hand, and by an absolute denial of its use on the other. Now I do not recognise the necessity in avoiding one extreme to rush blindfold into another; and while I cannot defend the old system of semi-judicial murder by physic, blisters, or bleeding, neither can I subscribe to the opinion that this important trio ought to be discarded from the practice of scientific men, for although inadmissible in tetanus, it is my firm conviction that in many cases in which the aid of the veterinary surgeon is sought, he will find these remedial agents most powerful and valuable aids in the successful treatment of disease. The homœopathic system of medicine, whatever its merits, has certainly not made many converts in the veterinary profession; but, although the followers of Hahnemann are not numerous, there are men of undoubted reputation and high scientific attainments amongst them, of whom perhaps it may be said without being invidious, that Mr. Haycock, of Manchester, is the chief exponent, and, as I am not able from personal observation to give an opinion, I have taken the liberty to quote from that gentleman's remarks at the Lancashire Veterinary Medical Association's meeting at Manchester, 14th October, 1864, in the discussion which followed the reading of an "Essay on Tetanus," by Mr. John Lawson, senior, a full report of which is published in the *Veterinarian* for that year, and to which I have very great pleasure in referring you, as it contains probably the greatest amount of reliable information on that important subject extant. At the meeting of the Lancashire Society, Mr. Haycock stated that he had treated thirteen cases of tetanus, six of which recovered, and seven died; several of the former were very violent cases; he had not submitted every patient to the same treatment, but had at various times administered aconite, chloroform, arnica, belladonna, opium, strychnine, with varying success. He had tried cold water in every conceivable form, also hot water and the steam bath, but could not speak favorably of either. Hydrocyanic acid he did not think had much effect except in large doses; this was his opinion, after having tried it on the healthy horse. Wounds he invariably lanced, if there was heat, disturbance, or unnatural dryness about them. He strongly insisted on quietude, and his most successful treatment was with chloroform and Fleming's tincture of aconite, two or three drops diluted with water, and given two or three times a day.

Mr. Mac Taggart, of Halifax, also a homœopath, states that he frequently used nux vomica, arnica, and other medicines, with considerable effect.

Hydropathy is, I believe, seldom adopted in veterinary practice; it is said to have been used with benefit in cases of rheumatism; the warm bath was very warmly advocated and extensively used during the prevalence of cattle plague in this country, but it did not realise the expectations that were promised by its advocates; in fact, as a remedial agent for the treatment of rinderpest, it was neither better nor worse than most other so-called remedies. But as regards

tetanus, I fear that it cannot be viewed in a light so favorable as this, for having regard to the nature of the disease, and the absolute necessity for perfect quietness, it will be easily understood that the probable excitement of the patient by the application of the rugs and the water will more than counterbalance any good effects that might follow upon the use of them, while Mr. Haycock and other gentlemen have proved by actual experiment, that the symptoms are neither mitigated nor removed thereby.

The negative system is that which, rejecting all active measures, treatment, and medicine, relies exclusively on perfect quietude, darkness, and time to effect the cure. This plan has been practised by Mr. Broad, of Bath, and also by his brother, for some years, with satisfactory results, the former gentleman having had four recoveries out of five patients. It is somewhat remarkable that of the first five cases the one that died was idiopathic, and the other four that recovered were all traumatic cases. Mr. Broad had previously been in the habit of using belladonna, from the use of which several recoveries had resulted. He had also tried chloroform; but it aggravated the symptoms, and made the case worse. He thought quietude was highly essential, and that no one should be permitted to see the patient. I am not aware that the experience of other veterinary surgeons confirms that of Mr. Broad, nor whether that gentleman continues the same method of treatment with the like result.

There yet remains another method recommended for the treatment of tetanus, and probably the most valuable of all. I refer now to the use of hydrocyanic acid, as recommended by Mr. Lawson, of Manchester, in whose hands, during the last few years, a comparatively large number of tetanic patients have been cured. I believe the recoveries that have been effected by that gentleman have been in the ratio of nearly 90 per cent., and that numbers of other veterinary surgeons who have adopted Mr. Lawson's method have been successful in an almost equal degree. In the essay to which I have previously referred, Mr. Lawson says, "In all the course of my experience of this disease, up to the year 1857, I had only saved one case," and adds that about this time he had the good fortune to meet with the late Mr. Poelt, V.S. to the 1st Dragoon Guards, by whom the merits of hydrocyanic acid as a therapeutic in tetanus was highly extolled, Mr. Poelt having cured six cases by its use. It was this circumstance which induced Mr. Lawson to give the acid a trial. The result was that of eleven cases treated nine completely recovered, and the remaining two were beyond hope when first seen. This was the experience of Mr. Lawson up to the time of reading his essay in 1864, since which time numbers of cases have been treated by him, and also by other veterinary surgeons of eminence, including our esteemed friend Mr. Thomas Greaves, with precisely similar results. The latter gentleman, in a communication with which he favoured me, states that he has cured five cases consecutively by the acid, and that numbers of his professional friends

have informed him that they have been very successful in the treatment of tetanus since adopting this remedy.

Having thus briefly reviewed the different modes by which veterinary surgeons of our day have attempted the cure of tetanic patients, with their attendant results, I now propose to offer a few observations on the pathology of the disease, with a view to arrive at sound and rational conclusions as to its treatment.

In my opinion tetanus is to be regarded as essentially a derangement of nerve-force, and not a structural disease of nerve-tissue. It is strictly functional not organic in its nature, having its seat in the medulla oblongata and spinal cord, from which all the nerves of voluntary motion arise. We have no warrant for believing that the cerebrum or brain proper is involved, as coma, furore, or insensibility, is never present; but, on the contrary, it is one of the chief characteristics of this disease, that sensibility is retained to the last. Nor are we to regard it as of an inflammatory character, for although it is admitted that in some instances increased vascularity and traces of inflammatory action have been recognised, yet it is equally certain that in others careful investigations have failed to discover the remotest evidence of its existence, either in the thoracic or abdominal viscera, the nerves, or spinal cord; and therefore, as these morbid changes of structure are by no means constantly, or even frequently present, they are to be considered as incidental accompaniments of the disease. Opinions are divided as to whether the sympathetic system is affected. Beyond all doubt the involuntary order of muscular fibre participates, as shown in the difficulty of deglutition and respiration, the torpidity of the bowels, and the increase of the heart's action during the paroxysms; but this is not conclusive, as these phenomena may admit of another explanation. The cerebro-spinal and sympathetic systems are known to interchange fibres; and it is owing to this fact that the vermicular motion of the arteries and the peristaltic action of the bowels is maintained, and also that we are able to take cognizance of pain when disease has invaded those parts. May not the torpidity of the bowels and the difficulty of swallowing be due to a disturbance of nerve-force and its diminished supply to the alimentary canal, the dyspnœa being caused by spasm of the respiratory muscles and the increase of the heart's action by pain?

To fully pursue this subject would far exceed the limits of my paper. I will therefore only add (in the language of Druitt) that tetanic spasm is to the motor system what nervous pain is to the sentient, and delirium to the intellectual; they are all functional disorders of the nervous system, having many points in common; they may all be symptomatic of the most varied states of local disease; they may all be caused by a variety of morbific agents, as cold, mechanical injury, sympathetic disorder, and poisons. And, lastly, they all seem to be fatal in the ratio in which they interfere with the actions of life, or exhaust the vital powers.

A brief consideration of the pathognomonic symptoms of the disease can scarcely fail to correctly indicate the treatment to be

adopted, which appears to me to be—1st. The removal of all sources of irritation. 2nd. The mitigation of the spasm. 3rd. The support of the system. As to the first, see that your patient is placed in a comfortable, secluded, roomy place, which must be strewn with tan, chaff, or cut straw, and made dark; if in cold weather, clothe the body and bandage the legs. If the case is traumatic, poultice the injured part or use warm fomentations, and apply a sedative, as opium and camphor, arnica, or chloroform. Some persons advise the use of slings, to prevent the patient lying down. To this precaution Mr. Greaves attaches very great importance, and attributes the death of his fatal cases to their getting down, being unable to rise, and thereby frightening themselves to death. By some veterinary surgeons it is recommended to remove the shoes; and if this can be done without alarming the patient I should adopt the advice.

The second indication is to mitigate the spasm, and for this purpose I believe that hydrocyanic acid is by far the best agent; but to obtain the full benefit of its use it is necessary to observe the many little details herein enjoined, as upon their faithful observance the prospect of recovery will materially depend. It is also of the first importance that the acid should be of reliable strength and purity, as if kept too long exposed to light, and in badly-stoppered bottles, much of its power and efficacy will be lost, and, as a consequence, the results will be both unreliable and unsatisfactory. To avoid alarming the patient it is best given in a sloppy mash, or in the water, into which it should be poured immediately before it is offered, or much of it will be lost by evaporation. The dose is a ʒss morning and evening. It thus allays, in a marked degree, the nervous irritability present, and has a decided action in relieving muscular spasm; but if a larger quantity is given, or the dose repeated more than twice daily, it is liable to produce excitement with all its evil consequences, to prevent which is of the first importance, and must be most carefully guarded against. So important, indeed, does it appear to me, that I should be prepared to make almost any sacrifice, and to subordinate every other consideration to the obtainment of this one object. I have purposely omitted to offer any remarks on more than one method of using the acid, *i. e.* in the patient's water or in mash, for this reason, that I am of opinion the benefit of its use, either in the form of an enema or draught, is more than doubtful; but inasmuch as these methods, however questionable to me, may commend themselves to others, I will repeat this only—do not persevere in your efforts if it excites or alarms the sufferer, as nothing but evil will result. There is one more precaution which must not be lost sight of, viz. if the slings are not used every care must be taken to keep the patient standing or if he should get down to raise him again immediately, and if he cannot stand suspend him.

3rd. The necessity for supporting the system under the continuous nervous irritation and muscular spasm requires but little argument to demonstrate; it is rather to be considered as self-evident, and second only in importance to those other indications to which reference

has been previously made. It only remains, therefore, to discuss the best means by which this desirable end can be attained. If the patient can take gruel, flour water, mashes of malt, linseed, and bran, boiled barley or carrots, and green food, a great object will be gained, as by a judicious selection we can then induce a sufficient quantity of nutriment to be taken for all necessary purposes, acting, at the same time, as a medium for the introduction of the medicine into the system.

How far we may be justified in the adoption of nutrient enemas under less auspicious circumstances must be left to the judgment and discretion of the surgeon. In the majority of these cases, probably, they are not to be recommended, for the reasons above stated; but I can conceive that there may be instances in which they are not only admissible, but may be used with decided benefit. No absolute rule can be laid down in the treatment of disease; the scientific practitioner will rather depend upon the peculiarities presented by each case and the idiosyncrasies of each patient, to indicate the means best calculated to remove disease and restore the system to its normal condition.

One word more on this subject, and I have done. Let the animal's food and medicine be suspended in such a manner as shall enable him to reach it with the least possible effort, and let it be given only twice daily. Allow no one to enter the box but yourself and the usual attendant on these occasions, except in cases of absolute necessity when additional assistance is required.

Much more might be written upon the treatment of this disease, and perhaps it might be of some little interest to notice some of the absurdities that have been practised in a bygone age, as well as by our contemporaries; it might also be amusing to recount the wonders (scarcely less than miracles) effected by practitioners of the old school, both past and present (if only you had faith to believe them), to compare with the results of our own practice, but I waive that privilege, and shall content myself with repeating my conviction that the method of treating tetanus recommended is based on sound principles, and affords a reasonable hope of success in all cases where cure is practicable.

My personal experience of tetanus is limited, as I have never seen but seven cases, the particulars of which I will, with your permission, briefly describe *seriatim*. Case first was a calf that had been castrated by myself, of which little care had been taken, and was much exposed; the case had not progressed satisfactorily, as a kind of erysipelatous inflammation had been set up from the period of operating about ten days previously; and I well remember that, although this was the first case I had ever witnessed, the peculiarly expressive appearance of the sufferer enabled me at once to form a correct diagnosis. The treatment consisted of warm fomentations to the scrotum, a stimulating embrocation to the spine, and warm clothing. An attempt was also made to administer an aperient, but without success, as the power of deglutition was lost. This case terminated fatally in two days.

My second case was also a calf; the disease was produced by the same cause, but the operation was performed by another man. It was treated in the same manner as the first, and with a similar result.

Case third was a young bull castrated by me. He did remarkably well, and the wounds were quite healed. He was then placed on some meadows, surrounded by dykes filled with water, into one of which he fell, and where he was discovered when the boy went to fetch home the stock in the evening; assistance being at hand, the animal was rescued from his unenviable position, driven home, and placed in a house for the night. The next morning he was ordered to the meadows again, but all the boy's efforts, threats, and entreaties, even with the free use of the stick, utterly failed to move the poor wretch a step. The owner's attention was then directed to the case, but with no better results, and I was requested to attend, as the young bull was "reg'lar set fast, and couldn't move at all." On reaching the farm I found the above description to be no overdrawn picture of the condition of my patient, which I pronounced to be such as to afford very small chance of recovery. An attempt was made to administer a draught, but to no purpose, and nothing further was done except to place a bran mash in the house and shut the door. He died on the following day, but it could not be said of him that he was doctored to death.

My fourth was an idiopathic case, supervening on influenza and exposure to cold easterly winds; the symptoms were well marked, but not of that acute type I had witnessed in my former patients; the subject was a cart mare of middle age, and the treatment consisted of prussic acid, ʒss twice daily, compound ammon. liniment to the head and neck, and a rug was placed over the loins. Mashes and flour-water were placed in the manger, and strict orders were given as to quietude. In a few days the symptoms were more favorable, the spasm had somewhat relaxed, and the mare got a little hay into her mouth, but could neither masticate nor swallow it. At the expiration of the second week a marked improvement had taken place, and she could manage to eat a little hay. From this time, she continued to improve; and as soon as I could do so with safety I discontinued the acid and finished off the case with vegetable tonics and ammonia.

Case fifth was also idiopathic, and occurred in a foal, aged about two weeks. I found it lying down and unable to stand; nothing was attempted in the shape of treatment, and the patient died during the day.

Case sixth was that of a cow which had been turned into the field about two weeks after calving, and being unwell was removed home to the farmstead with some difficulty, and a farrier called in, under whose treatment she became much worse, and I was then requested to attend. I found her down and unable to rise, or to deglutate; indeed, she was in such a pitiable condition that I advised the owner to have her destroyed, but as he preferred to wait a day or two longer, I left him four doses of the acid, which were

poured into the cow's mouth; but as she was no better at the expiration of two days he had her destroyed.

My seventh and last was a traumatic case, and occurred in a ram which I had castrated with some others about a fortnight previously. They did well, and appeared to be quite recovered, when they were taken to a meadow to grass, but previous to being turned off one was caught, and some fly mixture poured along the course of the spine, when, singular to relate, the sheep was struck with tetanus as with an electric shock—so sudden, indeed, that it appeared instantaneous, and so marked that the sheep was utterly unable to walk, but stood as if fixed to the ground. No medicine was given in this case, but the butcher was called in, and he soon put an end to the poor thing's sufferings.

I do not propose to offer any comments on the above case, as I have already exceeded the limits that I had fixed for this paper; but in the discussion which may follow I shall be happy to render every information which it is in my power to afford, with a view to further elucidate such of them as may prove interesting to you.

The *post-mortem* appearances which present themselves are by no means uniform, nor sufficiently constant to enable us to arrive at a satisfactory conclusion as to the pathology of tetanus. This, however, will not excite much surprise when we remember that it is a disease of perverted function, of which we can learn more from the symptoms exhibited during life than from *post-mortem* investigations, which are generally so instructive to the pathologist.

Probably the morbid appearances most frequently observed are as follows;—Increased vascularity of the spinal cord and its meninges, also of the nerves in the vicinity of the injury, congestion of the lungs and mucous membrane of the alimentary canal, ecchymosis and rupture of muscular fibre, and the blood is generally uncoagulated. Softening of the structure of the spinal cord is also not unfrequently witnessed, with or without effusion of serum into the theca-vertebralis.

The reading of the paper was followed by an animated discussion, in which most of the gentlemen present took part. Interesting cases of tetanus were related by the President and by Messrs. Shipley, Low, and Cleveland, in some of which prussic acid had been used with success, but the greater number of cases were stated to have terminated fatally under every system of treatment.

Mr. Shipley thought the cases related by the essayist as occurring in the bovine animals remarkable, and remembered being told by Professor Varnell that a case of idiopathic tetanus in a cow, which occurred in his (Mr. S.'s) practice some eight or ten years since, was almost if not quite unique; but with sheep the case was far different, and Mr. Shipley's experience induced him to believe that the sheep was far more subject to tetanus than any other animal; he remembered castrating seventeen rams, some with the screw clam over the scrotum, and others with the knife and ligature; some were found to be tetanic in twenty-four hours after the operation,

and all of them died within a month. He thought Mr. Overed's sheep must have been tetanic before the fly wash was applied.

The President also concurred in this opinion; and *Mr. Whincop* inquired the nature of the compound used, which was understood to be a solution of 2 Cl. Hg. of the ordinary strength.

Mr. Low was of opinion that the nerves of special sense were affected, as witnessed by the paroxysms induced by noise or alarm of any kind; he also believed in the enzootic nature of the disease, and advocated the use of a strong purgative to remove constipation; he (Mr. L.) had one case recover under Mr. Broad's system, the other, to which prussic acid was given, died in twelve hours.

Mr. Overed replied to the previous speakers, and quoted cases from medical and veterinary authors confirming the opinions he had advanced, after which the *President* closed the discussion with an able summary of the pathology of tetanus, in which he stated his own views of the disease, and also those of Dr. Marshall Hall, and other eminent members of the sister profession, and gave some interesting statistical information relative to the disease from 'Guy's Hospital Reports.' He (Mr. S.) recommended a strong purgative, with absolute quietude, and stated that prussic acid was first introduced to the veterinary profession some thirty years ago by Mr. Heyes, of Rochdale.

The conclusions arrived at by the meeting were—1st. That the disease in the greater number of cases is produced by wounds or injuries or other external causes. 2nd. That notwithstanding the published opinions of eminent veterinary surgeons in this and other counties, that the horse is most subject to the disease, the sheep has been proved in this and the adjoining county to be most susceptible. 3rd. That the mode of treatment adopted by Mr. Lawson and so strongly recommended by the essayist and others should have an extended trial by the profession. The President expressed his thanks to the essayist for the paper prepared by him at so short a notice, and requested that it might be forwarded to the editors of the *Veterinarian* for publication in that journal.

On the motion of *Mr. Shipley*, seconded by *Mr. Whincop*, a resolution to this effect was carried, and a vote of thanks was proposed to Mr. Overed, and accorded with acclamation.

The next meeting will be held on Tuesday, July 6th, when Mr. Low will read his paper on "Contagious Diseases in Cattle."

A vote of thanks to Mr. Smith for his able conduct in the chair terminated the proceedings.

J. D. Overed,

Hon. Secretary.

WEST OF SCOTLAND VETERINARY MEDICAL ASSOCIATION.

This association held their Quarterly Meeting in the Athol Hotel, Glasgow, on the 3rd instant.

President Robertson in the chair.

Mr. Richard Rutherford, Calcutta, was proposed and admitted a member.

The President related two very marked cases of mollities ossium occurring in the horse, and laid specimens of the softened bones on the table for the inspection of members; in both cases all the bones were affected, and those laid on the table were very soft. Both of the animals attacked died. The President could not suggest a remedy, and wished to hear the opinions of the members. It was agreed to bring the subject before the next meeting, when members would be prepared to discuss it. The President promised to obtain the best information possible from an eminent authority.

The Secretary stated that he had corresponded with Mr. Rutherford, on learning that he had returned to this country for a short time, after having been for some years practising in Calcutta, and suggested that he might give the members at this meeting the benefit of his experience amongst horses in India, especially in reference to those diseases incident to the country. Mr. Rutherford had kindly consented, and would now read his paper.

Mr. Rutherford said—

It was only on Monday morning last that I received through my friend, Mr. Robinson, of Greenock, your association circular, inviting me to be present at this meeting. My feelings upon receiving it were those of much pleasure, for the opportunity it afforded me of becoming acquainted with the gentlemen forming this association, and of chatting over bygones with those of it who are old friends. Your invitation, in addition, informed me, very much to my surprise, that I would address the meeting on special diseases incident to horses in Calcutta, an item in the programme, gentlemen, for which you are entirely indebted to your Secretary, Mr. Pottie, and for which I am afraid I am but poorly prepared, the subject being much too wide a one to be well handled after so short a preparation.

In India we meet with all the diseases incident to the horse in this country; there are, however, others in addition which are peculiar to certain parts of India, and are met with nowhere else. My own observations have been confined entirely to the Bengal Presidency, particularly to Calcutta and its immediate vicinity, a district which, owing to geographical position and climatic influences, enjoys, perhaps not undeservedly, an unenviable notoriety for unhealthiness. I know of no other place which affords better opportunities of studying the relations between temperament and

liability to disease, or, in other words, the difference between well bred and poorly bred horses in adaptability to work under influences which, as a rule, rapidly exhaust the vital energies. We cannot, or at least do not, breed horses in Bengal in sufficient numbers, and of a description to meet our requirements, and, as a consequence, have to depend almost entirely upon importation for our supply. I should say three-fifths of our horses are Australian, the remainder being stud bred, *i. e.* bred by the Indian Government, but cast as unfit for cavalry or artillery purposes, and a few country bred, Arabs, English, and Cape horses, all of which latter find their way to the Calcutta market in small batches periodically. Of the different breeds here given, there can be no doubt those bred in the country are best adapted to it; I have found they are not nearly so liable to disease, especially to those forms of it depending upon exposure to the sun, and the exhausting effects of our hot and rainy seasons. At the same time, I have also found that if we have an animal of any breed seriously ill, his recovery depends not so much upon his breed as upon his degree of breeding. I have no doubt you will agree with me in this, as you must have observed the same in your practice in this country. Certain symptoms which indicate one of our most common diseases eminently illustrate this. We observe them almost daily in horses for six or seven months in the year, never varying except in intensity, and in proportion to the description of work or degree of exposure to which the horse has been subjected. The disease in its different degrees of intensity has received the different names of *coup de soleil*, or sun-stroke, pulmonary apoplexy, heat-exhaustion, and heat-apoplexy, each being usually marked by symptoms which, apart from *post mortem* appearances in fatal cases, are similar in their nature. We have no disease which I should better like to bring before your notice, or which is better deserving of your deliberate consideration; with your permission, therefore, I will proceed to describe the given forms of the disease, taking them in the order in which I have mentioned them, and pointing out the class of horse usually affected.

The disease which is called *coup de soleil* (sunstroke) is, I think, invariably the result of rapid driving or riding in the sun. It is common to all horses, but especially to imported ones, and amongst them to the light and well bred, because pace can be got out of them that cannot be got out of a low-bred horse, better suited for slow work. I have known them in numerous instances go until they dropped.

The symptoms are rapidly developed; the driver or rider, in a case of this sort, generally inexperienced or ignorant, only awakening to a sense of danger on perceiving the horse begin to get heavy in hand, and to stagger and become unsteady on his fore extremities. If pulled up now and attended to at once there is not generally much difficulty in the management of the case. More often, however, the poor animal drops, and after a few wild but vain attempts to get on his legs again, goes down altogether and dies.

This, of course, is a bad case, the animal, in all probability, having been very severely used and having gone down in a place, perhaps, where there was no water nor assistance of any kind. We have these cases very frequently in Calcutta, but generally with appliances for their remedy close at hand, are tolerably successful in their treatment. There is no difficulty in recognising the disease. When a horse goes down with it, he lies extended to his full length, thoroughly exhausted and more or less insensible; the lower lip drops, there is an insensibility to light and touch, the visible mucous membranes are highly infected, respiration is accomplished with difficulty, he groans and sighs, the heat of the skin is excessive, the heart beats tumultuously, and the pulse, at first full and quick, rapidly alters as the attack takes on a favorable or unfavorable turn. The chances of recovery or non-recovery under treatment speedily become apparent, and entirely depend upon the rapid handling of the case.

If there is any breeze, the animal's head and spine should be turned, so as to meet and receive the full benefit of it, the head should be raised, all harness removed, and if possible the animal be got under some shade or protection from the sun. Stimulants must be given, and at once, only they must be given very carefully, the power of deglutition being slow and uncertain. I have given with the best effect brandy, ammonia, the ethers, and, in the absence of anything better, beer. I prefer brandy and aromatic spirits of ammonia. They should be mixed with cold water and given every few minutes, without reference to quantity, until amendment begins to be apparent.

I can call to recollection a case where, in the space of two hours, I administered two quart bottles of brandy and about eight oz. arom. spirits of ammonia with ultimate success. When the animals are not able to swallow I am in the habit of causing them to inhale ammonia. I have administered in cases where the tumultuous beating of the heart was most apparent, hydrocyanic acid in combination with the stimulants, but it is requisite to be guarded about the actual quantity given in a certain time. I think bleeding is uncalled for in all these cases. I have bled horses for it, and have had them recover, but the percentage of recovery under bleeding was nothing like so good as it is now, when we never think of doing so. The main adjunct to the stimulating plan of treatment is cold affusion to the head, spine, and trunk, and especially over the region of the heart. This, as in the case of the stimulants, must be continued until improvement is seen. There is a danger in overdoing it—that is, continuing it after the body begins to get cold, as it will do. I have used hot water on several occasions with the happiest result. It is not, however, always to be got, and I am not satisfied that it has any advantages over cold water.

When signs of recovery are apparent, the cold affusion must be desisted from, with the exception of applying it to the head. Friction, with dry straw to the body and extremities, is now necessary, and proper treatment, and the animal should not be allowed

to lie too long on one side. As soon as he shows an inclination to rise he should be carefully assisted in doing so, and led with supports to a cool and airy loose box. There is great danger of laminitis setting in, in all these cases, within a few hours, and we always guard against it by applying cold poultices to the fore feet and directing cold water continuously to the fore legs. Even if laminitis should not set in, the case requires careful handling for some days. Strong irritative fever generally sets in, accompanied by symptoms of thoracic disease, which has to be met and treated accordingly.

One attack of the disease renders the horse more liable to another, and that under less provocation; the heart remains permanently affected; he never stands work or even hot weather so well again, and becomes a less favorable case to treat under any circumstances.

I have made many *post-mortem* examinations of fatal cases; I have never found the brain visibly affected. Invariably, however, we find the whole muscular system has an unusual florid appearance, due to the presence of an undue amount of blood; the lungs are generally somewhat congested, but not engorged, and the respiratory passages leading from them filled with air and mucus.

The heart is invariably of a soft character, the right auricle and ventricle empty, the left filled with yellow and red clot, and its outer walls covered with patches of ecchymosis.

I do not think it necessary to say anything about pulmonary apoplexy; it is the same disease as that designated congestion of the lungs here. It occurs with us chiefly during the hot weather and under the same conditions as with you here. I will, therefore, at once pass to the consideration of what we term *heat exhaustion*. This disease may and does affect all classes of horses. It does not, however, often materially affect any horse indigenous to the country except under very trying circumstances. We find it chiefly affecting the imported horse and the Arab, perhaps old and with a partially broken-down constitution. Among imported horses we find that large-bodied, under-bred horses, heavy on their legs and with little or no character, are most liable to it. It is rare that we find it affecting a well-bred and what we call a compact wiry horse in ordinary heart and condition. Those horses that have had *coup de soleil*, even in the mildest degree, are specially liable to it. It is not a disease of fast work, as it frequently happens to carriage-horses doing perhaps only two hours' gentle work in the evening. This is, no doubt, associated with close and low-roofed stabling.

It is most common towards the middle and end of the rainy season, and appears to be the result of the muscular tone and energy of the system giving way under the enervating effects of our long and trying hot weather.

It is not by any means a fatal disease, but it incapacitates the animal for any kind of active work; it recurs on the slightest provocation and only really yields to treatment on the approach of the cold season. The symptoms are languor, loss of tone in the

muscles, drooping head and neck, weak compressible pulse, a yellowish-white or blanched appearance of the eye and mouth, a capricious appetite, frequently total loss of it, hurried respiration, and in bad cases enuresis. We have here a set of symptoms all indicating systemic exhaustion and, I think, pointing to one line of treatment. I always inform our clients that the horse must be rested, and even but little worked, as he improves until the cold weather approaches (the change acts like magic), as any undue exertion would probably result in the horse dropping. I recommend a large, cool, and airy loose box during the day, and at night that the horse be picketed out in the open air. I have them bathed with cold water daily and allowed water and the grasses *ad lib.* I have found the greatest advantage from the administration, three times daily, of nitro-muriatic acid in conjunction with infusion of chorilla, one of our vegetable bitters, the compounds of iron with carb. of ammon. and gentian are also of great benefit; as are also ferri sulph. and nux vomica, twice or thrice daily. We generally also allow them several quarts of beer a day, mixed with gruel and aromatic seeds; in short, the remedies of the disease are change of air, general and nerve tonics.

I am not sure that heat apoplexy should be classed with the preceding diseases. There is no doubt, however, that it is a disease of exhaustion; and as it is always one of the hot weather, occurring during the prevalence of *coup de soleil* and heat-exhaustion, we have always considered it of the same type with them.

It is, I think, the most rapid and most certainly fatal disease amongst horses in India, generally only affecting unacclimatised horses—horses fresh from aboard ship, generally with long coats, and in poor condition, and horses on board ship within the tropics. I have never known it to affect an Arab, a country-bred, stud-bred, or well-bred and acclimatised imported horse; and those that it does affect are generally large-framed horses, requiring considerable breathing-space. I have known 50 per cent. of a ship's cargo of horses lost from this disease within a few days, where the ship has been more or less becalmed, with the 'tween decks thermometer standing at 98° night and day. I have also in my memory three occasions on which it prevailed to some extent in the large stables in Calcutta. Amongst our own importations it broke out on two occasions during excessively hot and steamy weather; and after losing several, we could do no more to arrest it than turn them loose in partitioned sheds, allow them plenty of water, and pray for a breeze and some rain. The cause of it in stables is the stationary atmosphere of hot, respired air. In the majority of cases death occurs in from a few minutes to an hour or two. I have known several cases linger on under treatment for a day, but I have never seen a well-marked case recover. The symptoms are very peculiar. There is an anxious expression, glassy, dilated eye, profuse perspiration over the neck, withers, and flank, hurried breathing, rapid pulse; the horse stands with the head straight out, back arched, hind legs drawn well forward; he has frequent ejections of small quantities

of urine, and if the case lasts any time this appears to flow off as fast as it is poured into the bladder. He moves very unwillingly and with a staggering gait. He drinks or attempts to drink water very eagerly up to the last, and in many cases the breath is very offensive.

In the way of treatment we have tried everything in our power that we thought rational, cold and hot affusion, have driven cold air on them, applied hot water rugs round the chest, have given all kinds of stimulants; in short, we have exhausted in these cases our whole resources, but invariably, as I have already said, without success. The disease does not generally give any warning of its approach. Frequently I have known all the horses paraded for watering; they have then appeared all well; immediately afterwards they would eat their forenoon meal, and perhaps within half an hour one or two of them be reported exhibiting the symptoms I have detailed to you. I may mention that bleeding is with difficulty accomplished, the stream being very small and dark coloured, and that we consider death is owing to the rapid development and accumulation in the blood of pernicious elements.

The carcases proceed to decomposition very rapidly, and the *post-mortem* appearances are general venous congestion, congested lungs, and the heart covered with patches of ecchymoses.

With these remarks, gentlemen, I will now conclude. Although I have not exactly met Mr. Potter's wish, I have introduced a set of diseases which, as purely tropical, may possibly be new to you; and I am sure if the further consideration of the diseases of the horse in India, peculiar to the country, would interest the Association, I shall, with pleasure, try to furnish you with the material.

Mr. Rutherford gave also some very interesting statements about Indian hemp, which was held in much esteem as a therapeutic agent amongst veterinary surgeons in India. Some remarks were made by members who had used it, and found it of less value than had been reported; but Mr. Rutherford explained that there are three different states in which it can be obtained, in two of which it is of little value, in the third only is it serviceable. Mr. Rutherford promised to send some of it to the President, in order that he might test its efficacy.

Thanks of the meeting were awarded to the essayist for the valuable information he had communicated, and the President expressed a hope that Mr. Rutherford would correspond with the Association now that he had become a member.

ALEX. POTTIE, *Secretary.*

THE LANCASHIRE VETERINARY MEDICAL ASSOCIATION.

The usual Quarterly Meeting of the above Association was held at the Trevelyan Hotel, Manchester, on March 10th, 1869.

The President, A. L. Gibson, Esq., in the chair.

There were also present the following gentlemen, viz. Messrs. John Lawson, Manchester; Jas. Howell, Rochdale; J. Taylor, Manchester; Geo. Morgan, Liverpool; S. Cox, Knutsford, Nottage; James Brookes, Pilkington; Wm. Woods, Wigan; Wm. Whittle, Worsley; Wm. Haycock, Manchester; Thos. Greaves, Manchester; P. Taylor, Manchester; Joseph Carter, Bradford; and A. J. Owles, 6th Enniskillen Dragoons.

Letters were read from Mrs. Brown, thanking the members for their letter of condolence on the death of the late Mr. George Brown, and from Mr. Jas. Taylor, apologising for his unwilling absence from the meeting. Also one from Mr. Wm. Heaps, of Preston, announcing his resignation of membership.

The minutes of last meeting having been read and approved, it was proposed by Mr. Greaves, and duly seconded, that Mr. Wm. Heaps' resignation be accepted on payment of the annual fees. Carried unanimously.

It transpired that there was an entire misconception with regard to a supposed promise on the part of Mr. Brookes to read two papers, he having merely undertaken to relate a case or two, *haud præmeditatus*. He gave a graphic and interesting account of a case of ulcerated stomach, and also of another case which had come under his observation of a somewhat extraordinary nature. A very animated discussion ensued, in which most of the gentlemen present joined. Mr. Owles related a singular case of ulceration of intestines which he had met with when in India.

Mr. Haycock alluded to the use of tincture of iron in cases of hæmorrhage, such as bleeding from the palatine artery, which was sometimes caused by blacksmiths cutting the roof of the mouth. He explained its specific action.

Votes of thanks to the President for the efficient and amiable discharge of his functions, and to Mr. Brookes for his able contributions, brought the proceedings to a close.

By order.

OBITUARY.

We regret to have to record the death of—

Mr. W. Paton, of Inchinnan, Renfrewshire; diploma dated April 19th, 1838.

Mr. Abraham Garrad, Kilkenny, diploma dated Dec. 4th, 1839.

Mr. Robert Mead, New Cross, Greenwich; diploma dated April 30th, 1847.

Mr. Robert Cowell, Hatfield Peverel, Essex; diploma dated May 2nd, 1861.

Also, more recently, of—

Mr. William Rowlands, Loughborough; diploma dated March 17th, 1832.

Mr. William Crabbe, Earsham, Norfolk; diploma dated June 11th, 1845.

Mr. Charles F. Phillips, V.S., 3rd Hussars, India; diploma dated April 21st, 1864.

To this list of departed members we have to add the death of Mr. Henry Hutchinson, Retford, Notts, from a singular and melancholy accident. It appears that Mr. Hutchinson was playing with two of his children, and having a dog's tooth in his hand he put it into his mouth, when suddenly the tooth slipped down his throat. At the time he thought very little of the occurrence, and was enabled to go about his duties; but, finding that the tooth began to cause pain, he sought the advice of Mr. Marshall, surgeon, who did all he could to reach it, but without success. Subsequently it was resolved to send for Dr. Barber, from Sheffield, to open the windpipe; but before this gentleman arrived Mr. Hutchinson was dead. The deceased has left a wife and large family.

Death of M. Bouley, Sen.

The *Journal des Vétérinaire du Midi* says that the Veterinary profession in France has lost its dean in the person of M. Bouley, sen., uncle of Professor Bouley, who died on the 15th of March last, in the eighty-ninth year of his age. M. Bouley was a Knight of the Legion of Honour, and an ex-inspector of the cavalry remounts. He retired several years since from the active duties of the profession, but continued to take the most lively interest in its success, and was a zealous member of the Imperial Central Veterinary Society. His obsequies were attended by a large number of personal friends, among whom were many members of the profession. Orations were delivered over his grave by M. Vatel and M. Charlier.

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Communications and Cases.

THE THERAPEUTIC ACTION OF STIMULANTS IN CONGESTION OF THE LUNGS.

By Professor Brown.

It is frequently urged, as a reproach against the medical art, that it has no principles; and considering that different practitioners employ opposite means for the cure of the same diseases, there is good ground for the charge. Conflictive systems of treatment are, however, often, if not always, based upon different conceptions of the nature of disease; when there exists a common understanding as to the object there will not generally be so much variation, and certainly no opposition in the means which are used to attain it.

Among the diseases of frequent occurrence which are differently understood by various practitioners is congestion of the lungs, an affection which constantly occurs among horses that are used in large towns, and in the course of their work frequently exposed to changes of temperature and other causes of the disease. According to one view, pulmonary congestion is essentially stagnation of blood in the lungs, and requires energetic measures to drive the fluid through the congested part. In the other view of the disease the accumulation of the fluid is the important element, and all remedies which are calculated to cause more blood to be "pumped" into the congested organs are deprecated.

Thus, while one school, if school it can be called, of

pathologists would advise stimulants, the other would employ revulsives; one would endeavour to drive onward the obstructing mass of blood, the other would seek to divert the current and thus relieve the distended organ from pressure.

Obviously the first thing to be settled in this controversy is the precise nature of congestion, and, if possible, it is further required to determine what is its natural process of cure. The phenomena of congestion may be observed very easily in any transparent part of a small animal under the microscope, and the most remarkable thing which is noticed is the entire absence of effort on the part of the healthy vessels to overcome the obstruction. The blood in the congested part remains nearly stationary, or is affected only to the extent of a slight oscillation; the *vis à tergo* meanwhile seems to be a very insignificant force, scarcely increasing the amount of oscillation in the stagnant fluid, and the stream of blood which fails to effect a passage in the intended direction always, after a few attempts to proceed, finds new channels, and adds little or nothing to the accumulation.

By and by the extreme vessels of the congested part are relieved of a portion of their contents, which glide away into previously unseen channels, and gradually the mass is lessened, not by the pressure from behind driving on the mass of blood, but apparently by the spontaneous forward motion of the stagnated fluid. What strikes one, in watching the various movements of the blood in the capillaries, is the seeming independence of all the actions. Judging from what is commonly stated about the circulation, it would be expected that all the blood-corpuscles would be driven on heedlessly, in obedience to the impetus communicated from the heart; but so far from this being the case, each corpuscle, or column of corpuscles, in the capillaries, seems to be making efforts to pass in one direction, and, failing in this, seeks a new one, altering form and arrangement in accordance with new conditions, and altogether behaving quite otherwise than as passive agents under the influence of a resistless impulse.

The observation of the whole process is rather provocative of doubts in the mind of the inquirer than suggestive of explanations. But one thing is clearly apparent, viz. the incapacity of the current of circulation behind a congested part to greatly increase or diminish the morbid condition, which remains simply uninfluenced by the force of the pressure, and only ceases when the contents of the circumferent vessels find an exit.

Applying the evidence which is gained by microscopic investigation of the development and progress of congestion in a membrane, to the occurrence of the same abnormal state in the lungs, it may be assumed that the *vis à tergo* has but comparatively little influence in the production of the disease. In all probability it is of no consequence what quantity of blood is driven into the lungs, so that motion continues and the fluid is properly oxygenated; and if from any cause these essential functions are interrupted, retarded or arrested motion of the fluid will result, without reference to the quantity which may at the time be contained in the vessels of the part. Congestion is distinguished from inflammation, not by the difference in the amount of blood in the vessels, but absolutely by the difference in the rate of motion.

The final result of arrestation of the blood's motion is death, from suspended function, and this fatal consequence is to be prevented, not by exciting the heart to an increased effort to drive on the accumulated blood, but by the employment of stimulants and restoratives to rouse the failing powers of life, and increase the molecular activity of the vital fluids. Ammonia or its carbonate exercises this desirable effect in a positive manner, producing a general excitation without any narcotic action, and probably also causing a beneficial effect upon the blood by preventing its solidification.

The therapeutic action of stimulants, and particularly of ammoniacal compounds, in congestion of lungs, cannot consistently be ascribed to their dynamic effects upon the circulation, but to their influence upon the nervous system. There is no evidence of the assumed power of such agents to increase the force of the heart's action in an especial manner, and there is no reason to conclude that if the effect were produced it would tend to cure the disease.

Practically, there is no doubt of the therapeutic properties of ammonia and its carbonate in pulmonary congestion, and it is in strict accordance with the ascertained facts in pathology to ascribe this beneficial action to the solvent property of the agent in reference to the constituents of the blood, and the stimulant or restorative effect upon the nervous system.

VETERINARY EXAMINATIONS.

By Professor Williams.

I shall feel much obliged if you will allow me to correct an error which has crept into your report of my short speech at the Annual Meeting of the Royal College of Veterinary Surgeons.

According to the report I am said to have suggested that the Royal College of Veterinary Surgeons could not afford to send a Board of Examiners to Edinburgh to examine two or three students only, and that there might be two, three, or four examinations in London *per annum*.

Now what I said was as follows:—"That there was but one examination *per annum* in Edinburgh, and that it would be an injustice to in Edinburgh Veterinary College to have more than one in London, as it would place the London Veterinary College in a better position with regard to its students having the privilege of going up for an examination which the students of the Edinburgh Veterinary College could not obtain." I further stated that "the rules of the Edinburgh Veterinary College contained a clause to the effect that no student entering after the 25th of November could be allowed to present himself for examination at the end of the second session after his entrance, and that I thought the same rule should apply to the other teaching colleges."

The injustice of having more than one examination in London must be apparent, as a student may enter the London Veterinary College at the middle of a winter course, and present himself for examination in the middle of another session, whereas if he enter the Edinburgh or Glasgow Colleges he must either go to London for examination or remain until the end of the course.

It will be well for the Council to take this matter into its very serious consideration, as it is of very great importance, and might lead to grave and serious consequences.

Allow me to add one remark upon Professor Spooner's suggestion as to the alteration in the Examining Boards. The Professor said, "He thought the first members of the Court to be dispensed with were those who examined on physiology and anatomy. As to chemistry and materia medica, the probability was that it would be a longer period before the services of such gentlemen as were now examining upon those could be dispensed with."

As to the examiners upon materia medica, I differ with these observations, and think that it is high time this should be done by some one thoroughly conversant with the actions of medicines upon, and the proper doses suitable for, the lower animals, and not have this portion of the examination done, as at present, by medical men, who practically know nothing whatever about the most important particulars of the subject.

As to chemistry, it is a very different thing, and in this department the examiner should be a chemist, not a medical man nor a veterinary surgeon.

I am further of opinion that the examinations upon the more intricate divisions of physiological and pathological sciences should be undertaken by teachers of those sciences, and the practical details may be safely left in the hands of those distinguished veterinarians who adorn the Court of Examiners.

[We very willingly give insertion to Professor Williams' communication, but at the same time it is necessary to observe that we do not hold ourselves in any way responsible for the correctness of the reports of the proceedings of the Royal College of Veterinary Surgeons which are sent to us for publication.

In reference to the question, we agree with Professor Williams that the examination upon materia medica should not be conducted by "a medical man, who practically knows but little about the actions and doses of medicines given to the lower animals." In the London division of the Court of Examiners this subject has not been confided to a medical man since 1864, when Professor Morton was appointed examiner on materia medica.—Eds.]

THE PRINCIPLES OF BOTANY.

By Professor James Buckman, F.L.S., F.G.S., &c. &c.

(*Continued from p.* 400.)

If we examine seeds in their relations to animals, we shall find that they may naturally be resolved into two sets, namely, dietetic and medicinal; in the one we have a store of compounds resulting in non-stimulative innocuous feeding principles, and in the other are contained essential oils which may act as stimulants, or various alkaloids which exert a direct medicinal action. Curiously enough, the different

vegetable substances which we have so far grouped are very similarly composed; thus the simpler food products may be said to be composed of carbon, oxygen, and hydrogen, and their materials are called non-azotised compounds, such as starch. The essential and fixed oils consist of hydrogen and carbon, termed hydrocarbons, whilst the various alkaloids are compounded of CHO and N (nitrogen). These are termed organic bases.

We shall now review some of the seeds in which these sets of principles are the more prominent. The different kinds of corn and pulse belong more particularly to those seeds which produce simple nutriment, and in these are found varied proportions of starch and gluten, but in all kinds of grain there are differences depending mainly upon a difference in the kind and structure of the starch granules, and of the relative proportions of these compared with those of the gluten. The gluten of wheat and legumine of pulse may be considered as nitrogenous products of their respective seeds, and seeds are considered stronger or milder food inversely in proportion to the quantity of water entering into their organisation, and directly in proportion to the amount of gluten or its analogous legumine, and hence for horses beans are more stimulative than oats, and oats less feeding than wheat, while both are better in proportion to their weight, as this argues a state of dryness or the absence of much water, and also a larger proportion of kernel or body of the seed to husk; thus it is that oats of 48lbs. to the bushel are considered as superior to those of 30lb., and thus has originated the saying that work takes the beans out of a horse, as it causes a waste of the muscles on the one hand, and a destruction of such heat-producing materials as starch to keep up, so to speak, the fire of life on the other.

We now know the proportionals of these matters in different kinds of grain, as well as in the different qualities of each. The chemical analyses of these, then, will explain to us the best and the cheapest source whence to get fat producing or muscle-making products, and this knowledge also points out to us what results may be expected from different kinds of seeds, according to their quality and condition; thus a good quality of grain, as of oats, depends upon a full quantity of seed in the husk which, if in good condition, will contain less water than in bad, and as one effect of age is to produce a greater dryness, old corn is superior in feeding properties to newer.

In order to show these differences we now give the analyses of beans and oats.

Average Composition of:

	Beans.	Oats.
Nitrogenous flesh-forming matter	23·30	13·6
Non-nitrogenous substances, starch &c.—heat givers	58·50	70·3
Ashes	3·40	3·3
Water	14·80	12·8
	100·00	100·0

This table is in itself sufficient to show how a jaded horse may have the beans out of him, and it also explains why oats are more fattening than beans.

Of the oily seeds we have several, the products of which are made use of as food or medicine. They are of two kinds: *essential oils* producing stimulating medicaments, and fixed oils producing fatty oily matter.

Of the former we may instance the seeds of carraway, anise, carrot, coriander, &c., all of which belong to the natural order *umbelliferæ*, the seeds of the whole of which are remarkable for the presence of little pouches between the ribs of the carpels, which are filled with oily matter thus described by Sir W. J. Hooker. "Fruit of two single seeded *pericarps* or *carpels*, as they may be conveniently called, eventually separating, each with its style, and for a time suspended by a central, filiform, and generally bipartite column or axis. They are variously shaped, and variously marked with longitudinal *ribs* or *ridges*. The number of these ribs upon each carpel is five. Within the coat of these carpels, generally in the interstices, are often longitudinal ducts or canals, replete with an oily or resinous substance, usually coloured, so that they are sometimes visible without dissection; these are called *vittæ*."

One of the best seeds in which to examine these vittæ or oil ducts is that of the parsnip, in which they are sufficiently large for dissection, and the removal of the pungent oil.

Now what is remarkable about all these seeds is the varied forms which their simple parts have been made to assume; but these are not more diverse than are the essential products of their seeds; but different as is the flavour and relative power of these, they are all referable to the same type, and all would exert the same medicinal effects, varying, however, in degree or power.

Of the fixed oils, we would refer to those of different nuts, as the hazel-nut, walnut, beechnut, &c., and to such seeds

as the flax, hemp, colza, mustard, &c. In the latter and some others, fixed and essential oils are both present; this is the case with the charlocks and wild mustards, which are used with colza or rape for the expression of their oil, but as the cake of the mustards after the expression of the fixed oil is replete with a strong essential oil death has sometimes resulted to cattle from its use. In such cases the veterinary surgeon will soon trace the inflammatory action which has been set up in the stomach and intestines, and it is a subject for the botanist and chemist to point out the nature of the food from which it may have arisen. Seeds contain innumerable organic bases; thus strychnine, piperine, capsicine, crotonine, are the active bases of nux vomica, pepper, capsicum, and croton fruits or seeds, and it is not unlikely that such individual plant, and oftentimes the different parts of plants have their own peculiar organic bases. These are now extracted by the chemist, and so instead of the practitioner being obliged to employ a medicine mixed with its cruder particles, some of which may retard the required action, he can neatly employ the separated active principle which being determinate in composition, whilst in the drug it is seldom or never present in exact and uniform proportions, he can regulate his dose with perfect exactitude.

From the foregoing remarks it will be concluded that whether we have seeds for their feeding products, their medicinal value, or simply as reproductive elements, it is worth while to study them in all their details. In the matter of corn its value and, consequently, the price of each kind is regulated by its weight per bushel, the greater weights being only obtained by plump, well developed, and well harvested seeds.

With regard to medicinal seeds it is more than probable that their value much depends upon the judgment exercised with respect to the period at which they should be harvested. The value of seed as a reproductive element will depend upon a number of circumstances, as full development, weight, and freshness. We know farmers who habitually sow thin grain; we have, however, found in practice that stout seed, though not consisting of so many individuals to a bushel as in thin seed, yet a less measure will produce a better crop. Some seeds soon lose their vitality, so that as a rule fresh seed is to be preferred; but in the case of seeds where birds may take some, where the soil may not be suitable, a difference in climate, cultivation, and management, all may exert a different effect upon the result, and thus all afford so many loopholes of escape for the nefarious dealer, seed admixtures

and adulterations are crying evils; but let those who have to do with seeds, whether as medical men or as farmers, become acquainted with their natural history, and then few will want the legislature to interfere to protect their interests. Those who employ plants either as food or medicine, or who have to study and witness the effects of these, should surely study their nature, habits, and products. To this end we have offered our few remarks upon the principles of botany with a view to the after examination of different classes of plants, and a general review of their products and uses.

MR. BROAD IN REPLY TO MR. FLEMING.

In reply to Mr. Fleming's letter in this month's *Veterinarian*, I beg to state that no member ought to be displeased with another for differing from him, as it is often the means of bringing out new ideas. I have to thank Mr. Fleming for differing from me on the rationale of heavy bar-shoes in laminitis, and stout shoes where feet are flat and weak, as it has induced me to thoroughly investigate the theory, the facts of which I have been many years cognizant of, and which is received as correct by the majority of practically experienced persons, notwithstanding Mr. Fleming's statement that it is "a fallacy which has dominated farriery for several centuries, and proved a fruitful source of mischief." I believe that I shall now be able to prove to the satisfaction of the readers of the *Veterinarian*, if not to Mr. Fleming, that it is not a fallacy, and, in addition to giving the correct theory of the beneficial effects of heavy shoes on weak feet, it will also give a new idea in reference to the cause of other diseases of the feet.

Mr. Fleming has asserted ("but not proved") that my heavy shoes are wrong in theory and practice. In support of their being practically right, I have been told by Mr. Lawson that since their introduction he has used them in a number of cases of laminitis without a failure; Professor Williams, Mr. Greaves our President, Mr. John Greaves, Mr. W. C. Lawson, Mr. Thos. Taylor, of Manchester, and many others, from whom I have received the most favorable reports of the success of my plan of treatment. I must confess that I am astonished at the statement that heavy shoes "increase concussion." It does not require a "deep study of mechanical philosophy" to find from riding or driving a horse whose feet

are flat and weak which sort of shoes the horse travels best in, and it may also soon be seen which preserve the feet in the soundest state; but to understand the theory of the same does require a knowledge of the laws of mechanics.

Having ascertained the fact from practical experience that horses' feet receive less concussion when travelling on hard roads or paved streets, when shod with heavy shoes, than when shod with light ones, the mechanical law showing the theory of the same is that of vibration, the result of concussion—the lighter the body, the greater the vibration, provided that the blows causing the concussion are equal. When the light shoe comes in contact with the pitching, a large amount of vibration is produced, and received by the foot; but in proportion as the shoe is increased in weight the vibration decreases in quantity. The shoe being brought into contact with the pitching by voluntary muscular power, the concussion is not increased by the extra weight of shoe, in proportion to the decrease of vibration resulting from the same.

It is a well known fact that the effect of constant vibration on iron produces molecular alteration of structure; that which was of the best fibrous quality becomes crystallized and easily fractured. Therefore we need not be surprised at the effect it produces on the functions and structure of the foot of the horse. The rationale of the heavy and peculiarly made bar-shoes, as used in laminitis, is that, in addition to the lessening of vibration, they allow the horse to throw his weight on to the heels and frogs, thereby relieving the lamina more effectually than he can do with light shoes, or without any. I state this after having fully tested both plans, and, were it not for occupying too much space, I could cite a number of cases in proof of it. However, I will give the history of two. The letters corroborative of the first case have been seen by several members, including Mr. Fleming.

The second case occurred during the time my friend Mr. Woodger, sen., was paying me a visit, so that he can corroborate me in that case. In October last I went a distance of fifteen miles, to oblige a veterinary surgeon (without fee or expenses), to instruct him in my plan of treating a case of laminitis in both fore feet of a favorite pony, the property of a nobleman. The cause of the disease was fat, and idleness when at grass. The case had then been under treatment two months, and the pony moved with difficulty. I lent the veterinary surgeon a pattern shoe, also instructed the smith how to make new ones, ordered physic and exercise, at the same time stating that if those instructions were properly

carried out in all probability the pony would be fit to resume his ordinary work in a fortnight. The veterinary surgeon promised to let me know in a few days how the case was getting on, as I had told him that I would see it again, if he thought it necessary. Not hearing from him, after a fortnight I wrote, but did not get a reply. After ten days I wrote a second letter, which brought a reply, stating that he had taken off the heavy shoes, and put on lighter ones, and the pony was moving better. Being in the neighbourhood at the end of November, I called at the house of the veterinary surgeon, but did not see him. In passing through the town the owner of the pony saw me, and asked me to look at it, as it was not any better than when I had seen it, which I found to be the case, and told him that it was still curable. He then said he should like me to have it at Bath to treat. I told him that I could not take the case under the circumstances, unless sent by his veterinary surgeon. I did not hear anything more of the case until February, when the owner wrote to me, stating that the pony was much in the same state as when I last saw it. His veterinary surgeon had told him that he could not do anything more for it, and no other person could. If I thought I could cure him, he would send it by rail. On his veterinary surgeon hearing that it was coming to me, he begged the owner to allow him to send it to the London Veterinary College. The day it came I returned a note, stating that in from two to three weeks it should be fit to resume its ordinary work.

In ten days the pony was fit, and has been doing its work up to the present time as well as before the attack occurred, and quite free from lameness. The owner stated that he should be most happy to give me a testimonial.

In April last I was called to a case of laminitis in both fore feet of an old cob belonging to Colonel Blathwayte. This animal had been out of work a long time, and turned into the park, where he got fat and idle, which caused the disease, although not of a very acute character. As the case was not a very important one, I adopted Mr. Fleming's plan of lowering the crust level with the sole, gave physic, and ordered exercise in the park on the grass, which was fully carried out, with the result that it took a fortnight to remove the lameness, which would have been done in a week had the special shoes been put on. I have been called to cases where the ordinary shoes have been thinned at the heels, physic and exercise continued for weeks, without removing the lameness; when, by applying special shoes, immediate relief was afforded, and the cases went on well.

Both plans of treatment are correct in principle. Many acute cases will recover with the ordinary shoes on, or without any, provided the exercise and physic be given early. As I have before stated, my shoes enable the horse to throw his weight off the lamina more effectually than he can do with the ordinary shoes, or without any. It also lessens the jarring, and prevents the feet from becoming broken, as when exercised without shoes. Chronic cases are not recoverable without the use of special shoes, and that alone is a great point in favour of their use in all cases. I have had sufficient experience of my plan of treatment to be able to state that, with special shoes, physic, and a judicious use of exercise commenced early, rare indeed would a case be an unsuccessful one.

I have not yet had one; others have, I know. But I believe it to have been either from exercising to excess, or from not having commenced the plan of treatment early or before the congestive stage had passed into that of acute inflammation, which then requires a greater amount of caution in the regulation of exercise, which I have referred to in a former article. I have been written to by many members, after they had been called upon to treat a case, asking me what sort of shoe I used, and what other treatment was necessary. If persons take so little interest when anything new is brought forward, how can they give it a fair trial when called in a hurry to a case which requires prompt measures, the details of which they are unacquainted with, and have to wait until the disease has altered its character before they commence the proper treatment?

Mr. Fleming has not done me justice in making it appear that my plan is to cut the soles and frogs of weak feet. A reference to either of my previous articles will prove this. In my article of the May number I find it stated that there are some very weak and flat feet, with very large frogs, which require cutting. On referring to my notes, I find there is an omission of the words "do appear to require cutting," that is, the large *frogs*. I do not know how the mistake occurred. I referred more particularly to large, weak, flat-footed cart-horses. There are also many flat, weak feet, which will not become strong and good, whether cut or not. As I have before stated, I carry out the system of not cutting sole or frog as much as possible; but there are some people who do not like the appearance of unpared feet, and will have their horses' feet cut out. I am of opinion that the cutting of the soles and frogs is the greatest evil in connection with shoeing.

I was surprised the other day, when in the first shoeing forge in London, to see that the feet were cut as much then as when I first entered it, thirty-two years before. If the leading members of the profession do not adopt right principles, how can we expect them to become general? Mr. Fleming states—"If I were asked to produce a case of foot disease, such as laminitis, to order, I think I could not do better than follow Mr. Broad's method of shoeing a foot of this description, then on a hot day in July drive or ride the animal sixty miles on a hard pavement, and see if it is fit to repeat the journey the next day." That certainly would be a very likely means of producing laminitis, whatever system of shoeing were adopted; and the person who gave it a trial ought to be prosecuted for cruelty to animals. I am fully aware of the disadvantage of the weight of iron in the heavy shoes, as well as the small amount of elasticity it possesses; but, notwithstanding those drawbacks, the advantages exceed the disadvantages, and until we can find a lighter and more elastic material which will answer the purpose we must put up with the disadvantage of iron.

Mr. Fleming also states that "theory is the ruin of my practice, so far as the experience of disease goes." In reply to which I beg to state that theory without practice is very apt to mislead. When we have ascertained a practical fact, and our theory does not agree with it, the theory must be wrong. Mr. Fleming has referred to the case of pumiced feet of 1865. He certainly has no right to presume what my opinion "would have been;" but this I can affirm, that I never had brought to my notice a case on which I could not nail stout shoes. Notwithstanding all that has been published in the *Veterinarian* this year on laminitis, I have within the last few weeks heard two veterinary surgeons state that the pathology of the disease was still an unsettled question, at the same time drawing my attention to Mr. Greaves' paper in the April number of the *Veterinarian*, where it is stated that laminitis is protracted intense cramp in the dense fibrous tissues of the feet. For the information of those members who have forgotten the anatomy and physiology of the foot, I beg to inform them that there are no fibrous structures in the foot of the horse capable of being affected by cramp.

MR. BROAD'S SHOE FOR LAMINITIS.

By Professor Williams, Edinburgh.

If those who write so much against Mr. Broad's shoe for laminitis would only try its utility, they would find out that its application is followed by satisfactory results. It allows the patient to throw his weight away from the toe, *i. e.* upon the heel, with the greatest ease and least possible amount of muscular action, and by doing so it removes the weight of the body from the part which is most intensely inflamed. I am not going to enter into any controversy, but in laminitis, both acute and chronic, and in ringbone, the shoe is invaluable, and the profession is indebted to Mr. Broad for the honest and straightforward manner in which he has laid his opinions before its members.

MR. BROAD'S TREATMENT OF LAMINITIS.

By Henry Lawrence, Jun., M.R.C.V.S., Romford, Essex.

I beg to state that I have adopted Mr. Broad's plan of treating laminitis for more than five years without a failure, during which time I have treated many cases, both acute and chronic, some of which were considered by their owners to be incurable, yet within a month they were doing their ordinary work free from lameness. I have lately had a very acute case occurring in a mare after foaling, which quite recovered in about a week. In reference to the question of stout shoes for flat, weak, or tender-footed horses working on paved streets or hard roads, my experience teaches me that the advantages of the stout shoes are very great, and the theory I have always understood to be that they lessened the jarring action conveyed to the foot. Perhaps some member who has studied mechanical philosophy will give us a more scientific definition.

PLEURO-PNEUMONIA IN DERBYSHIRE.

By George Poyser, M.R.C.V.S., Ashbourne.

I feel it my duty to report to you, for the information of those who have power to legislate upon the subject, that

contagious pleuro-pneumonia is very rife in South Derbyshire. On good authority, I state that there are few parishes (nay, townships) in that political division of our county in which numerous cases of this disease have not occurred during the present year. I look upon this fact with great anxiety, inasmuch as there is a vast amount of misapprehension in the mind of the agricultural public as to the true nature of this specific disease. We have strong evidence of this in the recent discussion of the members of the Derbyshire Agricultural Society, where it was stated that brewers' grains, chopped hay and straw, artificial foods, &c., were among its causes. What else could be expected when land agents, farm bailiffs, &c., assumed to be authorities on veterinary medical subjects?

THE VETERINARY PROFESSION FROM A NEWLY-FLEDGED MEMBER'S POINT OF VIEW.

By John Gerrard, M.R.C.V.S., Ware, Herts.

As an humble member of the veterinary profession, and having for the last ten years taken a lively interest in all its concerns, perhaps you will allow me space for a few remarks on the state and prospects of the profession from my point of view.

And first of the annual report and meeting. In reading over the report and speeches of the meeting one is struck with the unanimity of sentiment which seems to prevail on the question of educating and examining the future students of the profession. Indeed, the whole matter seemed conceded; it being agreed to by all present, that not only were more stringent examinations necessary, but that a greatly more extended curriculum of practical education was required. Not one step was taken, however, or a suggestion made regarding a much more important subject, viz. the obtaining of a new charter or renovating the old, to protect those who shall undergo the searching ordeal from the annoyances and difficulties experienced by them on commencing practice, from the multiplication and recognition of unqualified practitioners, who swarm like a flock of Egyptian locusts, with powers equally as destructive, over the length and breadth of this so-called enlightened land.

I am certainly no opponent to the contemplated improve-

ments, having myself served an apprenticeship, and had three sessions at College (as a matter of choice, not of necessity), before presenting myself for examination. Nor do I find fault with those gentlemen who constitute the Council of our College for their attempts to introduce a higher standard of education (although, in passing, I would beg to suggest the propriety of putting their new system in force on some of the examiners themselves, as a good many of their pathological ideas are somewhat musty, and scarcely in keeping with the advanced teaching of the schools); as I do think that something might have been done, in the way indicated, at the meeting. It seems to me that the dominant ideas prevailing in the minds of the Council, as embodied in their annual report, are how to lengthen the curriculum, increase the income of the colleges, watch jealously any attempts at improvement in the shape of a new charter or renovation of the old, and show a good balance on the creditor side of the annual sheet.

These are all very good in their way within legitimate bounds, but are not all that is exactly needed—indeed, imperatively demanded—at the present time; nor are they the only subjects which the members of the profession have a right to expect should occupy the whole attention of such a meeting as the one assembled in Red Lion Square on the 3rd of May last to legislate for the whole of the veterinary profession.

Education, in whatever form, assuredly brings its own reward, and, no doubt, there is room for improvement in the way indicated; but I do not think that, although the higher standard were reached, it will arrest the growth or cure the distemper that at present hangs over us like an incubus, namely, the great obstacle to a better recognition by the public of our profession.

As a proof of the validity of this assertion, "that a higher standard of professional training will not remove the evil complained of," I would beg to ask, Why do we find quackery so rampant and successful, even under the shadow of the colleges themselves? Is it not a notorious fact that in Edinburgh the quacks muster strongly, and seem to thrive well? I can assert, from personal knowledge, that even under the shadow of the British House of Commons quackery is as rampant as anywhere else throughout these islands, and within the sound of the great bell of St. Paul's there are quacks netting their hundreds a year from businesses that many a newly fledged member might envy. In many remote districts quacks, in this country seem to possess

more than the usual audacity of the same class in Scotland, for here they do not hesitate to put up sign-boards and brass plates on their doors, with the apparently useless title of "veterinary surgeon" emblazoned thereon. For example, in this town, within twenty-one miles of the metropolis, one of the self-styled veterinary surgeons holds the appointment, from the Local Authority, of district inspector, and has received a pretty round sum for his services. It even "crops out" occasionally in the pages of your Journal, as witnessed by the communication in the last number from your correspondent "X. Y.," who aspires to instruct and suggest means for the education and elevation of a profession he does not belong to. In short, its proportions are gigantic, and daily on the increase, and if no steps are taken to "stamp it out" by legislative measures, I doubt not but it will tell ere long on our Colleges; for who will care to throw away a few hundred pounds for an empty, unmeaning title, which any one may assume with impunity, and which it appears secures no rights or immunities whatever over the empiric.

The law renders it penal for others than the recognised members to address the Bench; in fact it is imperatively forbidden. Is there any good reason why a similar rule should not apply to the veterinary profession, as it does in the sister science—at least of assuming the titles when so great interests are at stake? If the present charter be defective, as it seems to be, why not at once apply for powers to protect our rights and the public from injury, by a new Charter, which shall have that power? Why hold meetings and discuss subjects of secondary importance to this? It is certainly like beginning at the wrong end altogether, "locking the door after the steed is stolen." Let us first have a charter that will confer some powers or grant some privileges over the empiric, and then it will be time to raise the standard of education, when it can reasonably be expected that good men will be induced to enter, when some reasonable prospect can be held out to them of an advanced social position, or something like remunerative employment.

I am perfectly aware that some of the older members of the profession say "that all depends on a man's own tact and talent whether he rise above the empiric or sink to their level." All this is very good, and very true; but I think it extremely unlikely that ever men of standing or education will find their way into the profession when they are exposed to competition with quacks, who are often preferred to the regularly educated man, even by the nobility; and I am quite sure if the ninety-

two gentlemen who have at this time been admitted into the profession were to be asked if they found any reason for complaint on the subject, a unanimous affirmative would be the result. One can easily conceive that a good deal of inconvenience, and not a little hardship, would be inflicted by having recourse to such measures as I have indicated, to "stamp out" these unqualified practitioners; but it is difficult to see where the injustice lies, when it is only an attempt to punish by fine, or, if need be, by imprisonment, the assumption of a title to which there exists no legal claim.

I find my remarks have increased beyond a reasonable length for insertion in one number, without touching on the question of the Charter proper, or the proposed alterations in the mode of conducting the examinations, as I had intended. I can only plead, in apology, the importance of the subject, and the impossibility of dealing with it in a few sentences; but should its discussion be suitable for your future numbers, I shall be glad to give you my opinion on it.

In conclusion, I shall only add that neither the present state nor future prospects of the profession are very hopeful from the young aspirant's point of view; but I look hopefully forward for something being done by the eminently practical President, than whom no more thorough and, withal, more deserving member could have graced the presidential chair. One could almost wish some explanation of the apparent mystery of the same Councillors being re-elected term after term, when new blood ought to be infused into the body of our professional parliament, to carry out what we so urgently need.

Pathological Contributions.

CATTLE PLAGUE.

This disease is still prevalent in Hungary, Transylvania, and Poland. It is said to have disappeared in Bosnia, but to have broken out in fresh places in Roumania, and to be oscillating in others; it has also shown itself in the Pashalik of Widin. Cattle entering Servia from Wallachia and Bulgaria have to undergo quarantine.

We learn that the cattle disease, alluded to in our last as prevailing at Erzeroom and the surrounding districts, has assumed a less severe type, and that fewer animals are attacked with it. These reports, however, must be received with caution; the true state of things being often concealed by interested parties.

PLEURO-PNEUMONIA.

Communications have reached us during the past month from several parts of the country describing the progress of pleuro-pneumonia. With few exceptions, the appearance of the disease in the respective neighbourhoods is due to the purchase of new stock, and particularly Irish cattle.

One correspondent, writing from Yorkshire, says that six separate outbreaks of pleuro-pneumonia have occurred in the neighbourhood of Skipton, chiefly among young Irish stock bought for grazing; and another states that the disease was brought on the farm by some cattle which had been sent to market out of a lot of diseased animals. The malady has usually been fully established in from three to six weeks after the introduction of fresh stock on the premises. The disease we also learn is very rife in the London dairies.

SMALLPOX OF SHEEP.

In our remarks in last month's issue, we stated that Schleswig Holstein was reported as being free from sheep-pox, although many adjacent districts were still infected with this disease.

It is now admitted that the malady had not disappeared from Schleswig Holstein, nor do we think, from all we can learn, that it is likely to do so for some time. Our importations of sheep are large from that country, and great care will have to be exercised lest we import the malady. We have reason to believe, however, that the authorities are fully alive to the importance of the subject, and prepared for all emergencies.

INCREASE OF CASES OF GLANDERS.

THERE are some reasons to fear that glanders is again becoming very rife among the horses in the country and in our large towns in particular. Several cases have recently come under our observation, and according to report some of the chief mercantile establishments in the metropolis are sustaining heavy losses from this disease. The knackers' yards are beginning to tell the same tale, with an irresistible truth, which they told some two or three months since. Too often the spread of this malignant disease, as well as its serious outbreak in an acute form among the horses of large firms, are found to depend on keeping an animal in the stables which is supposed to be merely the subject of chronic nasal gleet; often to an extent which in no way interferes with his usefulness.

CANCER OF THE SALIVARY GLANDS AND TONGUE OF A COW.

MR. COOPER, of Chatteris, has forwarded to us an interesting specimen of cancer of the parotid and submaxillary glands and tongue of a cow. The case was brought under his notice a few weeks since, and, contrary to his advice, the animal was permitted to live on; a hope being entertained by her owner that benefit would result from treatment.

A singular circumstance is mentioned by Mr. Cooper, namely, that in nine cases which have been brought under his notice, three "have occurred on one piece of land, within a mile and a half of Chatteris." He offers no explanation of this fact, which, if not depending upon hereditary causes, is one that requires a full investigation. The study of local influences in the production of diseases, hitherto regarded as special, whether affecting man or brute, has not received that amount of attention which its importance calls for. Let us hope that we are on the eve of a better state of things, and that men of science will combine in investigations of this kind. Even the practical agriculturist could render important service in all such inquiries.

LUSUS NATURÆ.

A REMARKABLE *lusus naturæ* from a Down-ewe has been submitted to our examination by Mr. Rayment, M.R.C.V.S., Inspector at the Metropolitan Cattle Market. With the exception of the head, which was short, thick, and snub-nosed, and the feet, which were turned backwards, the development was natural; but the entire body, down to the toes, was covered with black and white hair, long and wavy, precisely like an Isle of Skye terrier. Indeed, when viewed from a short distance while lying on the table, the monster was mistaken for a dead dog. It was above the average size of a newly-born lamb, which depended chiefly upon effused fluid beneath the skin. The abdominal viscera were normally formed.

Facts and Observations.

FORMATION OF BACTERIA.—At a recent meeting of the Pathological Society, Dr. Bastian made some interesting observations on the formation of bacteria. He had never found vegetable organisms in the blood of patients suffering from septic disease, but he had discovered moving particles in typhus, purpura, and some other diseases, produced by offsets of the blood-corpuscles that separate and become free, or by some change in the blood-plasma, by which small particles of protein matter are formed free in the fluids of the body.—*Lancet.*

PULVERIZED ETHER IN THE REDUCTION OF HERNIA.—M. Demarquay long since showed the utility of pulverized ether in preventing pain during the operation for hernia, and M. Chavergnac now brings forward seven or eight cases to show that this agent may be usefully employed in obtaining the reduction of hernia without operation. The anæsthetic effect of the vapour allows of the performance of taxis without pain, save a disagreeable sensation of burning in the parts in contact with the ether. It is, however, the intense chilling produced by the pulverized ether, so much greater than that produced by merely pouring the fluid on the part, that is the important feature. Its suddenness leads to the rapid condensation of the gases enclosed in the strangulated intestine and the diminution in volume of this. Its effects are superior

to those produced by ice, because the vapours of the ether come in contact with every part of the tumour, and while ice slowly reduces the temperature from 0° C. to — 4°, in less than a minute *rectified* ether lowers it to — 15°. Sometimes these effects, owing to the great heat and tension of the parts, are not produced immediately, and the application then has to be repeated two or three times.—*Presse Belge*, May 9, from *Abeille Méd.*

Death of Sheep from Inclement Weather.—The coldness of the season has proved very injurions to the health of animals at pasture, particularly sheep. Many of the daily papers have recorded serious losses among sheep which had been recently clipped, from exposure to the inclement weather. These losses have occurred in the northern parts of England, where snow is reported to have fallen within a few days of Midsummer.

Mortality among Cattle in Scotland.—The mortality among cattle in several localities in Perthshire during the past week has been rather unusual, and in many instances farmers have been losers to a serious extent. The disease does not appear to be epidemical, for, generally speaking, the cattle became soon affected after being put out to pasture, and the death resulted from what is called grass disease. In several places farmers have lost from four to six cattle each, and the malady still prevails to a considerable extent, and more especially where animals are grazing in fields which have been long under pasture. — *Chamber of Agriculture Journal and Farmers' Chronicle.*

The Forthcoming Meeting of the Royal Agricultural Society.—We learn that the entries of animals for the Manchester meeting far surpass any of late years. The shorthorns are so numerous, that two sets of judges have been appointed, one taking the male and the other the female classes. The horse and sheep entries will also find full work for the judges. Nothing apparently can mar the success of the meeting, unless it be a continuance of the cold and wet weather we are now experiencing.

Supposed use of the Marrow.—Dr. Neumann is of opinion, that the marrow contained in bones plays an important part in the production of blood. The cells of marrow resembling those of lymph he believes to be an element from which new red blood-cells are being constantly formed, in order to replace the elements of the blood which are being constantly destroyed either by physiological or by pathological action.

MEMORIALS TO FARADAY.—The Chemical Society, wishing to honour the memory of its late distinguished Fellow, Professor Faraday, and at the same time to promote the personal intercourse of the society with eminent foreign chemists, has decided upon instituting a Faraday medal, to be awarded, from time to time, to some foreign chemist of distinction, upon his accepting the invitation of the president and council of the Chemical Society to deliver a lecture to its Fellows. The first lecture has already been given by M. Dumas, of Paris.

Steps have also been taken to provide a public memorial to Faraday, for which purpose a meeting, presided over by His Royal Highness the Prince of Wales, has just been held at the Royal Institution.

THE FLOCKMASTERS AND THE GOVERNMENT CONTAGIOUS DISEASES (ANIMALS) BILL.—A meeting of flockmasters has just been held at the Norfolk Hotel, Norwich, to consider Mr. C. S. Read's amendments to the Contagious Diseases (Animals) Bill. Mr. Read was present and was pressed to take the chair. On the motion of Mr. J. Brown, seconded by Mr. S. Gayford, the following resolution was passed:—"That this meeting is of opinion that the Clauses of the Government Cattle Diseases (Animals) Bill relating to sheep-pox are amply sufficient for the protection of the British flockmaster." A committee was afterwards appointed to consider what further steps should be taken.—*Chamber of Agriculture Journal and Farmers' Chronicle.*

THE CHARITY OF THE TURF.—We last year mentioned that a donation-box for St. George's Hospital suspended at Tattersall's rooms had produced the munificent sum of one florin as the charitable contribution of a number of gentlemen through whose hands large sums of money are constantly passing, and who look upon a "fiver" much as other people do a half-crown. We regret to learn that another year's suspension of the aforesaid box has resulted in—*emptiness!* The well-known liberality of a few leading members of the turf exonerates them from the charge of disregard to the wants of humanity; but as respects the great mass of "betting men" we fear the epithet "hard-hearted" is as appropriate as the more flattering title "hard-headed."—*The Lancet.*

CHANGE IN THE COLOUR OF LEAVES.—The green colour of leaves, one element of which must be a vegetable blue, has led an American experimentalist to the conclusion, that leaves turn red at the end of the season through the action of an acid,

and that the green colour could be restored by the action of an alkali. The conclusion has been verified by experiment,—autumnal leaves placed under a receiver with vapour of ammonia have in nearly every instance lost the red colour and renewed their green.

Spontaneous Generation. — In reference to this questioned phenomenon, a paper of M. Trécul's has lately been laid before the French Academy. The author's conclusions relate especially to the formation of yeast in beer, and are as follow:—1. Yeast cells may be formed in the must of beer without spores being previously sown. 2. Cells of the same form as those of yeast, but with different contents, arise spontaneously in plain solution of sugar, or to which a little tartrate of ammonia has been added, and these cells are capable of producing fermentation in certain liquids under favorable conditions. 3. The cells thus formed produce *Penicillium*, like the cells of yeast. 4. On the other hand, the spores of *Penicillium* are capable of being transformed into yeast. Finally, he states that spontaneous generation is the great obstacle to satisfactory observations, because it mixes its own products with those placed by the observer for experiment.—*L'Institut,* December 23, 1868.

Creatine in Milk.—In a note to the French Academy, M. Commaille announces that he has obtained creatine from putrefied whey. This is, without doubt, derived from creatine by dehydration, so that, according to M. Commaille, the latter substance must be a constituent of new milk. Its presence has not been hitherto made out on account of the large quantity of other matters with which it is united in new milk. M. Commaille finds in the presence of creatine a new analogy between milk, blood, and meat, and doubts whether creatine is an excrementitious matter.—*The Popular Science Review.*

Influence of Veratrium on the Heart.—M. Oulmont, who has been continuing his experiments on the physiological action of *Veratrum viride* and on its therapeutical effects, recently read his second paper on these subjects before the French Academy of Medicine. He finds that the resinous extract in doses of about a centigramme every hour lessens and steadies the pulse, and considerably diminishes the temperature. He has tried it in pleuritis, pneumonia, and typhoid fever, and while it gave bad results in the first and third, it proved of immense service in the second.—*Ibid.*

THE VETERINARIAN, JULY 1, 1869.

Ne quid falsi dicere audeat, ne quid veri non audeat.—CICERO.

CERTIFICATES OF SOUNDNESS OF HORSES ENTERED FOR EXHIBITION.

IT is fair to presume that the managers of live-stock exhibitions are in earnest when they require that horses which are sent to compete for prizes shall be certified sound by a veterinary surgeon previous to being entered on the list. The requirement is perfectly reasonable, but while we are ready to contend for the justice of the principle of admitting only sound animals, and are perfectly satisfied of the good faith of those who established the rule, we are not so certain that their wishes are always respected, or their intentions understood either by exhibitors or by those veterinary surgeons who are in the habit of giving the required certificates of soundness. In our own experience it has happened that owners of horses have felt themselves much aggrieved by the refusal of a certificate, and have represented that the proceeding was merely a matter of form, as the horses would be examined again before a prize was awarded, and we have known instances where the persistent refusal has given much offence, and the owner has gone to some less discriminating or less scrupulous member of the profession and obtained the document which was necessary to enable him to enter his animal for the show. Perhaps it is a natural weakness for the intending exhibitor or seller of a horse to hold an unbounded belief in the animal's soundness, and to feel personally hurt by the expression of an opinion to the contrary. This, however, has nothing to do with the fact that the writer of a certificate of soundness is bound to state what he means without reference to any special pleas, which may be advanced by the owner; and taking a more personal view of the matter, it is not satisfactory to us to have often, in our official capacity, to disqualify animals as unsound, and then to be told that they were entered with a certificate from a qualified veterinary surgeon.

Some latitude may be allowed for a difference of opinion as to the meaning of the term soundness, but the more strict the interpretation of the word is the better, and when a defect of doubtful nature is discovered there would be no objection against stating its existence and leaving the question of its influence upon soundness open. Very rarely, however, is a defect of so dubious a character that any difficulty can arise in reference to the soundness or unsoundness of the horse in which it exists. Hereditary diseases may be referred to as exceptional in this respect,—the transmission of a defect or tendency to it from parent to progeny is not at all times a fact easy of proof, and in nearly every case the evidence upon which conclusions are based is indefinite. If a certain stud horse or brood mare is the subject of some particular disease, which in the course of time is developed in the offspring, there is room for suspicion of hereditary transmission; and if the same or similar results are constantly observed to attend the use of unsound horses for breeding, to say the least, a very strong case is made out against breeding from unsound horses. It is scarcely worth while to discuss the circumstances which regulate the degree of danger. Nothing of a practical kind is gained from arguments respecting the accidental production of disease, being altogether different from the natural development of it. A blow in the eye of a stallion may cause the formation of a cataract, and the disease thus induced may not be transmitted to the produce of that particular horse; but who is to know how all the cataracts which are met with were originally caused? What data are there to enable the examiner to decide when a defect of any kind becomes capable of transmission to another generation? If it be admitted that diseases, which can be traced to accidental causes, are out of the list of unsoundnesses that are likely to become hereditary, all the safeguards which have been slowly, and with some amount of painful effort, thrown round the system of breeding horses in this country, will be at once swept away. There is scarcely an unsoundness which may not arise from accidental causes. A horse may suffer from cold and become a roarer; he may be turned out after a season's hunting, and come up broken-winded; he may sprain a joint, and a spavin be developed; he

may tread upon a stone and navicular disease may follow. All these diseases are transmissible hereditarily, or none of them are, there is the same kind and amount of evidence in favour of all being so perpetuated as of any one, and giving full force to doubts which some people entertain as to the fact of the young animals inheriting the diseases of their parents, we hold it to be an accepted principle that every care should be taken to select sound stock for breeding; and the members of the veterinary profession should be among the first to give their support to this principle by simply and positively declining to certify an animal sound when he is the subject of a disease which can be detected by the exercise of ordinary care and skill.

Extracts from British and Foreign Journals.

THE ACTION OF TARTAR EMETIC.

The importance of deeper investigations into the action of medicines than any yet realised in this country is made apparent by some of the more searching inquiries of German experimenters. One of these, Dr. Nöbiling, has lately been experimenting on himself and on some of the lower animals with tartar emetic, and one of the conclusions at which he arrives seems to us somewhat startling. The following are his conclusions:—1. There are two independent modes of action in tartar emetic; one on the heart, and the other on the intestinal canal. 2. The action of the potash is on the heart, and that of the antimony is on the intestines. 3. Potash has a directly paralysing action upon the heart. 4. The tartaric acid is without any effect upon the system.

The conclusion to which we direct special attention is the third, as to the paralysing power of tartar emetic residing, not in the antimony, but in the potash. Dr. Nöbiling endeavoured to ascertain the physiological effect of the different ingredients. He found "that while a small dose of potassio-tartrate of antimony caused death in a frog, the same dose of sodio-tartrate of antimony produced no effect." Nowadays, when we are using the salts of potash by the ounce, or even by the pound, it seems rather startling to be told that the depressing power of tartar emetic on the heart

resides in the potash, and is so great that Nöbiling recommends the ammonio-tartrate of antimony, instead of the potassio-tartrate, for therapeutical purposes. We draw attention to Nöbiling's conclusions, not because we are convinced of their soundness, but to illustrate the need for a sounder therapeutical science, that will tend to harmonise common and scientific observation. It is quite possible that potash has a depressing power on the heart. But there is a terrible inconsistency between Nöbiling's conclusions and some of our best daily practice.—*Lancet.*

ON THE INJECTION OF AMMONIA INTO THE CIRCULATION.

At the April meeting of the Medical Society of Victoria, under the presidency of Dr. Bird, Professor Halford read an interesting paper on the "Injection of Ammonia into the Veins," with the object of demonstrating the perfect safety with which ammonia can be injected into the circulation, not only through the medium of the veins, but directly into the heart. Professor Halford detailed a series of experiments of a highly interesting character recently made by him, in which vital reaction had been shown to be the certain consequence of the employment of this alkali by injection. The "foolish temerity" with which the possibility of doing this safely had been denied by persons who had never attempted the experiment themselves was severely commented upon in the course of the discussion, and the value of Professor Halford's discovery was pointed out as bearing upon the treatment of all affections in which a powerful heart-stimulant is indicated; in proof which Mr. Fitzgerald related a case of pyæmia, in which, though death eventually took place, life was considerably prolonged by ammoniacal injection. As a means of resuscitation in syncope from chloroform it was considered to afford a most valuable resource, and Mr. Gillbee stated his intention of employing it on the first favorable occasion. Professor Halford's paper did not entertain the question of the manner in which ammonia acts in antagonising the influence of snake and other poisons. That part of the subject he stated, he reserved for a future paper. A letter, however, was read by Dr. Neild, from Dr. Day, of Geelong, in which the action of snake virus and other similar poisons was shown to be ascribable to their

power of paralyzing the sympathetic nerve, and the effect of the ammonia traceable to its intense power of exciting muscular contractions. Altogether, the discussion, and the replies it evoked from the author of the paper, were full of interest. The President, in offering some observations on the subject, warmly complimented Professor Halford upon the practical nature of his discoveries, and congratulated the University in that to the professor of its medical school belonged the credit of giving to the scientific world these most interesting facts.—*Lancet.*

INFLUENCE OF WATER IN THE PRODUCTION OF DISEASE.

VERY many believe water is the medium by which malarious poison is conveyed into the system, and this is by no means an idea of recent origin. It is worthy of remark that both Hippocrates and Rhazes asserted fever and enlarged spleen were caused by drinking impure water. Linnæus, in his thesis entitled 'Hypothesis Nova Febrium,' announced the true cause of ague to be *aqua scilicet argillacea*, or the use of water impregnated with organic matter while percolating through an argillaceous soil. Dr. Pidduck indeed states that he has succeeded in curing intermittents simply by interdicting the use of any but distilled water. Again, the inhabitants of most tropical or malarious countries firmly believe that water causes fever. Dr. McLelland remarks on the prevalence of this belief. Marshall states the Cinghalese attribute fever to impure water. Dr. Lyell tells us, the inhabitants of the Yusufzye believe fever to be caused by cold, and by water which has been rendered impure by passing over rice fields. The inhabitants of the malarious plains of Troy believe their diseases to arise from the water they are in the habit of drinking. In Albania the shepherds not only will not drink themselves, but are careful to prevent their flocks watering at other than known healthy streams. Mr. Cornish, in his 'Medical History of the Shervaroy Hills,' states the inhabitants believe the water below the mountains produces fever. Throughout Rajpootana, the belief that the cause of fever exists in the water prevails very extensively, and particularly among the better classes of natives (W. J. Moore, Surgeon, Marwar Political Agency, on Malaria).—*Med. Times and Gazette.*

WOOL WASHING.

In a letter on the subject, addressed to a Victorian paper by Mr. S. Wilson, in reference to his operations, he says: On the Coree station, on the Billabong, where the creek cannot be relied on to run more than once in three years, I found it necessary to apply steam power to raise the water for spout-washing. A seven-horse power engine, by Clayton, Shuttleworth, and Co., and one of Appold's thirteen-inch centrifugal pumps, bought from Wilkie, Welch, and Co., raise water to a height of thirteen feet, sufficient to work four of my double crescent spouts, made by Hughes and Harvey. These spouts deliver about 3,300 gallons per minute in the aggregate. The engine is worked at from 55 lb. to 60 lb. pressure, and goes at from ninety to ninety-five revolutions per minute. I am aware that the work done is equal to thirteen (theoretical) horse power, but this great amount of work is partly owing to the lessened friction from the water not being forced through any bends, but directly into the trough, to which the spouts are bolted. The pressure of the water in the jets is about six feet. The wash does sufficient to supply twenty-eight shearers. At the yenko, a twelve-horse power engine and two thirteen-inch pumps work eight spouts, which wash for sixty-three shearers. The engine works at about 45 lbs pressure, and makes about eighty-five revolutions per minute. The work is very well done, although with more experience it will, no doubt, be improved upon. The great difficulty is to keep the sheep clean after being washed, and get them shorn in that condition. Under favorable circumstances this can be effected, but in general the tip of the wool is more or less discoloured. On most riverine stations the trefoil burrs are the great injury to the wool. Its value is, no doubt, lessened from ten to fifteen per cent. by these seeds. It is difficult, if not impossible, to prevent sheep from picking them up. The spouts have little or no effect in driving these out of the fleece. The best remedy seems to be to fence off the worst places, and use them for cattle or horses, or sheep when the burr is not ripened. The expense of doing so is the great difficulty with the present low prices for pastoral produce. As regards the construction of the wash, each race or division is 14 in. to 15. in wide. The soak-pen is divided longitudinally into two, three, or four, according to the number of spouts or extent of work required. The sheep are thrown in at one end and come out in rotation, not being able to pass each other in the races. To Mr.

McKnight is, I believe, due the credit of the invention of the narrow race for soaking, as well as the introduction of the pressure-spout to general notice, as the most effective means of cleansing our great staple of production. I have adopted the double crescent jet in the new sheep-washes which I had constructed, and think them better than any I have seen, as regards cost, efficiency, and economy of labour. The converging form of the jet acts more effectively than the double vertical jet, from the former striking at right angles to the skin at the point of impact, which both of the latter cannot possibly do at the same time. There have been various other forms of jet tried this season. Wilkinson and Stock have produced a double vertical jet, which can be cleansed out instantly, and which is well spoken of. Mr. Jervis, of North Brighton, has had jets made by Wright, which are very effective and neat in working, though somewhat costly. These have the defect of other double vertical jets above referred to. There are also double jets of a different form made by Wright, with gun-metal orifices, which discharge a very smooth sheet of water. The workmanship of these is excellent, but the price is high. Both these and Mr. Jervis's deliver two jets at the same angle as my double wooden jet, described last year. With an alteration in the angle of delivery, and a reduction in price, these jets would be perfection. I have this year tried a treble jet, being three sheets of water, each three feet long and an eighth of an inch thick, delivered almost vertically, the two outer jets converging at an angle of about five degrees from the vertical. This was at first considered an improvement on the double crescent jet, but on a prolonged trial, working beside the other, it was found to do scarcely as much work, and to use fifty per cent. more water. There is, I believe, another double spout being made by Mr. Pritchard, C.E., which will deliver the water at the best angle, and allow greater facilities for seeing the sheep when it is being operated upon. Regarding the shower previous to soaking, I find that it is of little or no use in the northern districts, at any rate where the soak-pen is large enough to keep the sheep in for six or seven minutes. In breeds with much black tip possibly it may be of service. I have this season saved a considerable sum by manufacturing soap, as required by one of the boilers at the wash. The tallow and caustic soda are put into a boiler in the proper proportions, which I ascertained by a number of experiments, and boiled till saponification takes place; this is ascertained by seeing if the tallow be floating on the surface or combined with the alkali. The soap is made in such quantities as may be required for each day's work: the soapy liquid is not boiled

down till the soap is solidified by evaporation, but is run into the soak-pen as wanted. The lye of the wood-ashes has also been used with a noticeable effect. The glycerine which is liberated when saponification takes place has, I think, a considerable influence in giving that soft, silky feel which the wool from high-bred sheep spout-washed possesses in such a marked degree. The quantity of alkali and tallow to form a lye for the soak-pen should be regulated by experiment. Much depends on the nature of the water, whether hard or soft, also on the breed of sheep. The following was used with success: —¼ lb. of caustic soda, 1 lb. tallow, 1 lb. soap. Also another lye, equally good, was ½ lb. caustic soda, 2 lbs. tallow. The above quantities were used to every hundred sheep, and were found by experiment to be the most suitable. I have found that a stronger lye than I recommended last season is necessary to do the work to perfection. The wool this season has attained to a much higher average standard of brightness than last year's clip. The number of sheep washed by each spout was not so many as I had estimated last season. About 400 wethers, or 500 ewes and lambs, to each spout, was found a full day's work. I do not think the washing could be done better than most of the sheep were washed here this season, but it is extremely difficult in the thinly-grassed country of the Wimmera to get sheep into the wool-shed perfectly clean. When 125,000 have to be brought to the same shed the ground gets denuded of grass, and sheep-feeding in the paddock will raise dust wherever they go, causing the surface of the fleece to get discoloured. The only remedy for this is early shearing, so as to have the work over before dust will rise; but reasons are so variable, that immunity from dust cannot be relied on. Much may be done by good arrangement. A system of paddocks diverging from the wash, into which sheep draw without being driven, merely by opening a gate, each of these connected with a shed paddock, so that the sheep have no driving till wanted for shearing pets to lead the sheep through any difficult place, or into the shed, is of great service. A layer of grass or reeds, where the ground is dirty or dusty, and watering the yards, will be found of service. A number of different entrances to the sheds should be provided, so that when one yard gets dirty or dusty a fresh one can be used. With all these conveniences, heavy rains, or a hot wind, will sometimes spoil a good day's shearing, so as almost to make one wish for the old style of work, when the damage done would not have been very noticeable. It is comparatively easy to wash the sheep snow-white, but to keep them clean till shorn is the problem to solve. English grasses will not

grow without an amount of labour that could not at present be expended on Crown lands. I have tried the experiment of scarifying the surface and sowing, but with little success. On the whole there is a great improvement in the clip this year as compared with last, but there is still something to strive for. If by breeding only from the best of our stock, and improving them by careful selection, and the use of the best blood, together with great care in preparing the clip for market, we can balance the fall in price that has taken place, we shall be well repaid for the trouble. And Victoria need not fear the competition of any other country in wool-growing, as far as the highest qualities of that article are concerned. Many of the squatters have only now entered upon a course of progressive improvement in their flocks, which, if it had been sooner undertaken, would have greatly benefited themselves and the country.—*Farmer's Magazine.*

THE EXHAUSTION OF POTASH.

A WRITER in the *Quarterly Review* says that sheep draw from the land on which they graze a considerable quantity of potash, much of which is ultimately excreted from the skin with the sweat. It was pointed out by Chevreul that this peculiar potash compound ("suint") forms no less than one third of the weight of raw merina wool; while of ordinary wools it constitutes about fifteen per cent. of the weight of the fresh fleece. As the "suint" may be extracted by mere immersion in cold water, it is easy for the wool manufacturers to produce more or less concentrated solutions from which the potash may be recovered by appropriate treatment. The development of the new industry is principally due to MM. Maumené and Rogelet, and their process is probably in operation at most of the great seats of the wool manufacture in France. The plan adopted by these gentlemen is a very simple one. They evaporate the solutions which are sent to them until a perfectly dry and somewhat charred residue has been obtained. This is placed in retorts and distilled, very much in the same manner that coal is distilled at gas-works; and the result is, that while much gas is evolved, which can be used for illuminating the factory, and much ammonia is expelled, which can be collected and utilized in many ways, there remains a residue which chiefly consists of carbonate, sulphate, and chloride of

potassium. These three salts are separated by the usual method, and then pass into commerce. Curiously enough, they are remarkably free from soda. The wool manufacturers of Rheims, Elbœuf, and Fourmies, annually wash the fleeces of 6,750,000 sheep; and the amount of potash, reckoned as carbonate, which these fleeces would yield, if all subjected to the new process, represents a value of £80,000. But MM. Maumené and Rogelet calculate that there are seven times as many sheep in France as are included in the above estimate; and this will enable us to judge of the enormous loss in potassic constituents which the soil of an agricultural district has to suffer. The practical and very obvious moral supplied by these facts does not yet appear to have penetrated the mind of the British farmer.—*Farmer's Magazine.*

OUR LIVE STOCK.

Recently we very briefly sketched the position of our domestic cattle in the animal kingdom, and we found that they composed a group of the Bovidæ, a genus of the order Ruminantia. Domestic cattle, although allied to buffaloes, bisons, and the yak, must be considered distinct, and as having sprung from a distinct ancestry. It has also been shown that a truly wild representative of the progenitors of our cattle does not exist. The question as to their origin has been ably discussed by Mr. Darwin. The first conclusion this distinguished naturalist arrives at is that domestic cattle are descended from more than one wild form in the same way as has been shown to be the case with our dogs and pigs. Naturalists have generally made two main divisions of cattle; the humped kinds inhabiting tropical countries, called in India zebus, to which the specific name of *Bos Indicus* has been given, and the common non-humped cattle generally included under the name of *Bos Taurus*. The humped cattle were domesticated, as is seen on the Egyptian monuments, at least as early as 2100 B.C. They differ from common cattle in several ostæological characters, in general configuration, in being born with the teeth projecting through the gums. They also differ in voice and in habits. Mr. Blythe in the *Indian Field* sums up emphatically, that the humped and humpless cattle must be considered as

distinct species. The European breeds of humpless cattle are numerous. The number of British races is well known; even the small Channel Islands have their breeds and sub-breeds, and Moll and Gayot describe and figure no fewer than fifty-five European species. The origin of these closely allied, yet evidently well-marked tribes has been traced by Nilsson and Rütimeyer. Following the latter authority we may mention *Bos Primigenus*, the ancestor of some of the larger Continental races, as the Friesland and the Hungarian cattle, the Pembroke in Britain, and which no doubt now exists, in a degenerate form, as the wild ox of Chillingham Park.

Besides *Bos Primigenus* there are two other species of the genus from which our European cattle are supposed to have been descended. The first of these, *Bos Longifrons* or *Brachyceros*, was of small size and short-legged. The Highland and some of the Welsh breeds are supposed by Professor Owen to have been descended from this species. Remains of *Bos Longifrons* have been found associated with those of the elephant and rhinoceros. The last species, *Bos frontosus*, existed in the same late geological period, and is believed by Nilsson to have been the progenitor of the mountain cattle of Norway, distinguished by a bony protuberance on the skull between the horns.

We see, therefore, that at least three distinct species of *Bos* have been domesticated in Europe. Besides these we find the zebu, yak, buffalo, and gayal domesticated in various parts of the world. The uniform colour of the Chillingham cattle has always been one of their best marked peculiarities. In general the colour may be described as white, with reddish-brown inside the ears. This uniformity of colour is to be observed in some domesticated foreign breeds, and it has been ascertained that cattle, which have run wild in the Ladrone Islands and the Falkland Islands, have assumed a similar light or white colour, with black ears and occasional black heads. Other instances might be given to show the tendency of escaped cattle to become white with coloured ears, while in other cases a uniform dark brownish-red hue has been assumed.—*Agricultural Gazette.*

Analysis of Continental Journals.

By W. Ernes, M.R.C.V.S., London.

POISONING BY THE COMBINED ACTION OF ARSENIC AND LEAD.

Observations by M.H. Buffet, Veterinary Surgeon of the Government (Luxembourg).

A serious malady declared itself amongst the fowls at a farm. M. Buffet found the following symptoms:—Most of the birds were in a recumbent position, drooping their wings; they all retreated in cool and dark places, their gait was staggering, and was rendered more unsteady by the clonic muscular contractions which supervened at every moment. The body was of icy coldness, the eyes shut, only opening when the bird was touched, and this was sometimes followed by a sharp and plaintive cry, frequent convulsive tremors affecting the anterior part of the body, appetite and thirst almost null, fæcal evacuations normal, the crest and buccal mucous membrane of a purple colour, respiration slow. In those which were attacked by the malady in a more advanced stage, the pupils were dilated, the respiration decreased in proportion to the gravity of the attack, nevertheless deep. At this stage they did not take any notice of surrounding objects, and the crest and mucous membrane had become black. The birds remained on their sides or backs without changing their position, paralysis set in, and they died without convulsions.

In the presence of this train of symptoms and rapid mortality, I confess, the author says, that my wits were for an instant at their end. I suspected that I had to deal with a case of poisoning, and I communicated my suspicion to my client. But my opinion was not fixed on the nature of the poison, and I hesitated between the poisoning by ergot of rye and the saturnine preparations. The matter was the more delicate, as the proprietor was not on good terms with one of his neighbours, and he suspected foul play. Not having seen the fowls from the commencement, I had the best reason to persuade the owner that I could not decide until after I had made a *post-mortem* examination.

Not to remain inactive, I prescribed the administration of milk to those birds which were not so severely affected and still left some hope of recovery; and also recollecting the

success obtained during a long practice by the incision of the crop in cases of poisoning in fowls, and the evacuation of the aliments contained in this reservoir, and moreover, the little danger of this operation, I at once had recourse to it. After having extracted the substances out of this organ, and washed the mucous membrane with some warm milk, the incision was closed with a few sutures; of four birds operated on, only one recovered. The crop of these four birds was filled with barley, mixed with some of the larvæ of insects, small stones and fragments of broken glass.

The *post-mortem* examination was made with scrupulous care, and is minutely described, but nothing led to a correct diagnosis of the cause of death, and it was only after analysing the contents of the crop that all doubts as to the nature of the poison were removed. Marsh's apparatus clearly indicated the presence of lead and arsenic in the ingesta.

OBSERVATIONS ON DENTAL CYSTS AND THE ANORMAL PRODUCTION OF TEETH IN THE HORSE.

By F. Denenbourg, Ex-government Veterinary Surgeon.

The author says that in the course of twenty-five years he has only met with six cases of dental cysts, five of them had been successfully operated on, and it was only the sixth that enlightened him on their nature; he frankly confesses having considered them as mucous tumours accidentally formed from unknown causes, when in the last year (1851) he found a molar tooth perfectly well formed, from which he was convinced that they all had the same origin.

This last observation was embodied in a report to the Government upon the extraction of a molar tooth from the ear of a horse, without, however, the originality of the case having attracted any particular notice.

The first case of this nature observed by the author was in 1837 in a three-year old filly, which had on each side of the head (temporal region) a fistula, from which oozed a visco-mucus, transparent fluid, of a dirty white colour, without any unpleasant odour, this discharge running down the cheeks, dirtying, and agglutinating the hairs, accumulating on the face, and by the action of the hair acquiring a fetid odour. On probing the bottom of these fistulas nothing particular was detected, but the probe was followed with a greater discharge of mucus. No doubt these fistulas were the

outlets of mucous cysts, which we had by a negligent carelessness attributed to the friction of the bridle and headstall. Extirpation being the shortest and the surest means to effect the cure, was at once resorted to; the patient being cast and secured, the incisions were made parallel with the fistulas, so as to enable the dissection to be made more completely. The cysts being successfully removed, the wounds were closed with sutures, and in about twelve days the cures were completed.

These two sacs had exactly the same arrangement adhering to the os temporalis, a little below the zygomatic apophysis, at the union of the petrous portion of the temporal bone, and they were easily detached; nothing particularly remarkable was observed at the bottom of the sac, everything perfectly agreeing with the idea we had at first formed of the nature of the disease. But since we know that they were of the same nature and origin as the last case, we ask ourselves this question, What had become of the tooth? did the dental ovulum abort, or did the tooth remain attached to the bone? This last supposition does not appear impossible. From the observations communicated by M. Derache, the fact is that dentary tumour persists in the manner of hyperostosis after the destruction of the mucous membrane. From which it results that after the extirpation of the cystiform tumour, cicatrisation might take place, and the tooth remain without any abnormal secretion or fistula betraying its presence.

M. Macorps is not of the same opinion, for this practitioner informs us that on fourteen horses he has operated twice, in one case three months intervening, and at each time he extracted a tooth; and further, that the cysts and the fistula have persisted, notwithstanding the repeated puncture of the tumour, and the injection of iodine, the employment of the red hot iron and setons, that after the use of these means the tumour reappeared, from which it is presumable that a third tooth was forming.

The author afterwards operated in the same way on two horses, who had each a fistula on the left temporal region, and a third case in which a peculiarity presented itself; a horse eight to nine years old had been affected for several years with fistula in the left temporal region, presenting exactly the same characters as those we have before described, only the discharge from it was turbid, and of a greyish colour, and emitted the odour of caries; the probe denoted a rough hard surface. From this fistula we extracted, to our great astonishment, a hard round substance, the size of a filbert, of a bony appearance, and uneven surface, resembling

a small pebble often met with in gravelly soil. It was loose in the cavity, without any adherence whatever, and one would have supposed it an encysted calculus, and for certain, had it been found in the parotidian region, it would have been taken for a salivary calculus. To the great vexation of the author, no further examination could take place, as though placed in the basket with the instruments, it was abstracted by the man who brought the horse, to show to his master, and subsequently lost. The author repeats with all candour, that on reflecting on this cyst and its contents, it did not occur to him that he had operated on a dental cyst; on the contrary, he had taken the foreign body for a necrosis of the scutiform cartilage. After this frank admission, the author pleads, as an extenuating circumstance, the loss of the foreign body, which prevented him from making a minute examination.

This tooth—for we know now that it was a tooth—in order to develope itself, must have been attached to some tissue of the temporal region at the time of its evolution, no doubt, to the bone, and been subject to the same laws as the other shedding teeth, at the period intended by nature; acting as a foreign substance in the cavity it became detached by decomposition, and hence the purulent character and fetid odour of the discharge.

But our ignorance was not to last much longer, the author adds, in 1851 an entire horse, between three and four years old, was presented to me, having a tumour on the left side of the head, situated exactly at the same spot as in the preceding case, presenting the same characteristic discharge, &c. By the probe a hard substance was detected in the cavity.

The inconvenience from the discharge, though the general health was not in the least affected, determined the proprietor to have the operation performed, which, as there was nothing to be apprehended, either as to its existence or its results, was undertaken at once. On laying the cyst open, it was found that the hard substance strongly adhered to the temporal bone, a little below the zygomatic apophisis. Thinking to have to deal with an exostosis, there was not a moment's hesitation to break it off with mallet and gouge, and remove it with the pincers. Having enlarged the opening, and removed the blood, to bring the substance in view, the perfect conformation of a molar tooth was discovered. On exploring this abnormal production with the finger, it was found that it was tapering at the base, and therefore neither deeply implanted in the bone, nor provided with strong fangs.

Reassured, as well as surprised at this discovery, the

author, without further hesitation, seized it with the pincers used to remove the milk teeth, and, by a movement from side to side, it was easily extracted. The wound was closed with sutures, and in twelve to fifteen days the cicatrisation was perfect.

This tooth the author has shown in 1851 to M. Thiernesse, at the time Professor of Anatomy, now Director of the Veterinary School of the State, and given to be deposited in the anatomical museum. It is of the size of a pigeon's egg, and as well formed as an ordinary molar tooth; the fangs being tricuspid, brings its resemblance closer to the last maxillary teeth.

From these details it will be perceived that the corona-dentis were not turned towards the cranium, as in the case of M. Macorps.

THE PART PLAYED BY MICROZOA AND MICROPHYTES IN THE DEVELOPMENT AND PROPAGATION OF DISEASE.

By Doctor F. De Ranse.

This is a very important essay, but too long to give *in extenso;* we cannot pass it, however, without giving a few extracts.

That which seems to have lately occupied the mind of investigators is the examination of the germs of the organism of ferments, and their mode of evolution. Until the present time the pauspermists, who, it must be admitted, are in the majority, have advocated the view of the dissemination of the germs in the places where animals and plants find their existence, but this notion was rather a logical deduction of their principle than the result of a direct and positive demonstration. Microzoa and microphytes had in fact been found in fermented matter, but their larvæ and germs had not been isolated, and the evolution, or transformation of the latter, had not been followed. M. Lemaire was one of the first to fill up this gap in a work communicated to the Academy of Science, in which he has shown that in the watery vapour of the confined air in barracks and casemates condensed by cold, were contained small spherical bodies of an ovoid cylindrical shape, the number of which diminishes in proportion to the development of the number of infusorii, and that, consequently, they would be considered as the germs of these infusorii. Experiment

with the vapour condensed from the atmosphere of marshes of Sologne has led the same author to identical results. But the air is not the only receptacle, nor the only vehicle of the zymotic germs; the solids and fluids, organic or inorganic, are apt to contain them; the question was to find them, demonstrate their presence, and determine the *rôle* assigned to them; this has been the object of the principal researches which we are now about to describe. It is well known that in all organic bodies and substances there exist small corpuscles, designated by the generic name of molecular granules, which are animated by the Brownian movement, which movement has been diversely explained, but which is generally considered as a phenomenon of the physical order. These granulations, called microzymas by M. Béchamp, which are supposed to be the germs of the organisms, ferment. They exist in the living creatures in the normal state; they are found in the sap of trees and vegetables, in the tissues of animals and the liquids which surround them, &c. Their presence seems to be in proportion to the exercise of such or such function. It is thus that, according to M. Ricque de Mouchy, they are concurrent in vegetables, with the ripening of the fruit, and that in animals as well as in vegetables they have for mission to elaborate certain matter for the incessant regeneration of the organic elements.

The microzymas of the liver have been principally noticed by MM. Béchamp and Estor. The glucogen secretion of this gland is a fecula in a particular state of solubility. These authors have made researches to find out which was the soluble ferment or the zymas which was capable of saccharificing this fecula. To this effect they isolated the granulations which constitute one of the constant elements of the hepatic cells. These granules (microzymas) are, like all the others, animated with the Brownian movement; they are inputrescent, their insolubility in acetic acid and caustic potass shows that they are neither adipose nor albuminous. MM. Béchamp and Estor have put these microzymas by the side of a quantity of starch, the starch was dissolved, but there was no transformation of the fecula into glucose. On the contrary, by acting with portions of the liver reduced to a pulp, the starch saccharification of the fecula took place. According to them this saccharification is due not to the microzymas, but to the zymas which it produces with the albuminous matter of the hepatic cells.

The microzymas do not only assist in or insure the exercise of certain functions, they seem also to contribute to the development or the transmission of certain maladies, as is shown

in a special malady of silk worms, in which the eggs which contain microzymas cause death. The results of the researches by M. Béchamp are that microzymas have their maladies, and that they can transmit these maladies to the organisms of which they form an integral part, or to those into which they penetrate.

It is not exclusively in the organic kingdom that microzymas are found, it has also been ascertained that they exist in the mineral, in chalk, according to Béchamp, and in the carbonate of soda of commerce. According to Ricque de Mouchy, these microzymas possess the property of reducing the nitrates and sulphites in some ferments, and hence the presence of sulphurets in the mud of the principal thoroughfares. These are the numerous functions which are the attributes of the microzymas, but to complete their history two points remained to be solved—first, how they accomplish these functions; secondly, are they germs of infusorii, and has their transformation been observed to the completion of development into the form of the microzoa, and that of microphytes? In respect to the first of these questions experience has sufficiently demonstrated that the microzymas comport themselves like ferments, a fact which has been proved by several experiments made by M. Ricque de Mouchy and M. Béchamp. We now come to the second and most important question, viz., whether the microzymas are the germs of infusorii? The microscopical examination of the vapour condensed from the atmospheric air in the barracks and in the marshes, enabled M. Lemaire to follow them, not quite step by step, but at least in their principal transformation into bacterias or vibrious bodies of a pheric ovoid or cylindric form, which have been considered by him as germs. MM. Béchamp and Estor have made experiments which have enabled them likewise to follow the successive transformation of the mycrozymas into bacterias. To this effect they have observed portions of liver exposed to the action of the air, or put in contact with a solution of sugar, or else with some starch to which creosote had been added, they have found that even in the centre of the substance under experiment, consequently, without any external influence to produce germs, the mycrozymas lost their forms, united in bunches, congregating themselves in a manner to form finally bacterias, either collected or isolated. M. Duvaine in inoculating plants in which the production of protozoa is very favorable, has observed all the forms they assume from the appearance of the granulation to the aspect of the filaments of two or three segments in length. These cor-

puscles are endowed with a greater vitality than the developed organisms. In the state of powder they constitute germs without morphologic characters proper to reveal their organized nature, but they are not less apt, when replaced in a proper medium, to develope themselves and produce perfect bacterias. While these observers were making researches for the germs of the ferments, and found them in the molecular granules which pervade all living beings and organic matter, others who have made similar researches on virus have arrived at identical results. MM. Coze and Feltz, in their remarkable experiments on the presence of infusorii, and the state of the blood in infectious maladies, have established that, in fact, they are the molecular elements of putrid fluids, and not the liquids which are septic. M. Chauveau, Professor of the Veterinary School of Lyons, has also ascertained that the active element of virus does not reside in the liquid, but in the corpuscles which it contains; on this ground he endeavours to explain the differences which exist between some virulent maladies relating to their transmission by infection. But the different questions will be examined hereafter; let us return to those specially concerning the origin of ferments. The results of this rapid analysis of the last works published on this subject are, that there exist in all living beings in the normal state germs of organism-ferments represented by corpuscle-granulations, either molecular or microzymas. These corpuscles act as on the substances which are yet an integral part of the living body, or on one of those which are already departed from it. The microzymas do not present morphologic characters which reveal their organic nature, or would enable them to be distinguished one from the other; they only differ amongst themselves by their function. In their physical state they preserve their form, which is that of a sphere, but as soon as the medium in which they exist becomes favorable to their evolution they speedily become developed. Thus it is that in the pathological state, or in isolated parts of the living subject, they are apt to undergo a series of transformations under which, without the influence of any other germ, they become bacterias, or any other similar infusorii, in a complete state of development.

These facts are of the greatest importance, as much on account of the great number of experiments which have been made to elucidate the question of the spontaneous generation, as well as with a view to the pathogeny of the zymotic maladies. Concerning this last point, if there exist in living beings, in the physiological state, germs which by their abnormal development can produce, or rather consti-

tute, organism-ferment or infusorii, which are found after some affections in the blood, or in the other fluids of the patient, it can no longer be affirmed that the affection in question is the sequence of their introduction into the organism. Moreover, the presence of infusorii in pathologic products might as well be considered the effect of the malady, as the cause of it.

THE BATH AND WEST OF ENGLAND AND SOUTHERN COUNTIES ASSOCIATION.

SOUTHAMPTON.—This meeting has been attended with great success. The management appears to have been excellent, and the result was one of the prettiest show-grounds we have ever seen. A large share of praise is undoubtedly due to the secretary, Mr. Goodwin, and other officials, for the efficient manner in which everything was done, and the attractions that were held out to tempt visitors. In a pecuniary sense this meeting will also be a good one for the Society. On Monday the sum taken at the turnstiles, at 2*s.* 6*d.* each, was 194*l.*, but this small sum was due, no doubt, to a deluging shower about noon. On Tuesday the sum taken was 736*l.* 7*s.* 6*d.*; on Wednesday upwards of 900*l.*; on Thursday, at two o'clock, the time we left, the Finance Steward informed us that about 20,000 had entered. Thursday was the first shilling day. As regards the stock and machinery this is undoubtedly the best meeting this Society has had, although the number of the stock was not quite so great as at Bristol, in consequence of there being no extra classes here. The exact numbers are—Bristol, 545 head; Southampton, 528 head. The machinery had increased greatly, in both the number and value of the articles.

Cattle.—The Shorthorns were a collection that did credit to this breed of large heavy cattle. The 1st prize in the aged class was awarded to the Messrs. Garne, for an immense beast, that had muscle in abundance and quality enough for any reasonable connoisseur. The 2nd was Mr. Stratton's, also a heavy animal, with plenty of flesh. In the class for bulls under two years of age there was much evidence of over-feeding. The 1st prize reminded us of First Fruits, the Babraham 1st prize at Battersea in '62. Lord Sudeley was the winner here, and his young bull was within a week or so of two years of age. He is a most attractive animal, taking him as he is; but when we come to consider the effect his perfect fat-ox ripeness must have on his constitution and that of his issue, if he ever be capable of being a sire, it is clear that it is the duty of every influential society to disqualify animals so fed. It is an insult to the practised judges of this country to make up a bull into the

form of the 1st prize at Southampton with a view of securing a prize. It is also a degradation to any society to allow a bull that is intended for stock purposes to leave their yard with the highest honour, instead of bearing the censure which such treatment of any young animal merits. This is what we must come to, and the sooner any great society comes to a determination on the subject, and sticks to it, the greater will be the honour which the authorities of the society will gain. The 2nd prize is evidently the result of the way in which his parents had been produced and got up for show; for he shows signs of degeneration in the family to which he belongs. He is excellent for his symmetry, no doubt, but he has lost the character for which this breed has hitherto been looked upon as so valuable. Mr. Garne's, of Chipping Norton, is a bull which for size and character for his age was undoubtedly the most valuable bull in his class for legitimate profit. His outline is immense, and his fair feeding has not spoiled him. He was only Highly Commended. But between this and the 2nd prize animal, there was another young bull of great promise, unnoticed altogether by the judges. His colour is a rich strawberry, and he has a beautiful long silken coat. These animals were in the condition in which breeding stock ought to be sent; and considering the length and form of this strawberry bull, he ought certainly to have met with some favour at the hands of the authorities. He was sent by Mr. Walter, M.P., of Barewood Park, Berks; and we hope to see him in good company again this year, and go before judges who will take into consideration the views we have urged.

There is no calf class at this show. This may not be altogether a mistake perhaps, for calves alter so much in a year or two that we do not see the good of showing calves for prizes. Calves may be valued by the parentage they come of, but it is next to mere guesswork to attempt to say which calf will be the best animal when he has come to maturity. This after all is, or ought to be, the object of public judging and awarding prizes. And as judges are supposed to know nothing of parentage or pedigree, how is it possible they can do justice to a class of calves?

The cows and heifers were not numerous. We cannot endorse the judging in the class of aged cows. The 2nd prize cow is an animal which retains the true character of a Shorthorn dam, wide hips and expansive pelvis and rump, and therefore ample width between the thighs for carrying a full bag of milk; a cow's chine, a long thin neck, and a long face below the eyes. These are the kind of cows that we now need to have publicly stamped with the approbation of judges. The 1st prize may be adapted for breeding broad-shouldered and heavy-necked bulls; but if the race of females must be sacrificed for this purpose, we had better think no more about the breeding and milk-giving characteristics of our herds. But rather than this should happen we should be better without excessively broad-shouldered and heavy-necked bulls.

The yearling heifers were more numerous, and there were a few excellent animals; but here the judges were evidently guided by the

prejudice and fashion which has been established of late years, during the infatuation which has beset some of the wealthy men of this country who have taken to Shorthorn breeding for amusement. The difficulties into which many herds are now merging ought to be obviated now that we have ample trustworthy data to guide us in the art of breeding.

The Devons were placed first in the yard, and so far as form and quality go, they were a most attractive part of the show. They were twenty-two in number. Nothing could be more admirable than were the animals sent by Mr. Walter Farthing, Mr. Buller, Mr. Nixey, and Mr. Burton. As we have remarked before, however, there is an undersize in the specimens of this breed which are brought to publicity, and it is a great question whether the course pursued by the leading breeders has been a judicious one, so far as the staying or lasting character of their herds may be considered. The 1st and 2nd prize bulls were pictures, however, and some of the cows were as handsome as they could possibly be moulded. But if this breed goes on decreasing in size as it has done the last few years, we shall be able to find models or imitations of Kerry and Bréton and Jersey cows for family purposes in our own climate and on our own soil.

The Herefords were not strong, and the main strength of these animals was displayed in a magnificent bull and cow, the former sent by Mr. Arkwright, and the latter by Mr. Allen, as set forth in our prize list. The bull is an extraordinary fellow; but beyond him there was nothing worth notice in the aged class; for the 2nd prize was a narrow, irregular four-quartered beast, with a deal of poddiness, which gave him anything but an improved or improving appearance. The cow, however, to which we have referred as being naturally a grand creature, has been greatly over-done with rich or fattening food. The injury of this is clearly shown in the size of the calf a few days old by her side, for it is just one of the diminutive things which looks to be too good to knock on the head, but which it is clear would cost twice as much to rear it and feed it for the butcher as it would be worth when full grown.

The Sussex bulls were in bad condition, their coats being full of scurf and dust. This negligence is unaccountable. If it had not been for two or three great and good cows, and a few handsome and well-grown or growing heifers, this breed would have been a discredit to the show as well as to the County of Sussex.

The Channel Islands cattle were upwards of eighty in number, and a finer collection of this peculiar breed of animals we never saw out of their native islands. The prizes of the society brought the whole of the islands into competition, and as there is as much dissimilarity between the Alderney and Jersey and the Guernsey breeds, as there is between North Wales runts and South Wales cattle, it was not possible to give even the usual amount of satisfaction among the somewhat Frenchified and excitable island exhibitors. The Jersey men object so much to the Guernsey breed that they will not allow a single one of them to pass the landing

wharf at St. Helier's. We may add, the Guernsey breeders are even more strict than this, for they will not allow a single Jersey animal to be imported into Guernsey. Mr. Le Sueur's 1st prize was considered by some of the Jersey breeders to be but a fourth or fifth-rate one, because he was leggy, light in colour, and otherwise favoured the Guernsey type. This decision was more objectionable to most of the Jersey men, because what they considered the best bull was only Highly Commended. This animal is Mr. Elias Nicolle's, Trinity, Jersey; the dam, too, of this bull was awarded the 1st prize at the Royal Meeting at Plymouth, and 100 gs. were then offered for her to be taken to America. The decisions among the cows and heifers gave even more dissatisfaction, and there certainly was a large amount of inconsistency in Class 23; for if the light sandy colour, Guernsey type of heifer, be the right stamp of animal for the first prize, the very neat and beautiful fawn-coloured heifer, with black points, was not suited, with so much choice and excellence, to receive the 2nd prize. But this may be accounted for from the fact that a Jersey man and a Guernsey man, and an English resident in Guernsey, were the judges. Prejudice in these cases will not give way, so the judging probably proceeded on the principle of "giving and taking."

The following are the awards in the cattle classes:

DEVONS.

Judges—Devon and Sussex cattle—Messrs. Ford and Tremain; Herefords and Shorthorns—Messrs. Thomson and Baldwin.

Class 1. For the best Bull, exceeding 2 and not exceeding 4 years old on the 1st June, 1869.—25*l.*, Mr. Walter Farthing, Stowey Court, Bridgewater, 10*l.*, Mr. James H. Buller, Downes, Crediton, Devon.

Class 2. For the best Bull, not exceeding 2 years old on 1st June, 1869.—20*l.*, Mr. Walter Farthing; 10*l.*, ditto.

Class 3. For the best Cow in calf.—15*l.*, Mr. W. G. Nixey, Upton Court Farm, Slough, Bucks; 10*l.*, Mr. Walter Farthing.

Class 4. For the best Heifer in calf, not exceeding 3 years old on the 1st June, 1869.—15*l.*, Mr. Nixey; 10*l.*, Mr. J. H. Buller.

Class 5. For the best Heifer not exceeding 2 years old on the 1st of June.—10*l.*, Mr. R. Burton, Place Burton, Broadclyst, Devon; 5*l.*, Mr. W. Farthing. Commended: Mr. J. H. Buller.

SHORTHORNS.

Class 6. For the best Bull, exceeding 2 and not exceeding 4 years old on the 1st June, 1869.—25*l.*, Messrs. Garne and Son, Broadmoor, Gloucestershire; 10*l.*, Mr. R. Stratton, Burddrop, Swindon, Wilts. Highly Commended: Lady Pigot, Branches Park, Suffolk.

Class 7. For the best Bull, not exceeding 2 years old on 1st June, 1869.—20*l.*, the Right Hon. Lord Studely, Teddington House, Winchcombe; 10*l.*, Mr. R. Stratton, Swindon. Highly Commended: Mr. G. Garne, Churchill Heath, Chipping Norton, Oxon.

Class 8. For the best Cow in calf.—15*l.*, Lady E. Pigot; 10*l.*, Mr. J. Atkins, Barton Peverill, Bishopstoke.

Class 9. For the best Heifer in calf, not exceeding 3 years old on 1st June, 1869.—15*l.*, Mr. James How, Broughton, Huntingdon; 10*l.*, Mr. G. Garne. Highly Commended: Mr. G. Garne.

Class 10. For the best Heifer, not exceeding 2 years old on 1st June, 1869.—10*l.* and 5*l.*, Mr. R. Stratton. Highly Commended: Lady E. Pigot.

HEREFORDS.

Class 11. For the best Bull, exceeding 2 and not exceeding 4 years old on 1st June, 1869.—25*l.*, Mr. J. H. Arkwright, Hampton Court, Leominster; 10*l.*, Mr. W. Rossiter, Strangways, Marnhull, Blandford.

Class 12. For the best Bull, not exceeding 2 years old on the 1st June, 1869.—20*l.*, Mr. N. Benjafield, Short's Green Farm, Motcombe, Shaftesbury; 10*l.*, Mr. W. B. Simonds, M.P., Abbotts Barton, Winchester.

Class 13. For the best Cow in calf.—15*l.*, Mr. J. D. Allen, Tisbury; 10*l.*, Mr. W. Tudge, Adforton, Leintwardine, Herefordshire. Highly Commended: Mr. J. H. Arkwright.

Class 14. For the best Heifer in calf, not exceeding 3 years old on 1st June, 1869.—15*l.*, Mr. W. Tudge; 10*l.*, Mr. J. H. Arkwright, Leominster. Highly Commended and Commended: Mr. J. W. James, Blandford.

Class 15. For the best Heifer, not exceeding 2 years old on the 1st June, 1869.—10*l.*, Mr. W. Tudge; 5*l.*, Mr. J. W. James, Mappowder, Blandford.

SUSSEX STOCK.

Class 16. No entry.

Class 17. For the best Bull, not exceeding 2 years old on the 1st June, 1869.—20*l.*, Mr. T. Smith, Beckley, Staplehurst; 10*l.*, Messrs. J. and A. Heasmann, Angmering, Arundel.

Class 18. For the best Cow in calf.—15*l.*, Mr. W. Botting, Hurstpierrepont; 10*l.*, Mr. T. Smith. Highly Commended: Mr. G. Jenner, Rye. Commended: Messrs. Heasman.

Class 19. For the best Heifer in calf, not exceeding 3 years old on the 1st June, 1869.—15*l.* and 10*l.*, Messrs. Heasman.

CHANNEL ISLANDS.

Judges.—Mr. J. James, Guernsey; Mr. M. Gibaut, Jersey; and Mr. Middleton, Cutslowe, Oxford.

Class 21. For the best Bull, not exceeding 4 years old on the 1st June, 1869.—10*l.*, Mr. T. Le Sueur, Maufant, St. Saviour's, Jersey; 5*l.*, Mr. F. Pittis, Newport, Isle of Wight. Highly Commended: Mr. Elias Nicolle, La Fontaine, Trinity, Jersey.

Class 22. For the best Cow in calf.—10*l.*, Mr. T. Maindonald, St. Peter Port, Guernsey; 5*l.*, Mr. N. Arthur, St. Mary's, Jersey. Highly Commended: Capt. F. A. Makse, R.N., Holly Hill, Southampton. Commended: Mr. Arthur.

Class 23. For the best Heifer, not exceeding 2 years old on the 1st June, 1869.—10*l.*, Mr. J. Dorey, St. Martin's Jersey; 5*l.*, Mr. J. D. Sherston, Bramshaw, Lyndhurst. Highly Commended: Mr. D. Le Cheminant, Sablons, Guernsey. Commended: Mr. P. Gaudin, St. Helier's, Jersey.

Sheep.—The sheep were a good show as a whole, although there were some very inferior animals present. The Leicesters were placed 1st on the list, and Mr. Sanday, of Holmepierrepont, took the two 1st prizes in the ram classes with sheep that were of an excellent form and of a creditable size as Leicesters now go. These sheep, as we have often remarked, are not thrifty enough in either muscle or wool for this go-a-head age. But we hope the great value of the sheep as a pure breed, and for improving Lincoln and Northamptonshire sheep, and for crossing with Hampshire Downs, will long be appreciated, as it would undoubtedly prove to be a great loss to the country if this woolly tribe were merged entirely into other breeds, or become altogether extinct.

Of Cotswolds there were only nine lots, but they were of their usual large, fine, and white character—excepting one, however, for

Mr. Raynbird sent as great a brute as was ever consigned early in life to a dog-butcher.

Southdowns for show without Lord Walsingham's name being associated with the exhibition is an oddity, after the success which has attended his lordship's continuous efforts for several years. Mr. Rigden and Mr. Heasman here had it nearly all their own way. The Southdowns were, however, a long list. There were thirty-four entries of shearling rams, and sixteen of any other age. Mr. Rigden, Mr. Heasman, and Sir W. Throckmorton, Bart., took two prizes each in these classes. Mr. Rigden's two-shear ram is excellent for form and substance, and the ewes of both Mr. Heasman and Sir W. Throckmorton were remarkably beautiful for symmetry and fine white wool. The Highly Commended pen sent by Mr. R. Neville-Grenville, M.P., were also excellent, and but little, if any, inferior to the prize sheep.

The Hampshire Downs were sure to be in strong force. A more valuable collection of sheep we never saw together, no matter what may have been the breed. The first prize ram had a back which was not surpassed for its touch in the yard. The weight of this sheep, too, although he was not excessively fat, was great. This is one of the valuable traits of these sheep; they contain so much lean. Some of them are still coarse in appearance, but this view applies more to their big heads and their large hairy legs than anything else. Mr. W. E. Fitt had a fit of weakness when he sent No. 249, for he had the appearance of one of the German Noah's Ark toys magnified a few hundred times; and some one who rejoices in the name of Mr. Frederick Sigismund Schwann, sent an animal similar in outline, but which had a stomach twice as large or doubly distended with wind. The ewes were a capital class, and the large entry and character of ram-lambs, twenty in number, some of which had their mother by their side, did credit to this breed, which is rapidly coming to the front, now that we can get a superabundance of wool from foreign countries. These animals grow meat, and they will increase in popularity when some of the present fine and fashionable flocks are neither seen at royal shows nor thought anything of in their own district or county.

The Shropshires have found their way all this distance south, but only in small numbers. Lord Chesham, however, had a pen of ewes which, for smartness of appearance and uniformity of character, their legs and face being black, we have seldom seen surpassed. His lordship's 1st prize ram was also of the same character, but neither the ewes nor the ram would be considered large enough for the old-established Shropshire breeders. However, taking them as they are, they are very beautiful sheep. Mr. Horton sent two, and Mr. Wood, of Romsey, Hants, sent four rams and a pen of ewes—three of the rams, however, were bred in Shropshire. This breeder has taken a liking to this breed, and it does not appear that his fancy has been at all misplaced, while his success shows that the supposed suitability of these sheep for almost any soil or climate has some sound foundation.

The Somerset and Dorset breed, with their long white curly horns and white wool, were well represented, and they readily reminded one of the first lamb of the season, for producing which their value is great, and fully appreciated in this neighbourhood and the Isle of Wight. There were, too, some Exmoor sheep, which have a similar form as regards horn and frame, but as they have apparently been on the high hill-sides of the moor after which they are named, they are very small. According to Mr. Tucker, in the Strand, there is no sweeter mutton than they produce, and they live where nothing else except goats would exist. They are, therefore, worthy of the position in which they stood at the Society's show, which embraces their native ground.

The following is the list of awards:

LEICESTER.

Judges.—Leicesters, Cotswolds, and Oxford Downs—Messrs. Payne and Twitchell; Southdowns, Hampshires, and Shropshires—Messrs. Canning, Hart, and Cureton.

Class 24. For best yearling Ram.—12*l.*, Mr. Sanday, Holmepierrepont; 6*l.*, Messrs. J. and A. E. Gould, Poltimore, Exeter. Commended: Mr. Sanday.

Class 25. For the best Ram of any other age.—5*l.* and 3*l.*, Mr. Sanday.

Class 26. For the best pen of 5 yearling Ewes.—10*l.*, Messrs. Gould; 5*l.*, Mr. J. B. Corner, Longforth, Wellington.

COTSWOLD.

Class 27. For the best yearling Ram.—12*l.* and 6*l.* and Commended, Mr. T. Gillett, Farringdon.

Class 28. For the best Ram of any other age.—No entry.

Class 29. For the best pen of 5 yearling Ewes.—10*l.*, Mr. J. Gillett.

SOUTHDOWN.

Class 30. For the best yearling Ram.—12*l.*, and Highly Commended, Messrs J. and A. Heasman, Angmering; 6*l.*, Mr. Rigden, Hove, Brighton.

Class 31. For the best Ram of any other age.—5*l.*, Mr. W. Rigden; 3*l.* and Highly Commended, Mr. H. Humphrey, Hurstpierrepont. Commended: Mr. Rigden and Messrs. Heasman.

Class 32. For the best pen of 5 yearling Ewes.—10*l.*, Sir W. Throckmorton, Bart., Faringdon, Berks; 5*l.*, Messrs. J. and A. Heasman. Highly Commended: Mr. R. Neville-Grenville, M.P., Glastonbury, Somerset.

HAMPSHIRE DOWN.

Class 33. For the best yearling Ram.—12*l.*, Mr. A. Morrison, Fonthill House, Tilbury; 6*l.*, Mr. W. F. Bennett, Chilmark, Salisbury. Highly Commended: Messrs. R. and J. Russell, Dartford; Mr. J. Barton, jun., Hackwood Farm, Basingstoke; Mr. A. Morrison, Tisbury; Mr. R. Coles, Middleton Farm, Warminster; and Mr. J. Rawlence, Bulbridge.

Class 34. For the best Ram of any other age.—5*l.*, Messrs. R. and J. Russell, Horton-Kirby, Dortford; 3*l.*, and Highly Commended, Mr. J. Rawlence, Bulbridge; Mr. John More, Littlecot Farm, Pewsey, Wilts.

Class 35. For the best pen of 5 yearling Ewes.—10*l.* and Highly Commended, Mr. J. Rawlence; 5*l.*, Mr. W. F. Bennett, Chilmark, Salisbury.

SHROPSHIRE.

Class 36. For the best yearling Ram.—12*l.* and 6*l.*, the Right Hon. Lord

Chesham, Latimer, Bucks. Highly Commended: Mr. T. Horton, Harnage Grange, Shrewsbury.

Class 37. For the best Ram of any other age.—5*l.*, Mr. T. Horton, Harnage Grange, Shrewsbury; 3*l.*, Mr. H. Wood, Pucknall Farm, Romsey.

Class 38. For the best pen of 5 yearling Ewes.—10*l.*, the Right Hon. Lord Chesham; 5*l.*, Mr. H. Wood.

OXFORDSHIRE DOWN.

Class 39. For the best yearling Ram.—12*l.*, Mr. F. Gillett, Upton Downs, Burford, Oxon; 6*l.*, Mr. A. F. M. Druce, Burghfield, Reading.

Class 40. For the best Ram of any other age.—5*l.* and 3*l.*, Mr. G. Wallis, Old Shifford, Bampton, Faringdon, Oxon.

Class 41. For the best pen of 5 yearling Ewes.—10*l.*, Mr. F. Gillett, Oxon; 5*l.* Mr. G. Wallis.

SOMERSET AND DORSET HORN.

Class 42. For the best yearling Ram.—12*l.* and 6*l.*, Mr. A. Bond, Huntstile, Bridgewater, Somerset.

Class 43. For the best Ram of any other age.—5*l.*, Mr. Henry Mayo, Coker's Frome, Dorchester; 3*l.*, Mr. A. Bond, Huntstile.

Class 44. For the best pen of 5 yearling Ewes.—10*l.*, Mr. A. Bond; 5*l.*, Mr. H. Mayo, Coker's Frome, Dorchester.

EXMOOR AND OTHER MOUNTAIN.

Class 45. For the best Ram of any age.—10*l.*, Mr. E. Maunder, jun., North Molton, Devon.

Class 46. For the best pen of 5 Ewes of any age.—5*l.* and 3*l.*, Mr. E. Maunder, jun.

SPECIAL PRIZES.

(Offered by the Right Hon. the Earl of Portsmouth, and Alfred Morrison, Esq., Fonthill House, Tisbury.)

Class 47. For the best Hampshire Down Ram.—10*l.* and 8*l.*, Mr. C. Long, Ratfin Farm, Amesbury, Salisbury. Highly Commended; M. J. Rawlence.

Horses.—These animals were less numerous than we expected to find them, but the southern and western counties are more celebrated for their sheep and cattle than for horses. Even the special prizes offered for New Forest ponies were so little thought of that no real response was made. The cart-horses were scarcely a show at all. The stock-horses were scarcely worth notice except for breeding ordinary local farm-horses. For this purpose there were three or four active and hardy animals. The entries altogether in the 14 Classes were under seventy head, and a large share of these were colts, hacks, and ponies. The 1st prize hunter, sent by Mr. Hambro, M.P., of Milton Abbey, Blandford, was a strong, active, good-looking chestnut; so was Mr. Battam's 4-year-old bay mare; but beyond these and two or three others, which possessed gentility with strength and activity, they were common and carty. The hacks and ponies were only of local interest.

The following are the awards:

FOR AGRICULTURAL PURPOSES.

JUDGES—Messrs. Thurnall and Howard.

CLASS 48. For the best Stallion, foaled before 1867.—25*l.*, Mr. W. H. Gale Burbage, Marlborough; 15*l.*, Mr. Edward Gibbs, Chitterne, Wilts.

CLASS 49. For the best Stallion, foaled in 1867.—20*l.*, Mr. J. Feaver, Stony Littleton, Wellow, Bath; 10*l.*, Mr. Gale. Commended: Mr. J. Rose, Marston, Devizes.

CLASS 50. For the best Mare and Foal, or in foal.—15*l.*, Mr. W. E. Fitt, Littleton, Winchester.

CLASS 51. For the best Filly, foaled in 1867.—10*l.*, Mr. G. Hampton, Findon, Worthing; 5*l.*, Mr. J. Gay, Attwater, Salisbury. Commended: Mr. E. Gibbs.

HUNTERS.

CLASS 52. For the best Mare or Gelding, foaled before January 1, 1865.—25*l.*, Mr. C. Hambro, M.P.; 10*l.*, Mr. M. Guest, Gillingham. Highly Commended: Mr. G. B. Battams, Kitworthy, Tavistock.

CLASS 53. For the best Mare or Gelding, foaled in 1865.—25*l.*, Mr. G. Battams; 10*l.*, Mr. C. Champeney, Theale, Wells.

CLASS 54. For the best Filly or Gelding, foaled in 1866.—15*l.*, Mr. G. B. Battams; 5*l.*, Mr. H. Barnes, Heath House, Andover.

CLASS 55. For the best Colt or Filly, foaled in 1868.—10*l.*, Mr. H. Humphrey, Hurstpierrepont; 5*l.*, Mr. E. Coles, Yeovil.

HACKS.

CLASS 56. For the best Mare or Gelding, not more than 6 years old, nor exceeding 15 hands high, calculated to carry not less than 12 stone.—15*l.*, Mr. H. Barnes, Andover; 5*l.*, Mr. J. Gater, West End, Southampton.

PONIES.

CLASS 57. For the best Mare or Gelding, not exceeding 14 hands high.—No competition.

CLASS 58. For the best Mare or Gelding, not exceeding 13 hands high.—10*l.*, Mr. J. Michelmore, Berry Pomeroy, Totnes, Devon; 5*l.*, Mr. F. L. Popham, Bristol.

Pigs.—Pigs that appear at shows nowadays are nearly all alike, and there is but little room for criticism, in consequence of their uniformity and goodness. The hairless scaly-skinned pigs which were once thought much of are scarcely noticed, much less purchased, by any one. The unfortunate possessors of such a degenerate stock wisely, so far, at least, keep them at home. The Messrs. Duckering, of Lincolnshire, who have been great exhibitors of late, met here with their usual success; and the Messrs. James and Frederick Howard, who have now become as enterprising in pigs as they have long been in machinery, had some hardy and symmetrical pigs in the yard, for which they received honours at the hands of the judges. The other exhibitors were the Rev. Mr. Bailey, of Swindon; Mr. Walter, M.P., the Marquis of Ailesbury, the Earl of Radnor, Sir William Heathcote, and many others of local standing.

The following are the awards:—

LARGE BREED.

JUDGES.—Messrs. Painter and Twitchell (large pigs); and Messrs. Canning, Hart, and Cureton (small pigs).

CLASS 59. For the best Boar, above 1 year, and not exceeding 2 years old on 1st June, 1869.—5*l.* and 3*l.*, Messrs. R. E. Duckering and Son, Northorpe, Kirton Lindsey, Lincolnshire. Highly Commended: Mr. H. Humphrey, Shrivenham, Berks.

CLASS 60. For the best Boar, not exceeding 1 year old on 1st June, 1869.—5*l.*, Mr. H. Humphrey; 2nd, Messrs. J. and F. Howard, Bedford. Commended: Sir W. Heathcote, Bart.

CLASS 61. For the best breeding Sow in farrow, or exhibited with her litter.—5*l.* and 3*l.*, Messrs. Duckering and Son. Commended: Mr. J. H. Clark, Altwood, Maidenhead, Berks, and Mr. H. Humfrey, Shrivenham.

CLASS 62. For the best pen of 2 breeding Sows, not exceeding 9 months of age on 1st June, 1869.—5*l.*, Mr. H. Humfrey; 3*l.*, Mr. J. H. Clark. Commended: Messrs. Duckering and Son.

SMALL BREED.

CLASS 63. For the best Boar, above 1 year, and not exceeding 2 years old on 1st June, 1869.—Messrs. Duckering and Son.

CLASS 64. For the best Boar, not exceeding 1 year old on 1st June, 1869.—5*l.*, Mr. J. S. Davey, Redruth, Cornwall. Highly Commended: the Right Hon. the Earl of Radnor.—3*l.*, Mr. J. B. W. Fleming, Chilworth Manor, Romsey. Commended: Mr. M. Portal, Micheldever, Hants; and Mr. E. Coles, Yeovil. Highly Commended: Mr. T. Chamberlayne, Cranbury Park, Winchester.

CLASS 65. For the best Breeding Sow in farrow, or exhibited with her litter.—5*l.* and 3*l.*, Messrs. Duckering and Son. Highly Commended: Mr. T. R. Cornish, Bishop's Teighnton; and Mr. M. Portal.

CLASS 66. For the best pen of two Breeding Sows, not exceeding 9 months of age on the 1st June, 1869.—5*l.*, Mr. J. S. Davey; 3*l.*, the Right Hon. the Earl of Radnor. Commended: Messrs. Duckering and Son.

Special Local Prizes.—The following are the awards of the prizes offered by the Southampton Committee:

JERSEY CATTLE,

Bred in the Island, and to have been in the possession of Exhibitor nine months previous to the first day of the Exhibition.

CLASS 67. For the best Bull, not exceeding 4 years old.—5*l.*, Mr. T. Le Sueur, Maufant, St. Saviour's, Jersey; 3*l.*, Mr. W. Alexander, Trinity, Jersey.

CLASS 68. For the best Cow in calf or in milk, having had a calf within six months next preceding the 1st June, 1869.—7*l.*, Mr. H. Compton, Lyndhurst; 3*l.*, Mr. N. Arthur, St. Mary's, Jersey. Commended: Mr. John Gater, Southampton.

CLASS 69. For the best Heifer, not exceeding 2 years and a half old on the 1st June, 1869.—7*l.* and 3*l.*, Mr. C. P. Le Cornu, Trinity Manor, Jersey.

GUERNSEY CATTLE,

Bred in the Island, and to have been in the posesssion of the Exhibitor nine months previous to the first day of the Exhibition.

CLASS 70. For the best Bull, not exceeding 4 years old.—7*l.*, Mr. T. Maindonald, St. Peter Port, St. Andrew's, Guernsey; 3*l.*, Mr. J. Le Page, St. Andrew's, Guernsey.

CLASS 71. For the best Cow in calf or in milk, having had a calf within six months next preceding 1st June, 1869.—7*l.*, Mr. E. A. De Putron, St. Peter Port, Guernsey; 3*l.*, Mr. John Bronard, Courtil au Preel, St. Peter Port, Guernsey. Highly Commended: Mr. P. Blampied, St. Peter Port, Guernsey. Commended: Mr. T. B. Le Page, St. Andrew's, Guernsey.

Class 72. For the best Heifer, not exceeding 2½ years old on 1st June, 1869.—7*l.*, Mr. U. Wakeford; 3*l.*, Mr. J. Rougier, Guernsey. Commended: Mr. D. Le Cheminant, Sablons, Guernsey.

CHANNEL ISLANDS CATTLE,

Bred out of the Islands, and to have been in the possession of the Exhibitor nine months previous to the first day of the Exhibition.

Class 73. For the best Channel Islands Bull, not exceeding 3 years old.—5*l.*, Mr. J. B. W. Fleming, Chilworth Manor, Romsey; 2*l.*, Mr. R. C. Priddle, North Stoneham, Southampton.

Class 74. For the best Guernsey Cow in calf or in milk. No entry.

Class 75. For the best Jersey Cow in calf or in milk, having had a calf within six months next preceding 1st June, 1869.—3*l.*, Capt. F. A. Maxse, R.N., Southampton; 2*l.*, Mrs. L. Malcolm, Totton, Southampton. Highly Commended: Mr. John B. W. Fleming.

Class 76. For the best Channel Islands Heifer, not exceeding 2½ years old on the 1st June, 1869.—3*l.*, Mr. H. Compton, Manor House, Lyndhurst; Mr. G. Digby, Sherborne. Commended: Mr. A. C. Sayers, Bishopstoke.

HAMPSHIRE DOWN SHEEP.

Class 77. For the best pen of 10 yearling Ewes, being a draft from a flock of not less than 800 breeding ewes, one fourth of which shall consist of yearling ewes.—5*l.*, Mr. J. Rawlence.

Class 78. For the best pen of 7 yearling Ewes, being a draft from a flock of not less than 600 breeding ewes, one fourth of which shall consist of yearling ewes. No competition.

Class 79. For the best pen of 4 yearling Ewes, being a draft from a flock of not less than 400 breeding ewes, one fourth of which shall consist of yearling ewes.—5*l.*, Mr. W. E. Fitt.

Class 80. For the best pen of 5 Ram Lambs.—5*l.*, Mr. W. F. Bennett, Chilmark, Salisbury,

FOREST HORSES.

Class 81. For the best Hack Stallion, not exceeding fifteen hands, calculated to improve the breed of forest ponies for saddle and harness.—No award.

Class 82. For the best New Forest Mare for saddle and harness.—No entry.

Class 83. For the best New Forest Pony, not exceeding 13½ hands, for saddle and harness.—5*l.*, Mr. J. Fletcher, Eling, Southampton.

Implements and Machinery.—This department of the showyard has been so often described, that it would be difficult to say anything new by way of generalising upon it; and the names of all the leading makers are so well known, that it is quite enough to say they were all there. There is no striking novelty in the yard, but there are several improved adaptations of mechanical principles to machines which have been hitherto less perfectly constructed. From the length, however, to which our report has already extended, we must defer the few remarks that we have to make—supposing that it is in any way necessary to make them now we are so near the Manchester meeting of the Royal. The number of machines here is larger, we are informed, than has ever been collected at the meeting of the Bath and West of England Society. But if this be not so, there are certainly enough specimens for every practical and profitable agricultural purpose.

The trial fields presented far more room for consideration and argument, for here we came in contact with a great and influential society, which has acted differently to the Royal Society of England, inasmuch as no prizes have ever been competed for under its auspices, although public trials have continually been made. These trials on this occasion took place at Testwood, about five miles from the showyard, and the machines which were this year publicly worked were reapers and mowers. But we cannot discuss the merits and demerits of those public trials on this occasion. They are, in our opinion, too important to gloss over without due consideration, or to attempt to cram noticeable points into the space at our disposal. We may say, however, that nine firms sent one or more reapers and mowers or combined machines for doing both operations. These were Messrs. Howard, the Beverley Company, Mr. Walter Wood, Messrs. Samuelson, Messrs. Picksley and Sims, Mr. Kearsley, of Ripon; Messrs. Foster and Sons, and Mr. Page. Mr. Bamlett, of Thirsk, was shut out, from his inadvertently making an informal entry.

The work which most of the machines did was certainly of a most excellent character, according to what was required to be done by each individual machine. But it is on the general management and result of these trials that we may have a few words to say, for the makers are quite capable of taking care of themselves if they have given them a fair, open, and clear field and no favour.

Messrs. Howard also worked a steam-plough and digger with one of their cross-boiler 12-horse traction engines, and they did some most excellent work, although this was pursuing a public exhibition under the greatest difficulties that we ever saw encountered.

Messrs. Tasker and Son had their excellent windlass at work in the roundabout system. The implement they worked was one of Messrs. Fowler and Co.'s four-furrow balance-ploughs. But the work done was not satisfactory at the ends, although it was fairly turned after the plough got to the work.

Pirie's remarkable three-wheeled double-furrow plough was also at work with three horses, and as good work was done with it at about six inches deep, with three horses, as any one need see.—*Gardener's Chronicle.*

LIVERPOOL VETERINARY MEDICAL ASSOCIATION.

The twentieth quarterly meeting of the above Association was held at the Medical Institution, Hope Street, Liverpool, on the 14th of May, the President, Thomas Greaves, Esq., in the Chair.

Present—Messrs. Heyes, Morgan, Wilson, Leather, Ackroyd and Davis, Liverpool; P. Taylor, W. H. Taylor, Nottage, Man-

chester; Storrar, Chester; Woods, Wigan; Lawson, Woolton; Barnes, Tarperley; and the Secretary.

Refreshment was kindly provided by the President.

Business.—The Secretary notified that he had received letters expressing inability to attend from Messrs. Cartwright, Whitchurch; Carless, Stafford; Taylor, Wakefield; and T. Taylor, Manchester.

The minutes of the last meeting were read and confirmed.

The President then called upon Messrs. Lawson and Wilson to report the result of their investigations upon the condition of the navicular joints in the horses' feet they undertook to dissect, agreeable to the wish of the members expressed at the previous meeting. One of the feet was exhibited, and both gentlemen stated that in neither foot was found the slightest trace of inflammation, adhesion, or ulceration.

The Secretary then introduced for discussion the subject of stringhalt and shivering in the following essay:

STRINGHALT.

For several reasons a discussion upon stringhalt and shivering cannot possess the same amount of practical interest as the consideration of many other diseases which we are called upon to treat, where a favorable result may attend our efforts to cure. Many difficulties obstruct our endeavours to investigate the nature of the affections referred to; in the first place, the true physiology of the structures implicated in these affections is at the present day but imperfectly understood; and secondly, the field of research, although the reverse of barren, is almost unbroken ground; yet I think by investigating the nature of even these insignificant diseases we shall reap a profitable harvest, which, if not precisely the crop of information we directly seek, will repay the time employed by advancing our knowledge upon some collateral diseases.

Surely the fact of our employers being satisfied with the shallow opinions we are obliged to give when questioned upon the nature of these affections, is but a poor argument in support of the apathy that too generally exists in the profession on these questions, and I venture to hope for a time when the desire to obtain knowledge for its own sake will supersede more mercenary motives.

Having made a promise to introduce these subjects for discussion, I shall endeavour to comply therewith, not by advocating any special theory, but by making remarks upon the question, trusting that the intrinsic interest of the subject may prove sufficient to stimulate every gentleman present to advance his peculiar views, so that each of us may leave this room with another link added to his never-to-be completed chain of knowledge.

I believe most veterinary surgeons are agreed that stringhalt is the effect of inordinate contraction of the flexor muscles of the metatarsal bones and extensors of the hind foot, or, more definitely, of the muscles engaged in determining flexion of the tibio-astragalean articulation of the hock.

Some are of opinion that the cause of the exalted action is an

increased supply of nervous motor force being distributed to the affected muscles. Others agree that the spasmodic contraction of stringhalt partakes of a convulsive character.

Before entering upon a consideration of the manner in which either of these causes may influence the development of stringhalt, I will venture to give as concisely as I can an outline of some of the more recently discovered functions of the spinal cord, feeling assured that you will derive benefit therefrom, and be better enabled to follow me in my attempted application of them to the diseases in question. I quote the following propositions from a very interesting essay written by Der Kolk upon the spinal cord:

"1. The several primitive fibres which are distributed as a motor nerve to a muscle, or set of muscles, appear to arise from a group of mutually connected ganglionic cells situated in the inferior horn of the grey matter of the cord. This group of cells also receives fibres of communication derived from the inferior columns of the cord, along which the impressions of the will are conveyed from the brain to these cells, so that the stimulation of volition is uniformly distributed over all the cells of the group, and produces in all the motor filaments arising from it a uniform and simultaneous action.

"2. Where numerous muscular nerves spring from the spinal cord, as for the extremities, more groups of cells whence they arise must also be present; hence it is that the inferior horns in the lumbar and thoracic bulbs are so much thicker than in the dorsal and more highly situated cervical portions of the cord.

"3. In animals whose muscular movements are simple the ganglionic cells are scanty in proportion to the fewer combinations of movements required.

"4. For the accomplishment of reflex movements, it is assumed that the superior root of a spinal nerve (usually considered and, indeed, so called sentient) is not necessarily wholly constituted of fibres possessing sentient properties, but that a certain portion of its filaments are for reflex movements only; these appear to terminate in a central group of ganglionic nerve-cells, which are more or less directly connected with the groups of cells whence issue motor filaments. Therefore, as the upper nerve-roots contain both sentient and reflex filaments, it is easily explained why they are nearly twice as thick as the inferior roots.

"5. The superior horns of grey matter through which probably the several groups of ganglionic cells are mutually connected do not appear to serve any purpose of receiving sensations, but seem to influence the co-ordination of movements which take place during reflex action. Through their connecting filaments the groups of motor cells appear to be so united that one stimulus is sufficient to excite by reflex action an harmonious movement—for example, taking a step. It was considered, and is still believed by some, that the cerebellum influences the co-ordination of harmonised movements."

Volkman as well as Der Kolk support a beautiful theory re-

specting the production of harmonised motion, which they refer to the special organization and action of the spinal cord, that is, to different intimate connections of certain groups of its ganglionic cells. Different combinations of muscular action being necessary for the production of co-ordinated movements (for instance, taking a step), which are not, at least among the lower animals, learned by study and practice, ending after many failures in successful election, the combinations which are required for the purpose must already exist organized, and, as it were, prearranged in the spinal cord, so that a single impress is sufficient to call this combination into action.

"6. The transverse commissures appear to be designed to preserve perfect harmony of movement between the two sides of the body—the inferior, which seems to be connected with the filaments conducting the orders of the will, for the correspondence of the voluntary movements; the superior, for the involuntary co-ordination in reflex action.

"7. The two horns of grey matter seem to stand in the closest relation to motion—the inferior the direct sources of motion, the superior rather for reflex action and co-ordination."

We will now consider the influence exerted by the former of the two before-mentioned causes by the existence of an irritant in the course of the nerve supplying the spasmodically affected muscles.

It is evident that the seat of any irritation must be situated lower down the limb than the point where the anterior tibial nerve leaves the main trunk; most probably it will be found near the hock, where the nerve is chiefly sentient and reflex in function, so that when the joint is bent the nerve becomes compressed or otherwise irritated, and through pure excess of reflex action inordinate contraction of the muscles supplied by the nerve of compound function results.

This view is the one I believe to be the more generally accepted to account for stringhalt, and it receives some support in that the spasm is almost invariably more apparent when the animal is performing exceptional movement, as turning or backing, and I have repeatedly noticed the disease to affect horses having hocks with large bony deposits; but it is weakened by the fact that the spasm is usually lessened in degree after the horse has gone some little distance, and not unfrequently the halt is intermittent, neither of which could well be if such an irritant as the existence of a spicula of bone was persistently present.

With regard to the second cause, it may be that the group of ganglionic cells of the cord which are in connection with the motor nerves supplying the affected muscles are in such an abnormally excited condition that in response to ordinary stimuli they transmit extraordinary impulses, and undue contraction results. This supposition somewhat accords with the opinions of some recent authors on the functions of the spinal cord, viz. that the motor power for each set of muscles is supplied by a special and distinct group of nerve-cells, which group not only transmits impulses in answer to

the stimulus of either volition or reflex impressions, but also serves to co-ordinate the action of any special set of muscles which are to determine the performance of any specific act. The correctness of this assumption is also supported by the fact that the spasm frequently diminishes in violence after several flexions of the limb have been made, for it would appear that these preternaturally excited nerve-cells after a period of repose have a superabundance of motor power, as it were, stored up in them, or, in other words, rest renders them more irritable; but after the increased irritability has been in a manner discharged in the production of a succession of inordinate contractions, ordinary stimulation only produces normal action, until a further period of rest or undue stimulation has again rendered the cells abnormally excitable.

There is still another possible cause of the spasm of stringhalt, namely, an absence or, more correctly, a tardiness of action in the nervous structures which supply the muscles engaged in extending the hock and limb in a backward direction, those whose function is immediately antagonistic to the muscles in which the undue contraction takes place.

The exceptional conformation of the tibio-astragalean articulation, and the relation of the muscles controlling the action of the joint, considerably favour this theory. In bending the hock of a dead subject little manipulation is required to check undue flexion until a certain point is reached, which point I believe marks the limit of natural and ordinary movement; but if continued beyond this it will be found that considerable effort is necessary to prevent the extreme flexion of which the joint is capable from taking place. In ordinary natural movement of the hind leg acute flexion of the hock-joint never takes place, but in accordance with nature's preordained plan the whole action is regulated both in regard to time and degree by the special control of the spinal cord, so that the extensor muscles are called into play before their antagonists have bent the hock beyond the point of limit before alluded to, and, being possessed of greater power, in the first place counteract undue flexion, then bring down the foot, straighten the hock, and, finally, extend the limb backwards. This much seems to me evident, be it from whatever primary cause it may—that if the extensor muscles of the hock are inert or slow to counteract the action of the flexors, undue contraction of the latter would determine acute flexion of the joint, accomplished with a jerk simulating or identical with the spasm of stringhalt.

SHIVERING.

Shivering, so far as I am aware, only attacks draught horses; it is not congenital, but is hereditary to a very high degree, more especially from the sire. I have never seen it manifested before the colt has been yoked, and believe it is usually developed after the horse has been worked for some time, but it frequently does not appear until the horse becomes somewhat advanced in age. All of you are acquainted with the symptoms presented by a shiverer; I may merely state that they vary in degree from only slight and

occasional muscular twitchings, exhibited when the animal is backed, to impotence to perform retrograde movement.

Shivering may be defined as irregular contraction or twitching of a certain set of voluntary muscles manifested during retrograde motion, but, like chorea in man, it does not appear that the affected muscles are wholly withdrawn from the government of the will; there is no loss of consciousness and no defect of volition. Dr. Elliotson considers that chorea is due to morbid excitability of the medullæ oblongata and spinalis, and is essentially a want of harmony between the cerebral and spinal acts—volition and sensation being perfect, voluntary motion abnormal. Chorea has some other points of similarity to shivering—it is hereditary. When local, it remains throughout life; the spasm is usually only induced during attempt at movement or during excitement. Unlike shivering, however, general chorea attacks the young, and recovery, though slow, frequently takes place; in other cases it degenerates into hemiplegia. As far as my experience goes, shivering always increases with age and work, and in some few cases of long standing the subjects appeared to be almost paralysed in all movements of their hind extremities. The seat of the remote cause of shivering is by many supposed to be in that portion of the cerebrum which is considered to govern muscular movement; indeed, the only authentic mention I can find relating to this disease is a statement made by the celebrated physiologist Magendie, who avers that he has opened the heads of horses incapable of backing, and has always found in the lateral ventricles of their brains collections of serous fluid, which must have compressed and even disorganized the corpora striata. I may here remark, *en passant*, that Magendie states, if the white matter of the corpora striata be cut or otherwise irritated the animal darts forward, or if prevented from so doing by the interposition of an obstacle a progressive attitude is maintained. This assertion may assist us in diagnosis of the situation of tumours on the brain.

It is believed that the lobes of the cerebrum have no direct influence upon the performance of muscular movements, but near the base of the brain on either side there are two large tracts of matter which together perform in a modified degree the true functions of the spinal cord. The former of these, the thalami optici, are terminations of the superior (sentient) columns of the cord; the latter, corpora striata, hold on the one hand a similar relation to the superior columns, and on the other are assumed to receive the more direct impulses derived from the special functions of the cerebral lobes, and transmit the impressions along the cord to the special group of ganglionic cells, whose action calls into play the set of muscles which are to determine the desired movement. But in addition to this special function the thalami are the supposed seats of common sensation, and hold the same relation to all the sentient nerves of the body as the centres of any other special sense do to the nerves of specific function which terminate in them, with this difference—that instead of each sentient filament from the whole

surface of the body proceeding directly to its ultimate destination, they all converge to the spinal cord, and, as filaments composing the greater part of its superior column, pass up to and finally terminate in the thalami optici.

Dr. Clutterbuck was of opinion the cause of chorea was slow inflammation of those parts of the brain that influenced voluntary motion, and that the function of sensibility remained for the most part unimpaired. French authorities state that softening of the middle lobes of the cerebrum and corpora striata produces paralysis of the hind extremities. If pressure or destruction resulting from ramollissement of these portions of the brain produce paralysis of the hind extremities, it is possible that irritation (such as might be supposed to follow or accompany a low degree of inflammation) to the same structures might excite in the hind extremities spasm and convulsive movement, which are the ordinary phenomena of irritation to nervous matter which in health possesses similar functions to the spinal cord.

Is the seat of shivering in the spinal cord? Dr. Elliotson says affections of the cord are characterised by spasm or paralysis, to the exclusion of cerebral participation. According to his theory, shivering would rather depend upon the existence of irritation consequent upon spinal meningitis producing abnormal contractions, than upon myelitis, where paralysis to a greater or less extent is the resulting phenomenon. Thus, then, any local source of irritation, arising, may be, spontaneously or from imperceptible causes, to that portion of the cord whence arise the nerves supplying the affected muscles, would probably produce abnormal performance of the movements of the extremities, which would be intensified by general or local excitation, but I fail to see any reason why the perverted action should only be produced by retrograde movement.

I venture to hope that no one has come here this evening in the expectation of hearing promulgated a successful method of treating stringhalt and shivering. Up to the present time, all the curative means, including surgical operations and the influence of rest, that have been repeatedly tried have been followed with only the one result—failure in more than producing temporary alleviation. True it is, that in a few isolated instances complete cure of both these diseases have occurred; but in these it has been almost, if not wholly, due to fortuitous circumstances.

Yet we should not be daunted, but, remembering that it is not from the soil untilled the crop is gathered, stir up our best energies to dispel the doubts that now obscure the pathology of the diseases; then, our practice being combined with science, we may more confidently hope for success.

Little need be said upon the jurisprudence of these affections. Although animals afflicted with either may perform their work satisfactorily for years, yet the fact of their being affected at all with either must constitute them unsound. The tendency of both diseases is to increase with age, and it is a difficult matter to prognosticate to what extent they may not advance; and in many cases, where

the affections do not appear to interfere with the present usefulness of the animal, yet they render him less capable of attaining that degree of condition so characteristic of perfect health.

Now, gentlemen, I feel that I have already too long and unworthily occupied your time, and am aware that you cannot but feel disappointed that these subjects have been so imperfectly treated in this paper; and perhaps the more so, in that I have elected that the subjects should receive at my hands a theoretical rather than a practical introduction. If the hypothetical tenor of this paper has wearied you, the seductive influence of speculation upon the functions of organic structure involved in abnormal actions must be my apology for entering so minutely upon theory.

In the course of the discussion which followed the reading of the paper—

The President related a bad case of stringhalt that some years ago was placed under his care. The paroxysms were very violent; the horse appeared to suffer much pain, perspiring profusely, and involuntarily stamping in a violent manner with both hind legs. He bled, gave internally and applied topically sedative agents, without alleviating the violence of the symptoms. On the following morning administered a cathartic, after the action of which had become fully established the urgent symptoms subsided. The horse was put to work, and continued well for six months, when he was again suddenly attacked with violent paroxysms, and was in consequence destroyed. At that time the cause of stringhalt was supposed to be located in the hock-joint. Mr. Greaves made a *post-mortem* examination, but found all the joints and muscles of the extremities in a perfectly healthy condition, nor could he detect discoloration of the nerves in any part of their course. He much regretted he had not an opportunity of examining the medulla spinalis.

Mr. Peter Taylor said it was rare indeed that veterinary surgeons were called upon to treat the diseases stringhalt and shivering; but they not unfrequently had to exercise their skill in detecting them when examining horses for soundness. He advised young practitioners to be especially vigilant in endeavouring to discover even slight indications of their existence, and to remember that once a shiverer, always a shiverer.

Mr. Taylor had seen colts three or four years old affected with stringhalt, and believed it sometimes resulted from castration. He could not subserve to the opinion enunciated by the late Professor Dick, that shivering was invariably caused by the presence of cerebral tumours. With regard to treatment, he thought that in some diseases, in which there is evidence of highly exalted nervous action, the subcutaneous injection of sedative agents might prove beneficial.

Mr. Heyes called attention to the operation of dividing the popliteal nerve for the cure of stringhalt. This operation was performed at the College in London; and although by it the halt was

cured, muscular atrophy supervened, and so the result of the remedy was worse than the disease.

In reply to a question by Mr. Peter Taylor, the essayist said he had seen a case of peculiar gait, simulating stringhalt, affecting the fore legs. The subject of it was treated with tonics, and subsequently turned out to grass, with temporary benefit; but the horse changed owners, and was lost sight of.

Mr. Woods said he had seen a clearly marked case of stringhalt of the fore legs in a donkey. He thought stringhalt was sometimes caused by injury. He remembered having cast a horse, and on being released from the hobbles it was found to be affected with stringhalt; also a racehorse, which was attacked after injury from falling out of a railway-train.

Mr. P. Taylor said he had examined a valuable horse that in slow pace had a very remarkable gait in the fore legs. He could trot in good style, but the walk was most peculiar. Many remedies were employed for cure, but their action was unattended by any beneficial result.

Mr. Morgan had heard of stringhalt being produced by castration with the caustic clam. This statement was confirmed by *Mr. Leather*.

Mr. Storrar stated that he had seen some clearly established instances in which stringhalt was hereditary amongst a breed of cart-horses, all descended from a sire so affected. He had been called to attend a paroxysmal attack similar to the one described by the President, and found that after the emunctories had responded to the action of evacuants the urgent symptoms subsided.

In answer to a question by the Secretary, Messrs. Taylor and Leather said they had seen shivering attack well-bred animals.

Mr. Leather thought many cases of occult spavin were considered to be stringhalt, and described a case in point.

The Secretary briefly described a case now under his care, in which, in addition to the usual symptoms of a shivering, the facial, orbital, and some of the cervical muscles were affected by involuntary twitchings when the animal was excited.

After the usual votes of thanks to the President and essayist had been accorded, the meeting dissolved.

RICHD. REYNOLDS, *Hon. Sec.*

YORKSHIRE VETERINARY MEDICAL SOCIETY.

A SPECIAL meeting of the Society (by invitation of the President) was held at the Bull Hotel, Wakefield, on Thursday, the 10th inst., at 1 o'clock p.m. The President, Mr. M. E. Naylor, in the chair. The following members were also present:—Messrs. T. Greaves, James Howell, R. Nicholson, James Freeman, Josh. Freeman, J. W. Anderton, Godfrey Smith, S. F. Fallding, J. Bale, R. W. Murdoch, C. Patterson, E. C. Dray, John Cuthbert, Wm. Fearnley, and the Secretary. Mr. Greaves's assistant also attended as a visitor.

Letters regretting their inability to attend were received from Professors Spooner, Simonds, Williams, and Tuson; Messrs. W. Field, jun., Geo. Morgan, P. Taylor, Wm. Haycock, Chas. Hunting, E. Stephenson, Chas. Secker, and J. S. Carter.

Mr. Dray proposed, and *Mr. Fearnley* seconded the motion—"That the sincere congratulations of the members of this Society be offered to Mr. Greaves upon his being elected President of the Royal College of Veterinary Surgeons, an honour he is justly entitled to for his very great exertions in the advancement of the veterinary profession. The members feel assured that, in the position he is now placed, his efforts will be increased, and his zeal and energy continue unabated." The resolution was carried with much éclat.

The President related an interesting case of disease where the symptoms were very ambiguous; he also exhibited some fractured and otherwise diseased bones. Mr. Cuthbert described a case, which he had now under his care, of injury to the cervical vertebræ.

Mr. Howell exhibited a specimen of fracture of the head of the humerus; also some interesting specimens of calculi.

Messrs. Anderton, Fearnley, Dray, Cuthbert, and Broughton, related interesting cases of fracture occurring in their practices.

Mr. Greaves read a paper describing an interesting case of abscess in the colon of a colt following the operation of castration.

Mr. Dray read a paper upon the relationship between organic and inorganic matter, and between man and animals.

The discussion upon the various subjects was animated and instructive; the proceedings terminating at 4.30. Refreshments were provided by the President.

WM. BROUGHTON, *Hon. Sec.*

OBITUARY.

WE have to record the death of Mr. Robert Lineker, who died at Balderton, Newark. His diploma bears date April 22nd, 1864.

The name of Mr. R. W. Cowell having been erroneously inserted in the Obituary in our last number, we publish the subjoined note, received from Mr. Coates, in explanation of the circumstance:

ROYAL COLLEGE OF VETERINARY SURGEONS,
26th June, 1869.

MY DEAR SIR,—I have written to Mr. Cowell, and explained how the mistake arose. It was in consequence of Mr. Armatage having forwarded a circular addressed to him at Hatfield Peverell in April last, which was returned marked in two places "Deceased" by the Post-office authorities. The envelope thus marked was afterwards sent to me as Registrar, and is still in my possession.

Yours very truly,

PROFESSOR SIMONDS. W. H. COATES.

THE

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Communications and Cases.

RETENTION OF URINE ASSOCIATED WITH CALCULI IN THE BLADDER OF A BITCH OF THE KING CHARLES BREED, AGED TEN YEARS.

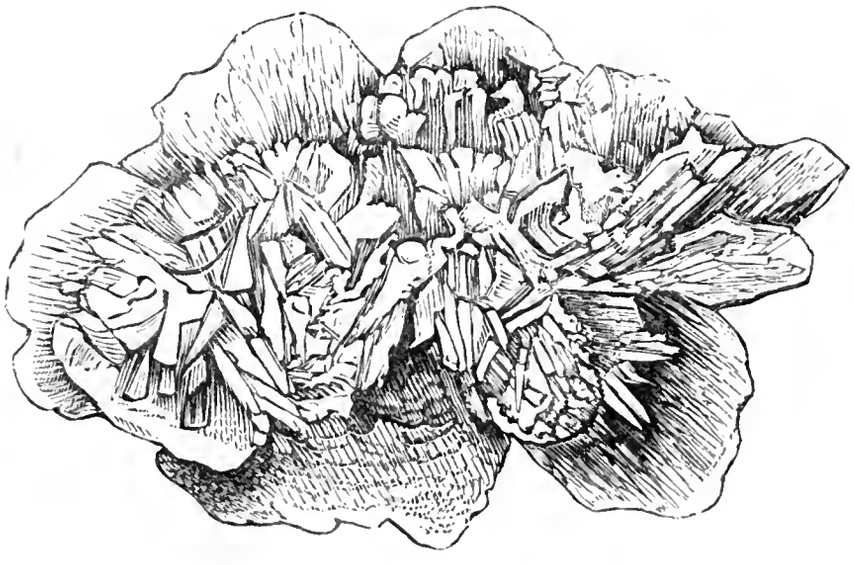
By Messrs. Gowing & Son, M.R.C.V.S., Camden Town.

The bitch was observed to be dull and off her appetite for the last three or four days. Some time previously she had tried to urinate, passing a drop or two occasionally, but no effort could produce a full stream, and lately it was reported that her endeavours were futile, none being passed. Upon examination of the parietes of the abdomen the bladder was found to be distended. Accordingly an attempt was made to pass a catheter, but without success. The animal was ordered a warm bath, and a small dose of castor oil mixture. The stomach being irritable this was returned, and the dog getting no better was brought to the Infirmary on Tuesday evening, July 6th. Upon examination some calcareous matter was found adhering to the lower part of the vulva, and the bladder was distended with urine.

It was now determined to attempt the passing of the catheter again—this time the operation was attended with success, after considerable difficulty. The catheter being passed into the bladder, the urine continued to flow through the instrument in a full stream, until six ounces of a somewhat dirty pale coloured turbid and alkaline fluid had been

drawn off. The bitch seemed now much relieved; she was ordered beef tea, and returned to her owner, an old lady upwards of seventy years of age, who was much gratified at the relief her pet had experienced. The owner was requested to report to me the following day the condition of the animal (no medicine was ordered). On the following morning, July 7th, her friend, Dr. George, called and stated that the bitch was much prostrated, and that sickness was constant if anything was taken into the stomach. An hydrocyanic acid mixture was ordered, but this being objected to a mixture of creosote in minimum doses was substituted. After two or three doses of the mixture the sickness subsided to some extent. Beef tea and brandy were ordered as a support, and beef tea injections, but the animal died the following morning.

Post-mortem.—Upon removing the abdominal viscera the stomach was found slightly tinged with red; the intestines and spleen were healthy; the liver somewhat congested; the lungs were in a congested state, probably from gravitation of the blood; the right ventricle and auricle of the heart were full of dark coagulated blood; the bladder was contracted, and contained no urine; its coats appeared thickened; and on making a section to examine the state of the mucous membrane two "calculi" were observed possessing spines or spiculated points; such an arrangement is very unusual. The concretions must have been a source of irritation to the



Cystic calculus (Triple Phosphate), from the bladder of a dog. (Magnified 5 diameters.)

organ, and would account for the pain and difficulty of urinating the bitch had experienced for nine months.

From the results of many *post-mortem* examinations, we

are led to conclude that cystic calculus in the dog is of much more frequent occurrence than has hitherto been supposed.

[Messrs. Gowing and Son forwarded the morbid parts of the bitch for examination. The calculi were so peculiar in form that we deemed them worthy of an illustration. Chemically the concretions are composed of triple phosphate. Physically the prisms are arranged on very fine plates, and stellate masses, as shown in the drawing of one of the calculi, magnified five diameters and outlined with the camera.

A small quantity of the contents of the bladder having the appearance of pus was also sent; the colour and consistency of the fluid, however, were found under the microscope to depend not upon purulent contamination, but entirely upon the presence of an abundant precipitate of ammonio-magnesian phosphate, the prismatic crystals of which were very large and well defined. A quantity of the same deposit covered the lining membrane of the bladder, the walls of which were thickened. The pelvis of the right kidney was much dilated, but these organs were otherwise healthy.

Messrs. Gowing's view of the frequency of calculous concretions in the dog is supported by the results of their own practice. We are indebted to them for several very interesting cases, but none more so than the one which is recorded in the present number of the journal.—Eds.]

CASE OF POLYPUS IN A MARE.

By Thomas Mellis, Veterinary Surgeon, Inverurie, Aberdeenshire.

In the month of September, 1868, I was requested to attend a mare and horse at one of the farms belonging to William Partridge, Esq., Ardmurda, near Inverurie. The messenger informed me that they had got "the cold."

When I first saw them, to all appearance they seemed to be affected with simple catarrh, and I treated them accordingly. In a few days the horse recovered, but on October 2nd I was again sent for to the mare, and I found her oppressed in the breathing, with swelling of the parotid glands and tenderness in the larynx. I suspected laryngitis, and treated for such.

October 6.—Breathing getting worse, muco-purulent dis-

charge from near nostril, and the mucous membrane was very much congested. On closing the off nostril I found that no breath passed through the other. I examined the nostril minutely, but could not discover any obstruction. I had her frequently steamed with hot water, and tepid water injected up the nostrils, and a blister applied over the frontal sinuses.

The animal still continued to get worse up to the 27th, and a tumour could now be felt in the nostril, and I informed the land steward that the only way it could be got at was by the trephine operation.

About this time it was thought advisable to have more advice, as the animal was a very valuable one, and I, along with Mr. Masson, V.S., Kintore, saw her on the 28th, and we succeeded in extracting a tumour from the near nostril weighing 1 lb., but still a large portion remained within the cavity, and as we had not a trephine at hand we made an appointment to meet the following day, and lay open the face and extract the remaining portion. We had not, however, long gone when the remaining portion came away of itself, the weight of which was 1½ lbs., and as the animal seemed much relieved we deemed it prudent to defer operating, and had the nostril dressed frequently with acid carbolic 1 oz., aqua 12 oz. The animal was put to work, and continued at it with little inconvenience, and toward the end of December another tumour as large and similar to the former came off. I extracted another in April, 1869. About May 20th she became unable for work, and showed symptoms of suffering from pressure on the brain.

May 25.—The animal was seen by Messrs. Dewar, V.S., Midmar; Masson, V.S., Kintore; Diack, V.S., Old Meldrum; and myself.

We operated on her, and a great quantity of unhealthy pus escaped from the frontal sinus, but on consultation we thought it advisable to put off extracting the tumour (which we found to be very large) in the hope that the escape of pus would relieve the coma. The mare was put under stimulant treatment, but she got worse, and had to be killed on the third day after the operation.

Post-mortem.—On opening the face I found the whole passage from the false nostril to the larynx completely filled with a tumour, or rather a cluster of tumours, having four different attachments, one being to the four posterior molar teeth which were all diseased, and a large abscess was formed along the same; the other attachments were to the posterior nares, the septum nasi and ethmoid bone; all the bones in contact with the tumour were in a diseased state, and denuded

of periosteum; the turbinated bones were a soft pulpy mass.

The brain seemed softened, and there was a quantity of fluid at its base and increased vascularity of its surface.

The tumour weighed about four pounds, and was of a cartilaginous nature, part of it being so hard that it could not be cut with a knife.

I may state that the mare was seven years old, and was of the Clydesdale breed.

I have sent you these remarks on the above case as I consider it rather unusual. I should feel obliged if you could find space for it in the *Veterinarian*.

THE TREATMENT OF LAMINITIS.

By George Fleming, Royal Engineers.

The readers of the *Veterinarian* must, by this time, be getting heartily tired of the discussion as to the advantages or disadvantages of "stout" shoes in laminitis, acute or chronic; and if I am again constrained to appear before them to notice certain remarks in last month's issue of the journal, I can only plead, in extenuation of the intrusion, that I do so with extreme reluctance, and only with the intention of vindicating some opinions I have already advanced, and which have been assailed by Mr. Broad.

Before doing so, however, I may be permitted to state that I have no recollection of doing Mr. Broad an injustice in making it appear that his plan is to cut the sole and frogs of weak feet. The statement, as he conclusively shows, is his own, and first appeared in the *Field* in the month of January, if I remember aright. He there writes to the effect that weak soles and large frogs require cutting, and if this was a mistake the error certainly remained uncorrected by him. Though a strange statement to make, and one totally at variance with common sense and daily experience, and, though it was put forth in opposition to certain opinions I had published in that paper, I did not think it necessary to expose its absurdity. The same statement was repeated in the *Veterinarian*, and would perhaps have remained unmodified had it not been referred to by me.

Mr. Broad can scarcely have read my remarks aright in reference to the use of heavy shoes. I said that the application of heavy masses of iron to horses' feet is a fallacy which

has dominated farriery for several centuries, and proved a fruitful source of mischief. If the article is correctly perused it will be seen that I alluded to shoeing in general, and I am quite ready to prove that this statement is founded on fact. Heavy shoes are a source of injury to feet and limbs, and a waste of power. No fact has been better demonstrated within the last five years; and it is fully recognised by the highest continental authorities, however strenuously it may be opposed by Mr. Broad.

I am quite willing to concede the palm of novelty to the ingenious theory of the manner in which ponderous lumps of iron attached by numerous nails to horses' feet should so largely benefit them. I am even ready to admit that it is an astounding feat in theorizing; though whether it deserves the claim to correctness sought for it—whether it will satisfy the readers of the *Veterinarian*, as well as myself—or whether it will give a new idea in reference to the cause of other diseases of the feet, in addition to laminitis—is grave matter for doubt. In my humble opinion, Mr. Broad, in introducing a "vibration" theory, has overlooked some points in connection with shoes, and their relation to the feet of horses, which are of paramount importance, and which, if brought to bear on his laws of mechanics, would considerably disturb them, and upset the conclusions he has arrived at. From what I can gather from his exposition, I infer that a light shoe vibrates on a horse's foot, but that a heavy one does not; which is tantamount to saying that a small bell will ring when struck, but that a large one will not.

If we admit, for the sake of argument, that plates of iron, tightly nailed to the under surface of hoofs, do vibrate when brought into contact with the ground, it will be found that Mr. Broad's explanation is contradicted by the mechanical laws he accepts for his guidance. He says, "horses' feet receive less concussion when travelling on hard roads or paved streets, when shod with heavy shoes, than when shod with light ones, the mechanical law showing the theory of the same is that of vibration, the result of concussion—the lighter the body, the greater the vibration, provided that the blows causing the concussion are equal. When the light shoe comes in contact with the pitching a large amount of vibration is produced, and received by the foot; but in proportion as the shoe is increased in weight the vibration decreases in quantity." Here the question simply is, does a foot loaded with a heavy shoe—say two or three pounds in weight—strike as lightly on the ground as one carrying a plate weighing one ounce? I have always thought that a

man wearing massive boots, or a horse travelling with great clumsy shoes, came with more force on the road than an individual in slippers, or a steed in racing plates. If I am correct in believing that this striking, percussion, or concussion, of the foot against the ground is increased in proportion to the load it carries, then how can I reconcile Mr. Broad's statement that "vibration—the result of concussion," is decreased by heavy shoes, when he at the same time asserts "provided that the blows causing the concussion are equal?" If vibration is increased by concussion, and if, as is apparent, a heavy-shod foot strikes the ground with more force than a light-shod one, we cannot but see that Mr. Broad's reasoning is incorrect, and that the theory he has embarked upon brings him to shipwreck—he is, in fact, "hoist on his own petard," and though he may confess to astonishment at my statement that heavy shoes increase concussion, yet he has proved its truthfulness while disproving his own. I trust there are few veterinary surgeons who will maintain that clumsy masses of iron attached to horses' hoofs diminish concussion, or are beneficial to either feet or limbs. We must remember that an educated public is very ready to examine such notions, and are not slow to discover their weak points. For proof of this, I may refer to the columns of the *Field* for the last seven or eight months.

The use of heavy shoes in laminitis dates from the days of Markham—two hundred years ago. That hippiatrist recommends exercise, "stout" shoes, well opening-up the heels, paring out the soles, bleeding from the toes, and other measures.* However suited they may have been to that age—the dark days of farriery—I do not think it would be very judicious to borrow this venerable authority's recipes and directions for the cure of diseases, without due consideration. Shoeing could not have been worse than it was in his day, and horses' feet were subjected to the most barbarous treatment: heavy shoes, paring, and rasping formed the chief points in their management, and the results are evidenced in the frequent mention of "frettizing," or inflammation, and the inclination the poor creatures had to lie down after a short journey of some twenty miles.

In my last communication I spoke of shoeing a flat-footed horse on Mr. Broad's method, and riding or driving it

* "For foundering, frettizing, or any imperfection in the feet or hoofs of an horse:—First pare thinne, open the heeles wide, and shoo large, strong, and hollow."—*The Faithful Farrier*, p. 96. London, 1647. In an earlier edition of the same work, (1639), he gives similar directions, with the addition of "take good store of blood from the toes."—p. 166.

some sixty miles on a hot day in July, as likely to produce laminitis. Mr. Broad retorts by saying, that this would be a likely means of producing the malady, whatever system of shoeing were adopted; and the person who gave it a trial ought to be prosecuted for cruelty to animals. Now, I do not think any one will accuse me of the intention of wilfully inflicting cruelty at any time, and yet, if Mr. Broad is correct, such a verdict would be returned against me. In September last, during hot weather, my wife and myself rode from Chatham to Atherstone, distance 138 miles, in three days and a forenoon, travelling fifty-six miles the first day. After a few days' rest we returned by another route, distance 200 miles, in four and a-half days. My object was to test the value of light shoes, and unmutilated soles and frogs, and the result was in the highest degree satisfactory. The horses travelled easily, there was not the slightest sign of "frettizing," the feet were uninjured, and the animals unharmed. Such would not have been the result had heavy shoeing been employed, and I am glad that Mr. Broad corroborates this fact from his experience.

Mr. Broad asserts that chronic cases of laminitis are not recoverable without the use of special shoes, which, I presume, are the ones he recommends. This is scarcely correct, as I have a horse now in my stable which recovered from chronic laminitis without the use of stout shoes, and I have known of others.

Mr. Broad states that, in addition to the heavy shoes diminishing vibration (which is, in my opinion, an unreasonable theory), "they allow the horse to throw his weight on the heels and frogs, thereby relieving the laminæ more effectually than he can do with light shoes, or without any." Now it may well be doubted whether heavy iron clogs, nailed tightly to the wall of the foot, relieve the inflamed laminæ at all, and especially when the horse is compelled to carry them about for hours; and it is sufficiently manifest that if the frog is shrunken or mutilated, as is generally the case with the ordinary vicious method of shoeing, it will not reach the shoe, and consequently cannot share in sustaining the animal's weight.

Mr. Broad says he treated a case of laminitis on my plan. It will be at once seen that the treatment he adopted was but a portion of that pursued by me with success, but which has perhaps no more right to be designated mine than exercise and heavy shoes is Mr. Broad's. I am pleased to observe, however, that very simple treatment he describes, and which has never been tried by me, was so successful in a fortnight

I think the method I took the liberty of mentioning, as practised by me for the cure of acute laminitis, to be rational and scientific, as sound in theory as it has been successful and humane in practice. The disease is overcome without the employment of special shoes; for I maintain that it is unscientific and injurious to attach a clumsy mass of iron to an acutely inflamed foot. The very fact that many nails are required to fix it to the hoof is sufficient to make one pause; and those continental veterinarians who have studied the malady so exhaustively are averse to such a practice.

I have no desire to magnify the method of treating acute laminitis which I mentioned in my first communication on this subject, neither am I prejudiced in its favour, or anxious to force it upon the profession *nolens volens*. But I submit for the decision of those readers of the *Veterinarian* who are practical men, and yet appreciate the value of theory, which mode of treatment is so likely to fulfil the indications Mr. Broad affords us in combating acute laminitis, lessening vibration, and allowing the patient to transfer his weight to parts of the inflamed and painful organ which are but slightly, if at all involved. Is a felt pad less vibratile than an iron shoe? Is it lighter? Does it require nails to attach it to the foot? Does the wearing of a few ounces of felt require less muscular exertion than as many pounds of iron? And, applied to the sole and frog, is it more likely to transfer the animal's weight and strain of movement to parts which we know to be little affected than could be accomplished with an awkward piece of iron which rests only on the wall of the hoof, and perhaps not at all on the frog, and which must be attached by nails driven close to the inflamed and acutely painful laminæ?

Acute laminitis has been, and can be, successfully combated without encumbering the feet with unwieldly masses of iron. Mr. Broad admits this. I have never had an unsuccessful case; and within a few weeks more cases have fallen into my hand than Mr. Broad has perhaps seen in as many years. It is very difficult to conceive how a very heavy shoe relieves the laminæ of strain; certain it is, that heavy shoes are a cause of laminitis, and that in proportion as they are discontinued, and horses' feet rationally managed, so will this malady become less frequent.

My experience of heavy and light shoeing has not been very limited, and has led me to the belief that the first is a mistake and cannot be recommended, while the second is what every one who has carefully studied the matter will always prefer. I know this is not the general opinion among

veterinary surgeons in this country, but it is an opinion which is rapidly gaining ground.

When we begin to speak of the molecular alteration of structure in iron caused by vibration, I fear we are going a long way from our subject. I believe, however, that vibration, concussion, or jar causes changes in that metal which are all the more marked in proportion to the weight or mass of iron exposed to such influences. I have never observed any such changes in the metal of which horse-shoes are made; if fibrous when attached to the horse's foot, the shoe will be fibrous when exposed to one or two months' wear.

Mr. Broad's example of recovery, given in this month's *Veterinarian*, would be much more satisfactory if we could have the veterinary surgeon's reasons for discontinuing the use of the heavy bar shoes when he had been instructed how to use them. The case of recovery alluded to in the letters forwarded to me was not a very reliable one, inasmuch as the cure was reported by a groom a few days after the shoes had been applied. Veterinary surgeons who are acquainted with the changes of structure that accompany chronic laminitis must know that it requires a longer space of time than days or weeks to effect anything like a cure.

Mr. Broad confesses that his special shoes have proved a failure in the hands of other practitioners. We ought to have some description of these unsuccessful trials, especially as he appears to designate congestion of the laminæ laminitis,—a mistake that may account for the facility with which many of his cases are cured, while others are refractory or not successful. Congestion is not inflammation.

In closing this discussion I beg to repeat what I before stated, that when my method of treating laminitis, and which has been successful hitherto, does not satisfy me, I will avail myself of the Markham-Broad "stout" shoes; but that I will never promise to use, or recommend to be used for general purposes, shoes in the slightest degree heavier than is absolutely necessary for the preservation of the horny box enveloping the horse's foot, as I am quite satisfied that the conclusions Mr. Broad draws from his "vibratile" theory are the very opposite of the truth, and that heavy shoes, instead of being *non-vibratile* and a blessing to every horse compelled to drag them along, are "vibratile" (in Mr. Broad's sense of the term), and are injurious to feet and limbs. Modern theory and practice have amply demonstrated this to be the fact.

It is certainly strange to be told that these massive shoes, when applied to a horse's inflamed feet, allow him to throw

his weight away from the toe with the greatest ease and least possible amount of muscular action. Does not the horse in nearly every case of laminitis rest upon his heels and his frog—if enough of that structure has escaped the drawing knife—and does it require a less degree of muscular effort to travel about with a three-pound bar-shoe than no shoes at all? Truly, some practical men get strangely muddled when they begin to grapple with theory!

Those who recommend Mr. Broad's shoes for ringbone and chronic laminitis are, perhaps, not aware that bar-shoes have been used for the relief of these affections since the days of Blundevil — more than three centuries — and are still frequently employed. The "special" shoes are bar-shoes.

Is it too much to assert, in concluding what I have to say in this matter, that the pleas put forward for the employment of unwieldy lumps of iron at the extremities of a horse's limbs — be these extremities healthy or diseased—are eminently unsatisfactory?

THE VETERINARY PROFESSION AND EDUCATION.

By J. Barker, M.R.C.V.S., Scarboro'.

The importance of this subject, which was so ably handled by Mr. Gerrard, of Ware, Herts, in the last number of our professional journal, has induced me to carry on the discussion, and I hope many more will follow the example, in particular those members who so vividly described the state of things in 1866, when the Veterinary Medical Act was uppermost in our minds, and we naturally concluded that the subject, which was of the greatest importance to us all, would not be shelved in the manner it has been, and the time of the Council taken up by matter of really very little importance to the general body of practitioners, as Mr. Gerrard observes, "beginning at the wrong end." This may not be apparent to our teachers, examiners, and a few lucky individuals whose practice is unusually select, and consists rather in giving advice than in treating disease, which is often left to their farriers, "running doctors," or, in some cases, to the quacks who abound in every part of Great Britain, and are yet patronised by noblemen, magistrates, and others, down to the small cotter, who has the example of the more

educated class before his eyes. I would fain believe this is done unwittingly and unthinkingly, in consequence of these men invariably styling themselves veterinary surgeons, and their customers not taking the trouble to ascertain whether they are qualified or not.

Such being the case, why attempt to go ahead in learning and science, which are not appreciated by our employers, or those who ought to employ us, and which I have for years observed even puts a barrier between us and them? I am quite aware that there are many in the profession who have inherited or purchased a practice ready made, who fortunately have had no experience in this way; but if they doubt the truth of what I advance, and are willing to test it, it can be easily done by sending some qualified and well-conducted young man into a district hitherto in possession of a quack or two, and bearing his expenses until his standing is established. Our Veterinary Medical Associations might, I believe, effect great good by, for the present, deferring scientific discussions, which lead to no practical good, so far as the public are concerned, and, showing a bold front by combined efforts, impress the public with the necessity of recognising members only of the profession as veterinary surgeons. This may be done by advertising in the local papers the names of those practising, and designating them by their proper title, as veterinary surgeon, or farrier, by refusing certificates to those who uphold and patronise quacks, but who come to us when they have a purpose to serve. Such a course would only be consistent with the times in which we live, trades unionism being now universally recognised; and I feel certain a quiet perseverance for twelve months or so in this direction, and the attainment of a proper charter, or else a Veterinary Medical Bill by the parties whose duty it is to see after it, would be followed by beneficial results.

Before closing my remarks, it may be interesting, and also to the purpose, to describe the status of the profession in this town and district, by which it will be seen that even members themselves are not without blame occasionally. With a population of 25,000 inhabitants, and in the season as many or more visitors, till very recently no qualified man had settled down here. At the time of rinderpest, the late Mr. Henry Taylor, M.R.C.V.S., formerly of Hull and Sheffield, resided here, and described the disease from *post-mortem* examination to one or two medical men and other authorities, who forthwith wrote on the subject, totally ignoring Mr. Taylor, who was not appointed inspector for the district,

which was given to the local practitioner without diploma (the adjoining district was given to a mere cow-leech), who even now holds the appointment of veterinary surgeon to the local board. Another man, who is an ex-groom, styles himself a veterinary surgeon, and by some means a qualified man was induced to join him last season, who, on finding how matters stood, at once left the town, but the names of the two are still up, with the letters M.R.C.V.S.L. attached. Surely we require the interference of the law in such cases. In the town of Whitby lives another M.R.C.V.S., who devotes his time to selling drugs, and deputes his practice to a farrier, and, in case of a certificate being required, attaches his signature. We cannot blame a man who can make a living by so doing, in preference to carrying on practice; but the fact points out the unsatisfactory state of the profession, and the question arises, What will become of the ninety-two members who have newly joined the ranks?

My own experience in the place proves that sticking to the etiquette of the profession simply means making enemies of a class of persons who, under the present system, hold a veterinary surgeon's character in their hands unfortunately, and will continue to hold it, until we take a more decided course of action than has yet been attempted.

FRACTURE OF THE ISCHIUM OF A HORSE.

By Wm. Brown, M.R.C.V.S., Fitzroy-square.

The following most extraordinary and complicated case of fracture of the right os innominatum that I have ever seen occurred in one of my patients (the property of a large soda-water firm). I forward particulars that you may, if you think fit, insert the same in your valuable journal. On Monday, 14th June, at half-past ten at night, my attention was called to a bay gelding 16 hands high and aged; the horse had been at work in double harness the whole day in the van. The driver stated that the animal was perfectly free from lameness, and did not fall down or have anything run against him in any way (but this I do not believe); that going down Kingston-hill the animal seemed to go gradually lame, and by the time he arrived in the town the horse was so bad that he was obliged to let it walk slowly all the way to my infirmary. I found the animal much exhausted, and the thigh so greatly swelled that I declined to give an opinion as to the extent of

the injury, but ordered fomentations, mashes, &c. On the morning of Tuesday I discovered fracture of the ischium; the horse was cheerful, fed well, and suffered less pain. On Wednesday, he walked out of the box and was put in slings; fomentations were continued. On Thursday a slight blister was applied.

In about three weeks from the time he was put in the box, he walked very fairly, but could not move sideways, so that I suspected a lower fracture. The horse got down the next day, and appeared so helpless that I had it killed. On *post-mortem* I found two pieces of the tuberosity of the ischium broken off, and the remainder of the ischium to the cotyloid cavity completely crushed, and other parts of the bone broken into small fragments.

[It was evident from an inspection of the fractured bone that some very powerful crushing force had been employed to cause the injury; most likely the animal fell heavily on that side. The remarkable circumstance is, that with such an extensive fracture the horse did not from the first show more decided symptoms.—Eds.]

THE PRINCIPLES OF BOTANY.

By Professor James Buckman, F.L.S., F.G.S., &c.

(*Continued from p.* 507.)

We come now to consider the subject of the classification of plants—a matter of no little importance to the student of the vegetable kingdom, when it is considered that the number of named species up to the present time can scarcely fall short of 100,000, and fresh forms are daily being added to the list.

To reduce this mass of material to order, or, indeed, to adopt a system of classification which shall be readily understood, has presented, and will ever present, no slight difficulties, for though we may all subscribe to the dictum of the poet, that

"Order is Heaven's first law,"—Pope,

yet we shall find it difficult to comprehend that order which the Great Architect of the universe has impressed upon all his works, simply because we are ever looking for grand lines of demarcation, so that our arrangements consist of so many lists on paper, which we divide and subdivide for our con-

venience or to explain our limited knowledge, and thus it is we speak of laws when there is but

> "One God, one law, one element,
> And one far off divine event,
> To which the whole creation moves."
>
> TENNYSON, *In Memoriam.*

There is no doubt that the less a person's knowledge of natural objects, the less difficult will be classification to him, as he merely reasons from some external resemblances presented by unimportant parts; and thus the common laurel, the kahlmia, and rhododendron are in the States all called laurels, whilst there also the tulip tree—liriodendron—is called the American poplar, the only resemblance being that they are both tall trees, and the leaves of both are of a bright green colour. Perhaps the earliest attempt of a classification of plants of this kind is the one of the Scriptures—"Grass and herbs yielding seed, and fruit-trees yielding fruit."

The multiplicity of the objects the botanist has to study, and their immense variety, are eloquently brought before the mind's eye by Professor Lindley, in his introduction to the vegetable kingdom, on which account we introduce it in this place.

"Wherever the eye is directed it encounters an infinite multitude of the most dissimilar forms of vegetation. Some are cast ashore by the ocean in the form of leathery straps or thongs, or are collected into pelagic meadows of vast extent; others crawl over mines, and illuminate them with phosphorescent gleams. Rivers and tranquil waters teem with green filaments; mud throws up its gelatinous scum; the human lungs, ulcers, and sordes, of all sorts, bring forth a living brood; timber crumbles to dust beneath insidious spawn; corn crops change to fetid soot; all matter in decay is seen to teem with mouldy life; and those filaments that scum-bred spawn and mould, alike acknowledge a vegetable origin. The bark of ancient trees is carpeted with velvet, they are hung with grey-beard tapestry, and microscopical scales overspread their leaves; the face of rocks is stained with ancient colours, coëval with their own exposure to air; and those, too, are citizens of the great world of plants. Heaths and moors wave with a tough and wiry herbage; meadows are clothed with an emerald mantle, amidst which spring flowers of all hues and forms; bushes throw abroad their many-fashioned foliage, twiners cover and choke them; above all wave the arms of the ancient forest, and those, too, acknowledge the sovereignty of Flora. Their individual forms, too, change at every step.

With every altered condition and circumstance new plants start up. The mountain-side has its own races of vegetable inhabitants, and the valleys have theirs; the tribes of the sand, the granite, and the limestone are all different; and the sun does not shine upon two degrees on the surface of this globe the vegetation of which is identical; for every latitude has a Flora of its own. In short, the forms of seas, lakes, rivers, islands, and peninsula, hills, valleys, plains, and mountains, are not so infinitely diversified as that of the vegetation which adorns them."

In dealing, then, with a subject so vast, it is our intention merely to glance at some of the work that has been done before, and then to adopt some easy system of classes, with the view of, under such heads, directing attention to some of the more important individuals.

For a long time two systems of classification have been employed by botanists, the one termed the artificial system having been invented by Linnæus, and hence called the Linnæan system; the other founded by Jussieu, called the natural system.

The first of these is in the main founded on the stamens and pistils, either in respect to their numbers or their arrangement; but the first page of such an arrangement of the English flora will at once show that the system is artificial; thus under the class *Diandria*, two stamens—order *Monogynia*, we have the shrubby privet, the herbaceous speedwells, the tall ash-tree, the minute floating duckweed of the pond, and our common grasses—an allocation which the most ignorant will recognise as wholly unnatural; indeed, it is quite as artificial as is the array of words in a dictionary, which are brought together in the same column merely on account of a similarity in the first three or four letters, and how perfectly unnatural this is we need not stop to prove, though we must admit, at the same time, that it is highly convenient, and so, indeed, was the Linnæan system; but since we have a system which is convenient for study, and, besides, brings plants together having a natural affinity, we are enabled to base our classification upon the grammar of the science, and we now, therefore, give a list of the classes, with their more prominent distinctive characters.

The classes of plants may be founded either upon some important point in the arrangement of its bulk, or, which is better, though the one is convertible into the other, on the organs of reproduction, either in the shape of the petals or the seeds, or of both; thus Jussieu, in 1774, founded three great groups—*Acolyledons*, *Monocotyledons*, *Dicotyledons*,

divisible into classes depending upon facts in the situation or structure of the floral organs.

In 1830 Lindley proposed two classes—*Vasculares* or flowering plants, and *Cellulares* or non-flowering plants; these were divided into sub-classes or tribes, depending upon various circumstances.

In 1843 Adolphe Brongniart propounded a system of classification, in which "albumen is regarded of high value, especially the difference between farinaceous albumen and that which is fleshy, oily, and horny, which last are taken to be slight modifications of each other."

This slight account of the bases of different systems may serve to show the interest that has been taken in the subject of classification; all afford something good, and probably, as our knowledge advances, it will be found that each author has contributed something to that precision all should aim after.

The classification which we shall adopt will be that of Professor Lindley for 1845, as being not only in itself the easiest of adoption, but because his 'Vegetable Kingdom' will be so handy for constant reference. His plan of alliances, too, will be found convenient in any description in which mere principles have to be evolved.

CLASSES.

Asexual or Flowerless Plants.

Stems and leaves undistinguishable . . .	I. THALLOGENS.
Stems and leaves distinguishable . . .	II. ACROGENS.

Sexual or Flowering Plants.

Fructification springing from a thallus . .	III. RHIZOGENS.
Fructification springing from a stem:	
Wood of stem youngest in the centre; cotyledon single. Leaves parallel veined, permanent; wood of stem always confused . . .	IV. ENDOGENS.
Leaves net-veined, deciduous; wood of the stem, when perennial, arranged in a circle with a central pith	V. DICTYOGENS.
Wood of stem youngest at the circumference, always concentric; cotyledons two or more:	
Seeds quite naked	VI. GYMNOGENS.
Seeds enclosed in seed vessels . . .	VII. EXOGENS.

Here we have seven classes, which, after all, may practically be reduced to four, two of which belong to the flowerless and two to the flowering plants; and if we shortly review these, we shall find that nothing is more natural than that the simply cellular plants, without stems or leaves, should be

separated from those with such organs; and thus fungoid forms are divided from ferns and mosses. Again, as regards the flowering plants, those whose stems are formed concentrically with a central pith called *Exogens*, will be found to possess seeds divisible into two parts or *Cotyledons*, and hence equalling the *Dicotyledons* of Jussieu, Decandolle, and others, of course easily separable from plants whose wood has not this regular concentric arrangement with a single *Cotyledon*, and hence a *Monocotyledon*.

That there will be points in which the broad lines of demarcation here mentioned will be difficult to make out is certain, and for the reason that, natural as they may be, yet Nature has no hard lines. It is, indeed, with botany, as long since described by Mr. Milne-Edwards in respect to zoology; he says—

"When zoology is only studied in systematic works it is often supposed that each class, each family, and each genus present to us boundaries precisely defined, and that there can be no uncertainty as to the place to be assigned, in a natural classification, to every animal the organization of which is sufficiently known. But when we study this science from nature herself, we are soon convinced of the contrary, and we sometimes see the transition from one plan of structure to an entirely different scheme of organization take place by degrees, so completely shaded one into the other, that it becomes very difficult to trace the line of demarcation between the groups thus connected.—*Ann. Sc. Nat.* 1840.

THE POSITION OF ARMY VETERINARY SURGEONS.

By "CENTAUR."

YOUR editorial in the March number of the *Veterinarian* impresses me with the hope that you will ventilate the question of more speedy promotion among army veterinary surgeons.

Your pages, I know, are ever ready to assist in a good cause, and I feel convinced that it is only by agitation we can force the subject on the War-office authorities.

I call on all army veterinary surgeons—royal and local—to espouse our joint cause in firm but moderate language.

There are two ways to bring this about. First, by petition; and secondly, by agitation through the army papers, not forgetting our own immediate medium, the *Veterinarian*.

It may be thought that the Warrant of 1859 has answered the requirements of our case, but it has in no wise done so beyond making a few senior promotions, leaving the medial and younger branches in the position of completing their service in the junior grade, thereby defeating its object, *i.e.* zeal, and a spirit of emulation, it was expected to produce.

The scientific portion of our army is strictly a seniority service; in fact, I may say the whole is so, though modified in a measure in the combative portion (Artillery and Engineers excepted) by the purchase system.

In the staff corps and medical services promotion goes by fixed periods of service in the various grades, but not so in ours. Yet a casual reading of the Warrant would lead one to suppose that this is the case. In paragraph 3 it says we are *eligible* (note the italics) after five years to promotion to first class; and further on, in paragraph 5, it deludes one to suppose that even this limit of five years is not necessary. It speaks of "the good of the service" and "emergency," thereby leading one to suppose that contingencies of *emergency* and *good of the service* are likely to arise. This may be a good cloak in the case of a "doub" to "take care of," but I think the second column from the right appended to paragraph 7 might have been omitted, for I cannot call to mind a single case of promotion to first class immediately after completion of five years' service,—certainly not after three years. It is, indeed, pretty much on a par with the recruiting sergeant's placard in days gone by, that used to be seen posted on the doors of public-houses—

"V.R.

"WANTED.—A few smart young men," &c.

And going on to say how soon the recruit would become a sergeant, then a commissioned officer! Claptrap, sirs, and nothing more.

We are deluded by false hopes and inducements not to be realised, and are left without a remedy. I trust I may be pardoned by you and your readers if I appear splenetic, but I am writing with the thermometer at $98\frac{1}{2}$, and fifteen summers have rusted my liver, I suppose.

I am, as you may see by my admission, a veterinary surgeon of the local Indian army. I hailed the Warrant, with its shortcomings, as a boon; but, alas! six years were allowed to pass before it was made applicable to us, during which time we lost rank and pay. In the meantime, I saw the names of men in the royal army, who sat by my side at our alma mater, appear as first class. Many are junior to me in

the service, but now and for ever my seniors in rank. I do not envy them their good fortune, but I do protest against being superseded for no fault, crime, or shortcoming on my part beyond electing to remain in the service I first embarked in. My individual case may be a hard one, but I know men ten and twelve years senior to me in my service that have not yet received their *first* step of promotion. And why is this? We are told that a limited proportion of promotions are allotted to each Presidency, and promotion can only take place as vacancies occur; but the fixed system is what I quarrel with. Why tell us we are eligible for promotion to first class after five years, and allow twenty and more to pass before we attain it? I cannot believe it was ever the intention of the framers of our Warrant to perpetuate such an injury; and I am, therefore, emboldened to preach a crusade against the crying injustice. We are a small body, it is true —smaller, perhaps, than any other department in the army; but are we the less useful? Let us unite our voices, and demand equitable terms.

It is an admitted axiom, I believe, to be prepared with a remedy when you condemn an existing system. The remedy, then, I would suggest is to give us promotion in the same manner as the medical branch of the army—say, after periods of five, ten, and fifteen years. If these are thought too short, let it then be five, twelve, and seventeen years. Call the first grade Assistant Veterinary Surgeon; second, Veterinary Surgeon; third, First-class Veterinary Surgeon, and so on; only let us know what we live and work for. At present there is no stimulus or inducement to a hard-working man to push himself to the front. My present feelings are (and I am not singular, I assure you), to get as much leave as I can, put in my service quickly, and retire as soon as I am eligible for a pension. Give me an inducement to remain in the way of promotion and pay, and I will serve faithfully and zealously, and look forward to the coveted few loaves and fishes that are to be had. This was once my ambition, and I have yet a little of the old leaven left in me.

In a late despatch from the Secretary of State for India to the Supreme Government, in answer to a scheme for retirement among the senior ranks of the Indian staff corps, he argues thus. It appears scarcely consistent with sound policy to create a body of officers, and to hold out an inducement to them to enter and qualify for a special service, and then to frame subsidiary regulations with the avowed object of inducing them to retire at a time when their services are

most valuable. If this argument is true towards one branch of the service, it must be so to the other. Our Indian veterinary surgeons have done good work for the State, and, though our ranks have become thinned, it yet contains many good and useful servants, whose local experience cannot but be of great use in this part of the world, where nature plays her fickle game of opposites.

How far right our principal veterinary surgeon may be in passively refusing to assist the local branch of our profession, I will not attempt to argue; he doubtlessly, and perhaps with some grounds, will not interfere with a body over which he has no immediate control. We are, from the nature of our covenant with the old East Indian Government, sworn to serve in India and its dependencies; consequently he cannot exercise the right of bringing us to England, or of sending a black sheep to vegetate in Canada or elsewhere. I quite agree that as head of a profession we ought to be placed under him as far as would be consistent with the nature of our service. At present our position is anomalous. The Secretary of State says the principal veterinary surgeon to the army will so far assist in furnishing examination papers from time to time. This, I think, is wrong, as it places us in the hands of a man who has not, nor may not have a feeling of sympathy with us aliens. I trust I may not be considered personal in my remarks; let me at once assure you it is only the principle, and not the principal, I am objecting to. We all owe the little we have to the gentleman at our head, who has laboured hard in our cause, and I only regret that we are not immediately subordinate to him.

In espousing the cause of army professional members generally, I wish to impress the injustice towards the local veterinary surgeons in particular.

Shortly after the Warrant was published in this country (I think it was in 1860) the Bombay Government at once made promotions according to the *spirit* of it. They were told they acted wrong in the *letter*, but, having once been made, they were allowed to stand. Here, then, are comparatively young men promoted over the heads of seniors by a "fluke." Why Bengal and Madras did not fluke too I cannot say. Possibly they had not an energetic Collins, or a willing Mansfield among them. Anyhow, we did not do so, and the golden opportunity was lost. The *faux pas* has, however, only done justice to them, and strengthened our claim. Another strong argument, too, in favour of local veterinary surgeons is the promotion of young men formerly belonging to our service, but since volunteered for general service. It is,

indeed, a painful thing for us to witness cases like this, for, beyond the injustice of the act, it brands a man perhaps fifteen or sixteen years their senior as an undeserving member of his calling, and implies either a professional shortcoming on his part, or a punishment for bad behaviour.

It may perhaps be asked, Why did we not volunteer for general service one and all? The answer is very simple. On our joining the service we became members of our several funds—in Bengal the military fund, in Madras the medical. There was no choice in the matter—it was compulsory; and as we waxed in years, and took to ourselves wives, we many of us had sunk large sums in these funds towards making provisions for ourselves and families at the time we were called upon to elect. The question was asked if we carried the advantages of our funds with us, but, being replied to in the negative, we had no other alternative but to remain in *statu quo*. The younger members had only paid small sums to their funds, and the loss to them was comparatively nothing compared with the limited time they need serve in India. Good heavens, gentlemen! is this justice to men who have exiled themselves from their country and kindred? No, it is not; nor can it ever have been contemplated so to treat a body of officers whose only fault lies in their misfortune of belonging to the local Indian army.

I could adduce further arguments, and show other causes supporting our grievances, but would rather leave them to be brought forward by others, who I trust will not grudge the little trouble it will give them to do so. Let them remember the words of 'Junius,' which I quote from memory:—

. . . "That the liberty of the press is the true palladium of the civil, religious, and political rights of an Englishman," which, by the way, has only lately been conceded to military men in India.

I fear I have drawn this paper to a length beyond the limits allotted to a grievance which I trust may not be considered entirely selfish. I address myself to royal and local army veterinary surgeons, and to my professional brethren generally, whose pen I hope will espouse our cause, as did that of many eminent medical professors and practitioners in behalf of naval surgeons with success.

We have taken as our motto, "*Vis unita fortior.*" Let us, then, practise it, and, as typical to our adopted crest, I subscribe myself

India, June 8, 1869. CENTAUR.

Pathological Contributions.

CATTLE PLAGUE.

The area over which the cattle plague still prevails in Eastern Europe is very extensive, and the malady cannot be said to have given way, excepting in comparatively a few instances, to the means employed for its extermination. Hungary, Transylvania, and Galicia are still suffering from the ravages of the plague. The disease has also broken out in a part of Poland, through which the railway runs direct from Warsaw into Russia. Roumania still suffers from the disease, and, according to the most recent information, the plague has shown itself in some villages near to Constantinople.

A malignant cattle disease, but which is thought not to be the plague, has also appeared near the Sulina mouth of the Danube. Many animals are dying of the malady, the recoveries being very few.

THE SIBERIAN CATTLE PLAGUE.

This disease is reported to be greatly on the increase in many of the governmental departments of Russia, both north and south of the Gulf of Finland. The district around Helsingfors, opposite to Revel, is seriously affected. In consequence of the prevalence of the malady in Courland, measures have been taken by Prussia to prevent, if possible, its entrance into her eastern province. According, however, to the latest information the plague was declining in the neighbourhood of Riga. The Siberian plague does not limit its disastrous effects to cattle and sheep, but attacks horses also, and sometimes even man himself.

SMALLPOX OF SHEEP.

Our advices from the Continent show that the smallpox of sheep had acquired rather serious dimensions in Schleswig-Holstein during the last few weeks, and that it is still existing in the neighbourhood of Stettin. In connection with the export trade from Stettin to Leith, we find that cattle, as well as sheep, are being shipped for the latter-named place. This subject seems to us to be one requiring deep considera-

tion on the part of the authorities, in consequence of the increased risk which is thereby incurred of the introduction of foreign cattle diseases.

SCAB OF SHEEP.

In our number for June we drew attention to the circumstance of the scab of sheep being very prevalent in the neighbourhood of Stettin, and that exports of sheep were taking place week by week from that place into Scotland. Since then we find that these exports have much increased, and further, that the scab is much more prevalent in Pomerania than our first information had led us to suppose. The disease is also very rife in many parts of England, particularly in the western counties.

PLEURO-PNEUMONIA.

During the last month we have received a large mass of information relative to the wide-spread existence of pleuro-pneumonia. From Ireland we learn that the disease is more rife than it has been for some years, and that persons are selling out their stock from infected herds for the purpose of saving themselves from loss, perfectly regardless of the mischief resulting therefrom. Scotland is also suffering from the disease in districts far removed from each other, and fears are entertained lest it should be introduced among many of the best herds, through the meetings of the various agricultural exhibitions now taking place.

The disease has not abated in any of the counties of England, where it has recently appeared. In the London dairies it is on the increase. Everywhere it appears to have assumed a most malignant form.

ECZEMA EPIZOOTICA—"MOUTH AND FOOT DISEASE."

Until the last few weeks we had heard but little of the "mouth and foot disease" of cattle. Since our last issue, however, the subject has attracted more than ordinary attention, and been brought two or three times under the notice of Parliament, in consequence of several importations of foreign cattle, the subjects of the malady. Infected cargoes have arrived at the port of London from different parts of the Continent.

The first cargo came into Thames Haven on June 27th, and was followed by a second on July 3rd. The animals had been shipped from Geestemünde and Bremen. These arrivals were supplemented by others on July 10th, 11th, and 12th, from Antwerp, Hamburg, Geestemünde, Bremen, and Dort, affording thereby unmistakable evidence of the disease being very wide spread in Europe. In each instance the diseased animals were killed at the place of landing; the carcases not being allowed to be sent to the meat market until examined by the Customs inspector. The disease has also made its appearance in a severe form in the London dairies, and likewise in the districts around West Hartlepool and Stockton-on-Tees.

Alluding to this subject the *Pall Mall Gazette*, of July 5th, says that, "At a conference of the members of the Home Cattle Defence Association, held this morning at the Metropolitan Cattle Market, allusion was made to the fact of there being many foreign beasts in the market with the foot and mouth complaint. Mr. Eve, from South Essex, was of opinion that beasts could scarcely escape this disease if they came over in the hold of a vessel which had previously brought cattle suffering with it. Mr. Deuchfield, from Aylesbury, was glad to find from last week's report of parliamentary proceedings that the attention of the government had been called to the present unsatisfactory state of things, adding that in Buckinghamshire they were determined to continue the agitation until matters were remedied. Mr. Ashton, of Market Harborough, hoped the first and immediate effect of the Government Bill would be to open the London market for home stock. He also hoped to live to see the time when that market would be holden on Tuesday instead of Monday. A member of the association from the neighbourhood of Epsom stated that nothing could be more fallacious than the objections raised by some London butchers respecting the carriage of offal. He knew that instances of carting offal fifteen or twenty miles were of daily occurrence. Mr. Waller, the secretary, explained that no formal resolutions would be proposed, but that a public meeting, if necessary, would be called at a very early date. Mr. Waller said it was not true, as some persons supposed, that the association sought to discourage the importation of foreign live stock. This he altogether denied; the very contrary was the fact. Mr. Waller added that he understood it had been arranged that a member of the Liberal party (who had visited the market that morning) would second Mr. Read's amendment to-morrow."

HOG CHOLERA IN AMERICA.

The pathology of this disease has hitherto been ill-understood here, in consequence of the descriptions which have been forwarded being so vague, besides, as a rule, being furnished by non-medical correspondents. We find now, however, from the information afforded by Dr. Harris, Sanitary Superintendent the New York Board of Health, that the malady is identical with the one known in Great Britain as *typhus*, and in Ireland as the "*blue disease*," or "*red soldier*," *vulgo*. A few years since this malady destroyed large numbers of pigs in nearly every county in England, neither age, breed, nor condition affording any immunity against the attack.

Alluding to this subject a few months ago, we drew attention to the circumstance of Dr. W. Budd having published a most elaborate paper upon the disease, which was reproduced in our pages from the Journal of the Royal Agricultural Society. Isolated cases of the malady have only recently been met with in England, which have proved more amenable to treatment. During the epiozootic prevalence of the malady medicinal agents availed but little. The sulphites, however, were found to be among the most useful agents.

Facts and Observations.

The Chemistry of Nitro-glycerin.—M. Tilberg has made some researches on this substance, making use of the nitroglycerine manufactured on the large scale at Stockholm. This material is decomposed by potassa, giving rise to the formation of nitrate of potassa and glycerine; but, at the same time, there are formed secondary products, as ammonia, cyanogen, oxalic and ulmic acids, and nitrous acid. According to the results of elementary analysis made by the author, the formula for this kind of nitroglycerine should be $C_3H_5(NO^2)3O_3$. The substance is soluble in concentrated sulphuric acid, yielding a clear solution, and forming a sulphoconjugate which, on being combined with bases, gives crystallisable salts.—*Chemical News*.

The Constitution of the Coal-tar Gases is the title of a paper some time since read before the Vienna Academy by Herr Tulsowski. His observations tend to prove that the entire series of these basic substances, with their numerous derivatives, taking their origin most probably

from one and the same carbide of hydrogen, the as yet hypothetical combination triphenylene.—*Popular Science Review.*

The Relation of the Osseous Medulla to the Blood.—The *British Medical Journal*, in abstracting a recent paper, by Herr Neumann, in the German *Centralblatt*, calls attention to the fact that Neumann's startling theory that the marrow developes blood-cells, has received confirmation by the observations of M. Bizzozero. Among other things, this observer says that the condition of the marrow in the bones of frogs in winter, as compared with summer, furnishes an important argument in favour of the theory that marrow is a blood-gland. In winter, the white corpuscles in the blood of the frog are not half so numerous as they are in summer; and in winter the marrow consists almost entirely of fat-cells, whereas in summer it contains hardly anything but lymphoid cells. He examined the costal marrow and the spleen in five cases of death from typhus fever, and observed in both structures an enormous increase of cells containing blood-corpuscles.—*Ibid.*

Chromic Acid in Therapeutics.—In the *Bulletin Général de la Thérapeutique*, Dr. E. Magitot recommends *chromic acid* as an application to various affections of the buccal mucous membrane—such as all forms of stomatitis; and particularly the different kinds of gingivitis, from that connected with dentition (as when, for example, it attends the eruption of a wisdom tooth), to ulcerative stomatitis. Aphthæ, and divers other ulcerations of the buccal mucous membrane, are also, he says, rapidly modified by this agent. But the affection for which he specially recommends the acid is "alveolo-dental osteo-periostitis."—*Ibid.*

Coal from Sea-weed.—Some time since, says the *Annales de Génie Civil*, the practice was introduced of converting marine algæ by calcination into an excellent coal superior to ordinary wood charcoal for filtering water, disinfecting sinks, polishing glass and correcting the acidity and decolorising wines,—also for precipitating and decolorising vegetable alkaloids. Until recently no value was attributed to the marine algæ—to-day they are an important article of commerce in several islands.—*Ibid.*

The Varieties of Dogs.—Dr. John Edward Gray has written a paper on the varieties of dogs in the *Annals of Natural History*. In reference to that kind of variation, which he thinks ought to be looked upon as abnormality, the author points out the following four types:—1. The short

and more or less bandy legs of the turnspit and lurches, which are common to terriers and spaniels. 2. The more or less imperfect development of the upper jaw, found in the bull-dog, pug-dog, and different breeds of spaniels. 3. The great development of the ball of the eyes, so as to become too large for the orbit and exceedingly prominent and liable to accident, found in some breeds of spaniels and terriers. 4. The more or less complete want of hair, which is generally accompanied by a more or less complete want or great imperfection in the development and rooting of the teeth, showing the relation between these two organic productions.—*Ibid.*

Consumption of Horse Flesh.—During the second quarter of the year 1869 the butchers of horse-meat have supplied the Paris market with 605 animals of the species, some asses and mules being included. This gives an average of 88,000lb. per month.—*Standard.*

Doctors and Quacks.—The Medical Council in session yesterday received a deputation from the medical profession in Birmingham, seeking support to a memorial to Parliament praying for the suppression of unqualified medical practitioners. The memorial stated that the Medical Protection Act of 1858 proved inoperative for distinguishing legally qualified from non-legally qualified members of the profession. The law respecting certificate deaths favoured secret poisoning and infanticide. The memorialists were of opinion that the medical system should be revised, to ensure the possession by doctors of a thoroughly scientific and practical acquaintance with surgery and medicine. Such an Act of Parliament would be of the greatest utility. The deputation is said to have been favorably received. It consisted of Dr. Bell Fletcher, Mr. Sampson Gamgee, Mr. Arthur Oakes, and Mr. D. C. L. Owen. The memorial has already received 5,252 signatures.—*Pall Mall Gazette.*

Uric Acid.—In a note communicated to the Munich Academy of Sciences, Herr Strecker shows that uric acid may be regarded as a combination of glycocol and cyanuric acid (or 3 molecules of cyanic acid), just as hippuric acid may be regarded as a combination of benzoic acid and glycocol; for when it is heated for some time to 170° with concentrated hydrochloric acid, or, preferably, with a cold saturated solution of hydriodic acid, it yields, after removal of the acid by oxide of lead, a considerable quantity of glycocol, together with carbonic acid and ammonia.—*L'Institut.*

THE VETERINARIAN, AUGUST 1, 1869.

Ne quid falsi dicere audeat, ne quid veri non audeat.—CICERO.

MATRICULATION EXAMINATIONS AT VETERINARY COLLEGES.

AFTER an amount of deliberation which must quite exonerate the movement from a suspicion of precipitant action, the Council of the Royal College of Veterinary Surgeons has taken a decided step in a forward direction in reference to the institution of an independent preliminary examination at the several veterinary colleges. On July 13th a deputation of members of council had an interview with the Governors of the Royal Veterinary College, and represented to them the desirability of relieving the professors of the school of the invidious task which has hitherto devolved upon them, of testing the educational qualifications of candidates for admission into the colleges. Fully admitting the great advantages which have accrued from the adoption of the preliminary examinations, even as at present conducted, the council, representing the profession, urged that by confiding the preliminary test to an independent body, the governors of the several colleges would initiate a measure of justice to the professors and the students—one which would be received with satisfaction by the profession, and which might be expected to produce the happiest results. The governors, in reply to the representations of the deputation, stated that the subject of an educational test had been under their consideration for some time; indeed, correspondence had already taken place with the College of Preceptors, and that body is prepared to undertake the examination of candidates for admission to the Royal Veterinary College.

With this assurance of the intentions of the authorities of the London college the council and the profession have every reason to be content; and if the other colleges adopt the same course the whole question of preliminary examination will be

settled without any attempt at legislation, which might be conflicting in its character, and at best could not effect so much as, we may hope, will now be attained in a far more legitimate manner by the spontaneous action of the schools.

In the present day a good general education is not an expensive luxury—not one which is difficult of acquirement by the middle classes—and the Council of the Royal College has clearly arrived at the conclusion, that no extension of the subjects of study, or increase in the severity of the final examination will avail, until there be an improvement in the education of those who intend to pursue the study of veterinary science. As the matter now stands there is more taught at the colleges than can be well learned by the majority of the class; and to raise the standard of the final examinations, under the present conditions, will be tantamount to a wholesale rejection of candidates for the diploma.

With a more highly educated class of students there would exist no difficulty in respect of an extension of the curriculum, and a proportionate increase in the severity of the final test; and assuming, as we have a right to do, that the immediate result of the establishment of an examination by the College of Preceptors will be the advancement of the candidate's education to the standard required by the colleges, the council may with some confidence proceed to the rearrangement of the examination for the diploma; first, by devoting more time to properly test the pupil's proficiency in certain details of practice, without a knowledge of which it is impossible for a young man to acquit himself creditably on his entrance into professional life, and then gradually adding such other tests as the progress of education may render necessary.

Two courses were open to the council; it might have attempted to make the examination for the diploma so strict that none but well educated and competent men could pass it; if this course had been determined upon it would have been perfectly legal; its success, however, is more than doubtful.

On the other hand, it was open to the council to endeavour to move the authorities of the schools to use all the means in their power to improve the education of candidates for the

diploma; the latter plan has been wisely chosen. The council has no desire to interfere with the prerogative of the schools, or to dictate the method of instruction; but it has a desire to avoid conflicting legislation, which at a former period produced untoward results, from the evil influence of which the profession has not yet recovered.

Extracts from British and Foreign Journals.

THE FOOD WE GIVE.

By Cuthbert W. Johnson, F.R.S.

Great is our encouragement to again and again renew the inquiries relating to the food of our live stock. The steady advances which have been made during the last three centuries in this branch of agriculture may well prompt us to aim at still higher standards of excellence. If the stockowner of our time only thinks for a moment of the farmers' domestic animals as they were in the days of Harry the Eighth, the coarse, raw-boned cattle, the wild, long-wooled sheep, which then existed on our hill-sides in summer, and starved on straw in winter—the necessity which then existed for killing the bullocks at Martinmas, because the turnip was not then known as a field crop—when South-downs and Shorthorns were not even dreamt of—when, we say, the modern agriculturist remembers these things, he may well be encouraged to persevere in his efforts to obtain still more valuable results. And, moreover, he will not fail to remind himself that during the present generation these advances in our knowledge of the properties of food have been made at an accelerated pace; and he may also usefully remember that for this increase of our knowledge we have during the last quarter of a century been very materially aided by the researches upon the food of animals of such men as Justus Liebig, Lyon Playfair, and J. B. Lawes.

It was in one of his early papers that Professor Playfair, after explaining how the excess of blood in an animal is converted into flesh (muscular tissue and cellular tissue), proceeded to remark: Fat is not a substance peculiar to the animal economy. We find the fat of beef and mutton in cocoa-beans, of human fat in olive-oil, of butter in palm-oil,

and of horse-fat and train-oil in certain oily seeds. In these the fat must arise, just as in animals, by the same chemical process of an imperfect transformation. The most favorable conditions to the development of tallow are food destitute of nitrogen, warmth, and want of exercise. Warmth is perfectly indispensable to the production of tallow in an animal. Tallow is so easily consumed by the oxygen of the air that it is employed to produce animal heat, if there be any deficiency in this. Martel (*Trans. Linn. Soc.*, vol. xi, p. 411) mentions the case of a fat pig which was overwhelmed in a slip of earth, and lived for 160 days without food, and was found to have diminished in weight during that time 120 lbs. Its fat had been consumed in supporting respiration, just as that of hybernating animals during winter. Motion also diminishes the tendency of an animal to fatten, by increasing the number of its respirations, and, therefore, by giving to the system an increased supply of oxygen gas, which consumes the tallow. Hence our practice of stall-feeding cattle. A few considerations will show that it is quite impossible to draw up any series of numbers to represent the equivalent values of the food; for we must first know the object for which the food is intended. In a cold day the animals ought to be furnished with food containing a considerable amount of unazotized ingredients, in order to protect them from the effects of the cold. The equivalent values of potatoes and beans could not be compared, because their respective value as food arises from totally different causes. Potatoes are of great use in keeping up the heat of the body and in forming tallow, but are in the highest degree unprofitable for forming flesh; 1550 lbs. of potatoes would be required to form the same quantity of *flesh* that 100 lbs. of beans would do; whilst little more than 200 lbs. would suffice to form the same quantity of tallow; hence the great advantage of mixing food so as to supply in smaller bulk those constituents of which one kind of food is deficient. Sheep fed on oilcake increase in weight faster than on any other kind of food; but they feel quite soft, and when fat handle like a bag of oil. This is because they receive food which contains very little albumen to form flesh, so that tallow is the only product. But if with the oilcake they receive oats or barley, they are firm to the touch, and possess plenty of good flesh, and the fat lies equally distributed amongst the muscular fibre. The reason here also is obvious, for both oats and barley contain much albumen.

As I have elsewhere remarked, that vegetable substances contained animal matters ready formed, was a suspicion

entertained by more than one of even the early Greek philosophers, but it was reserved for the modern chemist to prove the truth of the supposition. This has been thus explained by Dr. Lyon Playfair (*Jour. R. A. S.*, vol. iv., p. 216):—All vegetable food has been found to contain a peculiar substance, which, though it differs in appearance and in form, according to the source from whence it is obtained, is in reality the same body. It has received the name of gluten or albumen, and is precisely identical, in chemical composition, with the albumen obtained from the white of an egg. This substance is invariably present in all nutritious food. Chemists were surprised to discover that this body never varies in composition; that it is exactly the same in corn, beans, or from whatever plant it is extracted. But their suprise was much increased when they remarked that it is quite identical with the flesh and blood of animals. It consists, like the latter, of carbon, hydrogen, nitrogen, and oxygen, and in the very same proportion in 100 parts. By identity in composition is not meant a mere similarity, but an absolute identity; so much so, that if you were to place in a chemist's hand some gluten obtained from wheat-flour, some dry albumen procured from the white of an egg, a fragment of the flesh of an ox or of a man, or some of their dried blood, and request him to examine their difference, he would tell you, strange as it may appear, that they are precisely the same, and that with all the refinements of his science he was unable to detect any essential difference between them. There is much difference, indeed, in external appearance and in structure, but in their ultimate composition there is none. To render this more obvious, I subjoin the composition of these various substances, as obtained by different chemists, who executed their analyses without any knowledge of the results obtained by the others:

	Gluten from Flour.	Casein from Peas.	Ox Flesh.
Carbon .	54·2	54·138	54·12
Hydrogen	7·5	7·156	7·89
Nitrogen	13·9	15·672	15·67
Oxygen	24·4	23·034	22·32
	100·0	100·000	100·00

These analyses do not differ from each other more than the analyses of the same substance usually do. Thus we are led to the startling conclusion that plants contain within them the flesh of animals ready formed, and that the only duty of animals subsisting upon them is to give this flesh a

place and form in their organism. When an animal subsists upon flesh, we find no difficulty in explaining its nutrition; for the flesh being of the same composition as its own body, the animal, in a chemical point of view, may be said to be eating itself; nor, with a knowledge of this identity of vegetable albumen with flesh, is there any difficulty in comprehending the nutrition of vegetable feeders.

Plants, then, in reality, form the *flesh* of animals; and the latter merely appropriate it a place in their organism.

It follows, then, as a conclusion, that the analysis of any vegetable substance pretty accurately indicates its nutritious powers. It has been shown by many laborious chemical researches, to use the words of Dr. Playfair, that there are two kinds of food. The first, which contains nitrogen, is exactly of the same composition as the principal tissues of the human body, and is the only substance which can supply the waste of these tissues. The second kind of food is that destitute of nitrogen, such as starch, gum, and sugar, all of which are destined for the support of respiration and consequent heat of the animal. The latter kind of food, when in excess, is converted into fat, but never into muscle. The increase of flesh in an animal consists in two changes of the matter of the food, without any alteration in its composition. The albumen or nitrogenous constituent of the food is first converted into blood, without decomposition, and the blood is afterwards converted into flesh. In order to show that the transformation is actually effected without change, we have only to refer to the following results of the analysis of vegetable albumen, of ox-blood, and of flesh:

	Vegetable Albumen.	Ox Blood.	Flesh.
Carbon	55·160	54·35	54·12
Hydrogen	7·055	7·50	7·89
Nitrogen	15·996	15·76	15·67
Oxygen	21·18	22·39	22·32

As muscle, then, is formed only by the albumen or gluten of the food, which albumen is in reality flesh itself, we can ascertain the comparative value of food, as far as the production of muscle is concerned, by estimating the exact quantity of the nitrogenous constituent of the food. The following table, continues Dr. Playfair, contains the approximate, though not perfectly accurate, information relative to the value of food for the support of respiration and production of fat:

100 lbs.	Albumen. lbs.	Unazotised. Matter. lbs.
Flesh	25	0
Blood	20	0
Beans	31	51½
Peas	29	51½
Lentils	33	48
Potatoes	2	25
Oats	11	68
Barley-meal	14	68½
Hay	8	68½
Turnips	1	9
Carrot	2	10
Red-beet	1½	8½

That *fat* exists ready formed in various vegetable substances has been proved by careful chemical examination. Thus, according to Liebig, hay contains 1.56 per cent., and maize 4.67 per cent. of fat. Braconnet found 1.20 per cent. in peas, while Fresenius got 2.1 per cent.; and in lentils 1.3 per cent. Vogel obtained 2.00 per cent. of fat in oats; Liebig 0.3 per cent. in dry potatoes; and Braconnot 0.13 per cent. in rice, although, in another variety, Vogel states that he detected 1.05 per cent. The substance here called fat is in reality a waxy or resinous body, and not tallow.

Such were the valuable chemical researches which a quarter of a century since were instituted for the service of the agriculturist—labours which time has hardly rendered less valuable, although practical and long-continued observations in the homestead may have modified some of the conclusions of the chemist. In a recent prize essay on different descriptions of food for stock, by Mr. R. J. Thomson, of Kilmarnock, he has fairly summed up the evidence on this question in language which we need hardly attempt to vary (*Trans. High. Soc.*, 1868, p. 52). He observes, "Liebig's famous classification of food into nitrogenous and non-nitrogenous, or into flesh-forming and respiratory or heat-supporting, must ever be regarded as having marked an important epoch in the history of the chemisty of food. It opened a broad pathway through a tangled forest. Several years have now passed away, and the inexorable test of personal experience has put it to the proof, but the result is, that the per-centage of nitrogen gives at the best but an approximate idea of the nutritive value of different kinds of food. No one believes, for example, that bean is as nutritious as flour, or that rapecake is equally valuable with linseed cake; yet their per-centages of nitrogen are practically

identical. We believe, notwithstanding, that Liebig's hypothesis, looked at in the most liberal light, is theoretically correct, but that it fails in ordinary practice, simply because circumstances modify the deductions from chemical aualyses. In all experiments, in fact, upon the feeding of animals, as Mr. Thomson well adds, it should not be forgotten that they are peculiarly liable to inaccuracies from the ease with which animal functions are disordered, and the difficulty of discovering minor complaints. All animals will at times eat more or less heartily than usual. A milch cow will suddenly give a pound or two less milk than usual for a day or two, without any apparent cause; and a fattening beast will sometimes actually lose weight, or at least will gain nothing, when feeding as well as usual, and apparently in full health. It is exceedingly difficult, too, if not impossible, to get a sufficient number of animals whose constitutions are exactly alike, so that all such experiments, before we are warranted in arriving at any definite conclusions, must be many times repeated.

To determine the comparative feeding qualities of mangolds and swedes, the following valuable experiments were instituted:—On January 16, 1864, Mr. Thomson put up in pairs four milch cows, four feeding beasts, four queys (heifers) rising two years old, and four stirks rising one year old, and all of the Ayrshire breed; these were fed alike till Feb. 3rd, particular notice being taken of the quantity of food which each lot of two could consume per day. The quantities at last fixed upon for each lot, and the hours at which they were given during the whole time the experiment lasted, were as follows:

Milch Cows and Feeding Beasts.

5 a.m.—37⅓ lbs. of roots, 2 lbs. hay chaff steamed, and 2⅔ lbs. of bean-meal added.
5.30 a.m.—4 lbs. of hay.
6 a.m.—Cows milked; milk weighed.
9.30 a.m.—4 lbs. of hay, water *ad lib.*
11 a.m.—Steamed mess as at 5 a.m.
11.30 a.m.—4 lbs. of hay.
5 p.m.—Steamed mess as at 5 a.m.
5.30 p.m.—4lbs. of hay.
6 p.m.—Cows milked; milk weighed.
7 p.m.—28lbs. of roots raw.
8 p.m.—4lbs. of hay, water *ad lib.*

Daily quantity for each animal:—56lbs. of roots steamed, and 14lbs roots raw=70lbs. roots; 3lbs. hay chaff steamed and 10lbs. of hay=13lbs of hay; 6oz. of salt, 4lbs. bean meal.

Queys.

5 a.m.—42lbs. roots, 3lbs. hay chaff, and 3oz. of salt, steamed.
9.30 a.m.—4lbs. oat straw, water *ad lib.*
11.30 a.m.—4lbs. oat straw.
5 p.m.—Steamed mess as at 5 a.m.
8 p.m.—4lbs. oat straw, water *ad lib.*
Total for each animal:—42lbs. of roots, 3lbs. hay steamed, 6lbs. oat straw, and 3oz. salt.

Stirks.

5 a.m.—18⅔lbs. roots, 1lb. hay chaff, and 1oz. salt, steamed.
9.30 a m.—4lbs. oat straw.
11.30 a.m.—Steamed mess as at 5 a.m.
5 p.m.—Steamed mess as at 5 a.m.
8 p.m.—4lbs. oat straw.
Daily quantity for each animal:—28lbs. roots, 1½lbs. hay steamed, 4lbs. oat straw, 1½oz. salt; water always before them.

From Feb. 3rd to March 30th the whole of the beasts had mangolds for fourteen days, then swedes fourteen days, then mangolds for fourteen. The result was, as given in some elaborate tables by Mr. Thomson, that three cows did best on swedes, one cow did best on mangolds. Of the feeding beasts, three did best on swedes, one did equally well on both. Of the queys, two did best on swedes, two did best on mangolds. Of the stirks, three did best on swedes, one did best on mangolds. During this period the weight of the milk produced by the cows fed on swedes, or by those fed on mangolds was = 30 lbs. 14 ozs. in favour of swedes. During the same period the per centage of cream produced was = 19 oz. in favour of the mangolds. The amount of butter produced during this period from 10 lbs. of whole milk was = 2 oz. 5 drs. in favour of mangolds. The quality of the butter was in the majority of cases the best from the mangolds. Upon a repetition of these experiments in the year 1865 similar results were obtained.

Another important inquiry engaged Mr. Thomson's attention in 1864, viz. the comparative feeding qualities of beanmeal and oatmeal. To test this he tells us that on March 16th four feeding beasts and four milch cows were selected, and put up in lots of two in each, and were fed. All the animals were of the Ayrshire breed, and were as nearly alike in size, age, and condition, as he had. The food to each lot, from March 16th to June 1st, was as follows:

5 a.m.—37¾lbs. of mangolds, 2lbs. of hay chaff steamed, and 5⅓lbs. of meal (bean or oat as the case may be), ⅓lb. treacle, and six oz. salt mixed with them.
5.30 a.m.—4lbs. of hay, water *ad lib.*

11 a.m.—Steam mess as at 5 a.m.
11.30 a.m.—4lbs. of hay.
5 p.m.—Steamed mess as at 5 a.m.
7.30 p.m.—4lbs. of hay, water *ad lib.*
Being a daily allowance to each animal of 56lbs. mangolds, 3lbs. hay chaff, 8lbs. meal (bean or oat), 8lbs. hay, ½lb. treacle, 6oz. of salt. The treacle was given not only as a laxative, but as a condiment; cattle surfeit so readily on large quantities of meal, oatmeal especially.

On March 30th all the animals were weighed, and the lots 1 (of both beasts and cows) were put upon the beanmeal diet, and lots 2 upon the oatmeal. After the lapse of twenty-eight days, on April 27th, they were again weighed, and the lots 1 were changed to the oatmeal diet, and the lots 2 to the beanmeal. They were weighed after the interval of a week, on May 4th, and again after another period of twenty-eight days, on June 1st, when the experiment was concluded.

The general result I can hardly give better than in the reporter's own words. He observes that during the period of twenty-eight days each the quantity of meal consumed by each lot was 896 lbs., or $3\frac{1}{5}$ loads. The gain in weight acquired by the feeding beasts when on oatmeal over that acquired on the beanmeal was 51 lbs. As the greater portion of this must have gone to add to the "dead weight" of the animals, we shall strike off only 3 lbs. for offal, thus leaving 48 lbs. net. This quantity, at the moderate price of 4*s.* per stone of 8 lbs., gives 24*s.* According to this experiment and these calculations, if the beanmeal was worth 25*s.* per load, the oatmeal was worth 32*s.* 6*d.*, and their relative values for fattening cattle would stand as 10 is to 13.

Dealing with the milch cows experiment in the same way, the gain in favour of oatmeal was 25 lbs. or 24 lbs. nett, equal to 12*s.* The increase of milk was 73 lbs., of the value of 4*s.*, so that the proportionate value was as 10 to 12; but if we value the increased produce of milk only, then if the beanmeal is worth 10, the oatmeal is worth $10\frac{1}{2}$. We invariably, concludes Mr. Thomson, look with a certain degree of distrust on the deductions from single experiments, more especially if these have been on the feeding of animals, however carefully they may have been conducted; but the above trials seem to indicate that oatmeal possesses, weight for weight, a considerably higher value than beanmeal for the production of fat, and that it is at least equally valuable with beanmeal for the production of milk.

Another important inquiry relating to the food we employ, viz. the composition of the linseed and the oilcake of commerce, has for some time engaged the attention of Professor Anderson. Two papers by him are contained in the *Trans.*

High. Soc. (vol. 1866, p. 187; vol. 1869, p. 489). The first contains the Professor's researches upon the adulterations of linseed cake, the second upon the impurities contained in linseed. Both these papers are well worthy of the reader's careful study.

To a varying extent the seed imported abounds with impurities. Some samples examined by the Professor contained of foreign matters per cent.—

Irish	1·60		
St. Petersburg (2 spec.)	4·17	15·8	
Munich	28·18		
Black Sea	10·10		
Calcutta (3 spec).	5·78	19·68	30·73
Bombay (2 spec.)	3·94	6·32	

The impurities consisted generally of small seeds, such as wild mustard, various species of polygonum, and many other seeds which, without growing them, it would be impossible to recognise. In the Indian samples the seed called Indian rape was found.

The specimen of nearly pure Irish linseed was composed as follows, and the cake produced from it (supposing the seed had been quite pure) would be per cent. as given in the third column of the following table:

	Seed.	Cake.
Water	5·70	11·87
Oil	34·77	11·67
Albuminous compounds	20·06	25·46
Mucilage, gum, &c.	29·22	40·16
Fibre	5·55	6·34
Ash	4·70	4·50
	100·00	100·00
Nitrogen	3·21	4·30
The ash contains:		
Phosphate	1·40	
Phosphoric acid combined with alkalies	1·09	
Sand	0·80	

The adulterations of the linseed cake of commerce are very great, and they are not easy of detection by the agriculturist. The Professor warns those in whose service he so successfully labours, that a cake should be hard and difficult to break, its colour not too pale. If it is soft and splits easily, it is almost certain to be adulterated; its pale colour, even if hard, is suspicious. A genuine oilcake, of the *best quality*, should contain 11 to 13 per cent. of oil, and from 26 to 28

per cent. of albuminous compounds. If made from inferior linseed, the albuminous may be as low as 24 per cent., if below 23 it is suspicious, and if much below the chances are that it is adulterated. Avoid *cheap* cakes. If the farmer will take adulterated cake without question, merely because it is cheap, the fair trader must obviously go to the wall.

The value of researches like these it is needless to advocate. The long-continued quiet improvement in the quality of our live stock, their largely increased number now supported on a given extent of land, their early arrival at maturity, their increased weight, with a decreasing consumption of food—all these great advances have been only attained by patient and laborious attention to their breed and food. These successful efforts will, there is no reason to doubt, long continue to reward the owners of those noble stocks and herds which now adorn our country.—*Farmer's Magazine.*

THE ANIMAL "CELL" NOT ESSENTIALLY DIFFERENT IN FUNCTION FROM THE VEGETABLE.

In a paper read before the Association of German Naturalists, at its last session in Frankfort, on the *Physics of the Cell,* Herr Wundt stated as follows:—It used to be thought that the vegetable cell had to form organic matter, and that the animal cell had to destroy it in order that, by its alternation of creation and destruction, the general end of life might be attained. At present we are compelled to admit that, if the vegetable cell is the seat of a phenomenon of reduction by which carbonic acid is decomposed into its elements, a similar phenomenon is produced in the animal cell. Nonazotised combinations, it is now known, can be formed in the interior of the animal cell. Alexander Schmidt was the first to observe that, after the addition of carbonic acid to blood, the total contents of carbonic acid diminished in certain circumstances. This observation furnishes direct support to the idea of a phenomenon of reduction. The blood globule plays, therefore, a part analogous to that played by chlorophyll in the vegetable cell in contact with the carbonic acid of the atmosphere. The only difference which exists is, that in the blood-cell there is, besides, a process of oxidation going on which surpasses the process of reduction. Just as the chlorophyll

of the vegetable cell absorbs carbonic acid, so does its colourless protoplasm absorb oxygen, and this corresponds completely to the absorption of oxygen by the blood-cell in the lungs.

THE ORDEAL POISON-NUT OF MADAGASCAR.

A description of the *Tanghinia veneniflua*, which is now naturalised in New South Wales, is given by Dr. Bennett in the *Journal of Botany*. The largest and finest tree in the Sydney Botanic Gardens is twenty feet in height, with a circumference of the branches full fifty feet. It flowers in November and December, and is often observed at the same time covered with fruit in different stages of maturity produced from the blossoms of the preceding year. The flower-buds are of a beautiful crimson colour; and, when expanded, the corolla is white, with the edges and under surface tinged with crimson; the flowers are very fragrant, and their odour is retained for some time after they are withered. The fruit is oviform and about the size of a hen's egg; it contains a hard stone or nut, enveloped in a dense fibrous substance. On this fibrous part being removed, there is seen a dark-brown shell, which, on being opened, is found to contain a white kernel, in size and appearance like an almond, and of a slightly bitter flavour. The fruit is at first of a green colour, then changes to a purplish-red tint on one side, but when fully ripe becomes wrinkled, and the entire fruit assumes a deep purplish-red colour. The whole of the tree yields a quantity of milky juice, very adhesive, and of a sweet creamy taste.

Analysis of Continental Journals.

By W. Ernes, M.R.C.V.S., London.

Journal des Vétérinaires du Midi.

BACTERIA AND LEUCOCYTES IN THE BLOOD IN FARCY AND GLANDERS.

By MM. Christal and Kiéner. Presented by M. Claude Bernard.

The author observes that important researches of the last few years have directed attention to the part played by infusoria in zymotic diseases. An occasion presented itself of observing a case of acute glanders in a man. The analogy of this dreadful malady with pyæmia directed our attention to the investigation of the alteration of the fluids during life. The results of these studies were the discovery—first, of bacteria; secondly, leucocytes. The first observation was in a driver in the 17th Regiment of Artillery, affected with acute glanders. The blood and the purulent matter were examined daily under the microscope from the first appearance of the cutaneous lesions. After death the principal organs were examined in a similar manner, which left no doubt of the presence of infusoria of the bacteria species in the blood, in the pus, and in the vascular glands. It was also ascertained that a growing leucocyte existed in the blood obtained by puncturing a finger of the patient during life, the size of which might be estimated on the day of the death by the proportion of the white globules to the red being 6 to 1 (which is 60 times more than in the normal state). The second observation was made on a horse affected with acute glanders. A healthy horse destined to be slaughtered was inoculated with the pus and the blood taken from the same man. The horse died eleven days after, manifesting all the symptoms and lesions of acute glanders. The blood examined during life showed—first, bacteria, exhibiting the same characters as in the previous case; secondly, leucocytes, the numeric proportion of which was in comparison to the blood globules as 1 to 15. The organs examined after death (lungs, spleen, ganglia, lymphatics) showed an innumerable quantity of bacteria, the movements of which persisted several days after being immersed in not very concentrated alcohol.

The third observation was on a cat affected with acute

glanders produced by inoculation from the pus and blood of the horse in the previous case, and which died seven days after with a characteristic deformation of the face and tumefaction of the nose, cancerous ulcers at the orifice of nose, characteristic swelling of the submaxillary glands. The punctures of the inoculations had also degenerated into a cancerous sore with tumefaction of the surrounding ganglia. The *post-mortem* showed an alteration of the internal organs. The microscopic examination showed a great number of bacteria, both in the blood, the lymphatic ganglia, the spleen, and the liver, although these organs showed no alteration. The blood contained no appreciable leucocytes. Bacteria were also found in cases of chronic glanders and in chronic farcy, and the leucocytes were estimated in one case of chronic farcy at 1 in 20, and in a case of chronic glanders at 1 in 30.

General description of the infusoria in the preceding observations.—They belong to the species bacteria, and there are two variations—first, spheroid granulation of a variable diameter, measuring at the most 0mm. ·0012, homogenous, refractive, seemingly transparent or black, according to whether they are in a point or extended, animated at the same time with a rapid giratory and a translatory movement. By forming different curves, they are seen to knock against the globules of the blood, and thereby communicate motion to them, or else they are in close union with one another and disunite again; secondly, they are in the shape of small spindles, refractive, and homogenous, varying in length from 0mm. ·002 to 1mm. ·010; their breadth is also variable, but does not exceed 0mm. ·0015; generally the shortest are the broadest. They are sometimes animated by a vibratory movement with one extremity fixed, and at others by a double vibratory and translatory resting and curvilinear movement, but generally slower than that of the former variety. In the preparations the movements of the bacteria did not continue more than six hours. When immovable they were united, and formed irregular granulated masses.

The leucocytes having been mentioned in these observations without attempting to establish their importance in the alterations of the farcino-glanderous affection, it will suffice to recall the enumeration of the white globules under the division of the divers micrometers, which has enabled us to estimate in proportion to the blood globules, and to enumerate 1 in 30, 1 in 20 to 1 in 6. We may add that in these preparations the leucocytes have been found agglutinated in numbers from four to nine. With the exception of the bacteria and

the leucocytes, no other alterations have been constantly met with.

Conclusion.—First, the presence of bacteria having been ascertained in the fluids of men, and animals, affected with farcy and glanders, and this character being constant, it might be useful for the diagnosis of chronic glanders, which remains often undecided, to the great loss of horse owners.

2. Relatively few in number, and but little developed in the blood, these infusoria are, on the contrary, very numerous and of great dimension in the vasculo-sanguineous glands, and in the pathological ulcerations.

3. The bacteria are habitually accompanied by leucocytes, and in certain cases the white globules acquire numerically a great amount (one white globule to six red discs).

4. No other microscopic alteration is constantly found in the blood.

REGENERATION OF THE CRYSTALLINE LENS.

By M. Millat.

M. Millat establishes from experience:

1. The incontestable fact of the regeneration of the crystalline lens.

2. This regeneration only takes place in the cavity of the capsule, and is more speedy, when, by the extraction, a great part of the cortical substance of the lens has been left, principally the equatorial part; it is more difficult when the animal is old and the lesions of the crystalloid body have been extensive. Inflammation of the iris and ciliary substance, far from being detrimental to the reproduction of the crystalline lens, rather favours it, but general inflammation of the eye impedes it.

3. The regeneration depends on the anterior capsule, and above all on the equatorial part, while the posterior capsule only contributes to the periphery.

4. The regeneration takes place even when the extraction of the lens has been total.

5. It begins generally at the end of the second week, is completed between the fifth and the twelfth month.

6. The crystalline lenses thus obtained by M. Millat never attained the size of the normal lens; they only attained one-half of the normal size.

7. After a partial or total extraction there is in the cavity either a regenerated lens with all its anatomic elements, as an amorphous hyaline substance containing a number of

nuclei analogous to the cells of the humour of Morgani, or else some laminated tissue with embryoplastic nuclei, co-existing with the effusion in the crystalline capsule, &c.

8. The incision of the anterior capsule leaves a shred corresponding to those of the cornea, which is of the greatest consequence in the reproduction of the lens, and the phenomena consequent on the operation.

9. In respect to the human eye operated on for cataract, M. Millat thinks except in young subjects of whom he has had no opportunity of examining the eyes, the regeneration does not generally take place.—*Annales Vétérinaires Belges*, No. 10.

The experiments of M. Millat are more important since we read in a work recently published on the diseases of the eye (Wecker, 2nd edit., t. ii, p. 12):

"For the same reason it cannot be admitted that the capsule deprived of its contents, though left in contact with its surrounding tissues, is capable of furnishing the elements of a new crystalline lens."

PUERPERAL TYPHUS.

By Cesare Allemani.

From his researches the author concludes that puerperal fever (parturient) has not been long known, the first description only dating as far back as 1818, at which time Jorg described one of the symptoms, the discharge from the mouth (abtröpfeln aus dem munde). It has been frequently observed since 1838 the Swiss and German veterinary surgeons distinguished themselves in the study of it. The French and Italian have also greatly contributed to the knowledge of its pathology. The author condemns the denomination of puerperal fever as inexact, inasmuch as there are no characters of fever present. He substitutes that of typhus, of which the comatose state seems a justification. This denomination of typhus had already been adopted by Fisher, to which the qualification of puerperal is now added, in order to designate the exact period at which it appears. By the name of puerperal typhus the author means this peculiar affection in the animal after parturition, characterised principally by torpor and paralysis, which he has, however, not observed in any other species than the bovine, and is inclined to consider with Rychner and Carsten Harms, is confined to the females of that species. This view is taken by a great many eminent authors, founded on personal observations and researches in veterinary annals; but this

view is not accepted by all, for Hering pretends that it also, though rarely, attacks the mare, ewe, goat, and sow. According to Spinola, the malady has been also observed in other animals. Röll pretends having observed it in the goat. Nevertheless, these eminent authors confine their description of it to the cow. As to the organ first attacked, the author, after having passed in review the opinions of the most distinguished writers on the subject, finds that the pathological manifestations described, however grave and numerous, do not permit a solution of this question. The opinions on the nature and seat of the disease are as numerous as they are various. The most rational opinion seems to be that of Kohne, who considers it as a paralysis of the ganglionic nervous system, extending speedily to the spinal cord and the brain; this opinion is shared by Carsten Harms and Wannovius; according to the latter, the origin of this paralysis is in the uterus. Finally, Röll considers it a functional disturbance of the brain followed by paralysis.

The same divergency of opinion exists as to the etiology of the malady in which three categories of causes are distinguished:—1st, predisposing; 2ndly, direct; 3rdly, occasional. It is unnecessary to add that, in the first category, gestation is the prominent cause, and without which the malady could not manifest itself. This, and previous attacks, tendency to an abundant secretion of milk, or superabundant alimentation, on the ground that lean and badly kept cows are seldom attacked with puerperal typhus, are the chief predisposing causes. A special predisposition has not been ascertained in cows fed on grains or provender from artificial meadows, or provender badly got in, maw burnt, &c. Although it frequently prevails in certain localities, it cannot be ascribed to atmospheric influences. Amongst the direct causes, the compression exercised on the nerves of the uterus, or on the sacral region, has been considered as one. Sudden decrease of the abdomen, poison in the blood, absorption of the sanious fluid in the uterus after the expulsion of the fœtus, &c.,—all these are reviewed by the author. Concerning the occasional causes veterinary literature contains nothing positive; the sophism of the *post hoc, ergo propter hoc,* is often applied in the enumeration and appreciation of these causes; amongst these the chilling of the skin, owing to a diminution in the temperature, atmospheric changes, and currents of air, repletion of the rumen, and the other gastric viscera, an irregular discharge of the lochias, a superlacteal secretion after purturition, the separation of the calf from its mother, and a sudden change in the diet.

As to the period of the manifestation of puerperal typhus, the majority of those who have written on it admit that it occurs only after purturition; nevertheless, some pretend having seen its manifestation before parturition had taken place, and to have seen it disappear after the act of parturition was accomplished. This assertion is, however, strongly contradicted by facts, and must be rejected unless further observation tend to demonstrate it. It has been observed immediately after parturition, though this had been accomplished rapidly, and without difficulty, and the fœtal membranes had come away without trouble. It has been observed from one to five days after parturition, some say in the first three days, and, by exception, from six to eight days. The first phenomena by which it manifests itself has also been the subject of the diversity of opinion. According to Rychner and Röll it shows itself by two symptoms, common to several maladies (shivering and trembling). Delwart assures us that sometimes an hour or two before the real attack, there these symptoms are present, loss of appetite, suspension of the rumination, staggering of the fore legs, eyes dull, watery, and half closed, mucous membranes injected, dryness of the muzzle, and coldness of the surface of the body, with acceleration and concentration of the pulse. The author says that in very rare cases where he has been enabled to observe the commencement of the attack, he has noticed the refusing of food, and the absence of rumination, the eyes half closed, the staggering gait; but has never seen the injection of the mucous membrane. The immobility of the tail, lameness of short duration, and great sensibility of the lumbar region, have been ascertained by Garreau. The proprietors say that generally the malady begins with general and violent rigors, which last from a quarter of an hour to two hours, during which the animal is in a state of great anxiety, shifting the fore feet, resting some time on the one and some time on the other; staggering sets in more and more, until after some unsuccessful attempts to lie down, the animal falls down like an inert mass. Though they are very uneasy, and evince great anxiety when down, they make no effort to get up; and it is only with great difficulty that they can be made to get on their knees and try to raise the posterior part, which is always impossible. They assume when lying a peculiar position, which seems to be constant, and has been observed by all who have written on this malady, viz. they lie extended on one side, generally the right, with the head bent on the opposite side, resting on the body.

The remainder of the symptoms are too well known to need further describing.

The course of the malady is very irregular, and is not distinguished by any manifestation of definite symptoms to divide it in three periods, as has been attempted. 1st, period of irritation; 2nd, paralysis; 3rd, typhus. The patient may die in a few hours, or live from three to four days; the latter is seldom the case; the duration is in general about two days. In a very short space of time the malady terminates either in death or recovery.

The opinions on the nature and localisation of the malady are extremely diversified; the autopsy has furnished an infinity of lesions. Röll and Spinola range it amongst the inflammations of the peritoneum and the uterus. The clots of blood and the serum present in the cranial cavity, observed by Festal and Hess, would tend to cerebral apoplexy. The effusion resembling milk, found by Sthorer in the cellulary tissue, the mediastinum, and the cranial cavity, led Wieners to describe it as a metastasis of the milk.

In reviewing the treatment, the author remarks that when bleeding constituted the panacea for all diseases, it was extensively employed against this malady, and advantageous results were attributed to it in many cases. "At the begining of my practice," the author adds, "I had recourse to this mode of treatment, but after bleeding I always found the temperature and the strength of the animal suddenly reduced, the stupor more intense, and death set in sooner. I speedily renounced a mode of treatment which aggravated the malady."

Sedatives have had no better results. Finally, the treatment which has given the most favorable results, is that which restores the activity of the nervous system, and relieves the state of depression. Alcohols and ethers, administered internally, seem best to attain that object, given at short intervals, to prevent their stimulating effect from being followed by depression of the newly acquired forces; this is powerfully assisted by friction on the skin and irritating enemas.

The author deprecates prophylactics in the shape of medicaments and bleeding, agreeing in this with the majority of practitioners. The true prophylactics are general measures of hygiene, and in this instance they are comprised in the care taken of the cows in the last period of gestation, separation of those in calf from the others, and sheltering them from the inclemency of the weather, &c.

ON FISTULA OF THE SALIVARY DUCT.

By Professor SERRES, Veterinary School of Toulouse.

M. SERRES, after describing the anatomy of the parts, and the injury to the salivary duct (canal of Stenon), recommends as the best means to obliterate the fistula the application of a blister; the ointment to be introduced into the whole extent of the sinus, to secure the obliteration by changing the condition of the tissues, causing adhesive inflammation, and establishing a natural compression. But before trying to cure the fistula the duct must be free from obstruction throughout, otherwise the remedies would be useless as the cause of the evil would be persistent.

In several cases this remedy, recommended by Professor Reynal, has not been successful, but in which the unguentum egyptiacum was employed by the author with the best results, introduced into the sinus two or three times a day, on some lint, at the end of a probe. By this means fistulæ, which resisted every other treatment, have been cured.

This ointment acts, the author thinks, by its irritating properties, and also by chemically coagulating the albumen in the saliva.

The beneficial results obtained by the ung. egyptiacum in open synovial capsules, the author says, induced him to try it in salivary fistulas.

If the fistula depends on an obstruction of the duct we can only attempt to carry out what has been adopted in human surgery by MM. Cheselden, Monro, Charles Bell, Morand, Désault, Duphênix, Dubois, Bayer, Vidal (de Cassis), Nélaton, &c., viz., to re-establish the permeability of the duct. This operation consists in removing the obstruction, destroying the cicatrix, or make an artificial canal by means of a trocar, and insert a leaden tube in it, one end of which is to terminate in the mouth, and the other at the point of the trocar.

DIPHTHERIA ETHMOIDAL IN THE OX.

By M. COCULET, Veterinary Surgeon.

Under this designation the author describes an affection of the nasal cavity which threatens the animal with asphyxia.

The difficulty of the respiration increases until the discharge of a fibrous mass, the size of a pigeon's egg, takes place, when the respiration becomes freer, but the difficulty again arises until a smaller lump is rejected from the other nostril. Besides this, there is also a constant discharge of a sero-sanguineous character, dripping drop by drop from the nose. The proprietor informed the author that the animal had been in that state for some days. However, there was very little reaction or fever; the ox fed, and ruminated nearly as usual. There was, however, a little redness of the mucous membrane, and a slight acceleration of the pulse. The author was puzzled by these symptoms, and unable to diagnosticate the seat of the malady. He confesses having only met with two cases. The ox was sold to a butcher, and it was only after examining the head that the seat of the disease was found to be in the ethmoidal sinuses.

LONGITUDINAL DIVISION OF THE PALATE.

By M. GUITARD, Veterinary Surgeon.

A RECENTLY purchased ox had a discharge from the right nostril consisting of alimentary substances and saliva when feeding or ruminating, and only of saliva when these acts were not performed.

On examination it was found that there was a longitudinal division of the palate, a little towards the right, extending from the anterior division to the posterior part of the buccal cavity. The mouth being opened by an assistant, and the fingers introduced into the division, they could be distinctly seen by looking up through the nostril. It was easy to ascertain that the fissure occupied three-quarters of the palate, *i.e.* to the anterior border of the os palatine, which lead to suppose that this bone was abnormal. The incisive arch could be reached without difficulty by the hand to the fissure of the same name, showing that it had not closed as in the normal state. This defect must be attributed to a faulty development in fœtal life.

ROYAL COLLEGE OF VETERINARY SURGEONS.

QUARTERLY MEETING OF THE COUNCIL, HELD JULY 7TH, 1869.

PRESENT:—The President, Professors Spooner, Simonds, Gamgee, Brown, and Assistant-Professor Pritchard; Messrs. Broad, Cartwright, Ernes, Fleming, Harrison, Moon, Morgan, Robinson, Wilkinson, and the Secretary, The President in the chair.

The minutes of the two special meetings were read.

Mr. Wilkinson asked if there were any remarks in any subsequent minute concerning the Committee formed at Professor Spooner's suggestion. It was desirable that some statement should be made of what became of that Committee, or what was done in reference to the communication from the Veterinary Society of the North of England.

The Secretary said the appointment of the Committee was left entirely in the hands of the late President.

Professor Simonds thought, in that case, the Council ought to have had some special report from the President respecting it.

Professor Spooner contended that any discussion as to that Committee was premature. All they had then to do was to consider whether or not the minutes were correct.

Mr. Wilkinson asked what further steps were taken in the matter.

The Secretary said he called upon the late President on the following morning after the appointment of the Committee, and was told that he (the President) would see the parliamentary agents on the subject. He did so afterwards.

The following words were then inserted in the minutes relating to the appointment of the Committee:—"It was finally arranged that the Secretary should call upon the President, who undertook to see the parliamentary agents on the subject."

The minutes were then confirmed, and also the minutes of the special meeting on May 25th.

The Secretary announced that letters had been received from Professors Williams, McCall, Brown, and Mr. Morgan, acknowledging the honour of their election as Vice-Presidents. A letter was also read from Professor Williams, of Edinburgh, regretting his inability to be present.

The Secretary laid on the table a little work entitled 'The Thermometer as an Aid to Diagnosis in Veterinary Medicine,'

by Mr. G. Armatage, which had been presented to the Library of the College.

A letter was read from Mr. George Fleming, of the Royal Engineer Train, in which he desired to present to the Museum of the College a number of ancient and model horseshoes, which had been sent to him from various parts of the country, as well as from the continent of Europe. He also desired to present a wax impression from an ancient seal belonging to the middle of the fourteenth century, representing Edward III, reared upon a lion couchant, a horseshoe and horsenails on each side of the head. These were laid on the table, when—

It was moved by *Mr. Wilkinson*, and seconded by *Professor Simonds*—

"That a vote of thanks be accorded to Mr. Armatage and Mr. Fleming; and the Secretary was ordered to have the presents made by the latter gentleman enclosed in a glass case, and a suitable mounting for the seal for better preservation."—Carried.

Professor Gamgee said during the past twelve months he had been engaged under the auspices of the American Government in investigating diseases in the United States. In connection with the Army Medical Department there, a number of gentlemen had been appointed to write the medical and surgical history of the war. As an aid to this work a photographic department had been established, and photographs had been made in large numbers of a great variety of specimens, the most remarkable of which referred to the microscopical objects. Major Edward Curtis, one of the assistant-surgeons, had devoted himself for many years, with the greatest possible success, to this subject, and he (Professor Gamgee) had endeavoured to get some specimens of what had been done. The Surgeon-General of the United States Army had kindly sent over forty-four photographs for presentation to the Museum of the Royal College of Veterinary Surgeons. Among them were some pathological specimens, showing the lesions of typhoid fever. He also wished to present to the College a photograph of Dr. John Busteed, who has devoted his life and a large amount of money to the establishment of a veterinary college in New York. That college was placed on a permanent basis, and the founder was not at all disposed to facilitate the multiplication of veterinary surgeons who are incompletely educated.

The letter from the Surgeon-General of the United States to Professor Gamgee, accompanying the presentation of the specimens, was read.

It was moved by *Mr. Wilkinson*, and seconded by *Professor Spooner*—

"That a vote of thanks and a letter from the President be sent to the Surgeon-General of the United States for the valuable present he has made, and kindly presented by Professor Gamgee, to this institution."—Carried.

It was also moved by *Mr. Wilkinson*, and seconded by *Mr. Harrison*—

"That a suitable frame be provided for the likeness of Dr. Busteed."—Carried.

It was moved by *Mr. Ernes*, and seconded by *Mr. Wilkinson*—

"That a vote of thanks be accorded to Professor Gamgee for the interest he has taken in the affairs of the College during his absence from England."—Carried.

Professor Gamgee thanked the Council for the honour they had done him, and said he had made arrangements by which large additions would be made to the Library.

The Secretary read a letter from Mr. J. W. B. Thornton, of Turnham Green, stating that he had been twenty-five years in practice, and fifteen years ago attended two sessions at the Royal Veterinary College. He wished to know if he could now be admitted.

Another letter was read from Mr. Jasper Tuck, of Lambeth, stating that he had been twenty-five years in practice, and was now desirous of obtaining the diploma of the Royal College of Veterinary Surgeons. He asked whether or not an examination would be necessary.

After a little discussion it was decided by the Council that no exception could be made in either of these cases. Unless the applicants produce a certificate of having been duly educated at one of the recognised schools, no examination could be granted.

A letter was then read from Mr. George Wyer, of Swinstead, Bourne, who stated that he had been in practice thirteen years, and had attended one session at Professor Gamgee's school in Edinburgh. He was now a candidate for the special examination.

The Secretary stated that he had informed the applicant that the special examinations were intended for those holding the Highland and Agricultural Society's certificate only, and that his attendance of one session did not render him eligible for such examination.

A letter was read from Mr. Rutherford, of Calcutta, who was on a visit in this country, and who had an interview with the Secretary on the subject of a special examination, which

had been sanctioned by the Council in July, 1867. He had stated to the Secretary that he would gladly conform to the rules submitted to him by the Veterinary Committee of the Court of Examiners on his return home.

A long letter was then read from Mr. F. Blakeway, of Stourbridge, complaining of "advertising nostrums" in the *Veterinarian*, and which he considered were detrimental to the interests of the veterinary profession.

The Secretary was instructed to inform Mr. Blakeway that this was a subject of which the Council could take no cognizance.

The election of Registrar was then proceeded with.

It was moved by *Assistant-Professor Pritchard*, and seconded by *Mr. Fleming*—

"That Mr. Coates be re-elected Registrar."

On the ballot being taken, Mr. Coates was declared to be duly elected.

A discussion then ensued in reference to some inaccuracies which had occurred in the report of deaths sent to the *Veterinarian* by the Registrar.

It was decided by the Council that the Registrar should in future place himself in communication with some one residing in the immediate neighbourhood where a person is reported deceased, in order to ascertain the truth of that report.

The Registrar for the past year then presented his report of the new members which had been added to the College, and also the names of eight members of the profession who had been removed by death since the last meeting of the Council.

With reference to the admission of new members, the report set forth that at the several meetings of the Court of Examiners, held in London, forty-five pupils from the Veterinary College had been admitted members of the body corporate, and twelve rejected. That twenty-eight members were admitted from the Edinburgh Veterinary College, and six rejected; and that eleven members from the Glasgow Veterinary College were also admitted, two being rejected. Total passed, eighty-four; rejected, twenty.

The appointment of Committees for the year was then proceeded with.

On the appointment of the Finance Committee—

Mr. Ernes said the Finance Committee went out of office on the first Monday in May, so that really no such Committee at present existed. How, then, could a report be received from them?

Mr. Wilkinson thought the Committee only went out of office when it was relieved.

Mr. Ernes.—Supposing the whole or any part of that Committee had stood for election on the first Monday in May, and had not been re-elected as members of the Council, what then? I contend that the report of a Committee that is extinct is no report at all.

The President said the present mode of procedure was in accordance with custom.

Mr. Ernes said that it did not justify the error. The Charter clearly laid down what was to be done.

Professor Spooner said that was the very thing the Charter did not do. They were in precisely the same position with regard to the President and Secretary. There was a certain period when they had neither a President nor Secretary, unless Mr. Wilkinson's view were adopted.

Mr. Ernes said the Charter contemplated that after the General Meeting the President, Vice-Presidents, Secretary, and Committee, should be elected as soon as possible.

The President.—It appears that none of the members of the late Committee have left the Council, and perhaps it will be the wish of the Council to re-elect them.

Mr. Ernes.—Then their report can be received.

It was then moved by *Professor Spooner*, and seconded by *Mr Ernes*—

"That the Finance Committee be reappointed."—Carried.

On the motion for the appointment of the Registration Committee being brought forward—

After a short discussion, it was decided that no such Committee was now required.

The next business was the appointment of a Publication Committee for revising the reports to be sent to the *Veterinarian*.

Professor Brown thought this was a standing Committee, consisting of the President, Secretary, and one Vice-President.

Mr. Wilkinson said he objected to any such Committee. It rendered the Council, in his opinion, liable for what was published, and might lay them open to an action at law.

Professor Simonds said if the Council intended to have its proceedings published at all, the report must bear the signature either of the Committee or of the Secretary. The proprietors of the *Veterinarian* could not be expected to report the proceedings, and make themselves liable for anything which might take place. There was no greater liability incurred by the Publication Committee assisting the

Secretary than by leaving the matter entirely in the hands of the Secretary. If it was intended to have the proceedings published at all in future, the Committee had better be reappointed, otherwise the publication should be dropped altogether. He would not take the responsibility himself.

Mr. Ernes thought a reporter should be admitted, and allowed to publish what he thought fit. He did not consider it advisable for the Council to publish their own reports. If the press were admitted he knew two or three reporters would be present every time the Council met.

The President said the Committee was appointed because it was the wish of the Council to have a more extended abstract of the proceedings published in the *Veterinarian* than formerly.

Mr Wilkinson said he did not object to the reports appearing in the journal, nor to the Committee revising them, but simply to the signature of any officer belonging to the College being put to them.

Professor Gamgee thought the publication of a report of the proceedings in the *Veterinarian* enabled the Council to approach the members of the profession in a way in which they could not otherwise reach them. He proposed that no alteration should be made in their mode of proceeding.

Professor Spooner said the report of what he said at the Annual General Meeting on an important subject was diametrically opposite to what he did say.

It was then moved by *Professor Gamgee*, and seconded by *Mr. Robinson*—

"That the Publication Committee be reappointed, to consist of the President, one Vice-President, and the Secretary."—Carried.

It was moved by *Professor Brown*, and seconded by *Assistant-Professor Pritchard*—

"That the House Committee consist of Professor Spooner, Messrs. Harrison, Harpley, and Withers."—Carried.

On the motion of *Mr. Wilkinson*, seconded by *Mr. Morgan*—

"The Parliamentary Committee (with the exception of Mr. Goodwin, who is not now a member of the Council) was reappointed."—Carried.

The Finance Committee reported that they had examined the vouchers and receipts of payment during the preceding quarter, and found them correct. The quarterly balance-sheet of the Treasurer's account was then read. The current expenses amounted to £87 11s. 3d., which the Committee

recommended should be discharged. This would leave a balance in hand of £980 14s. 7d.

Professor Simonds said the report was by no means satisfactory, because there was no separation between the current cash account and the money on deposit.

The Treasurer said the Finance Committee had the bankers' book, which showed all that was required.

Professor Simonds, in reply, said the balance-sheet ought to have been drawn out so as to show the money on deposit, the interest upon that money, and to what time.

Mr. Wilkinson said he could not see how such items as the interest on the money could be put in the balance-sheet.

Professor Simonds said he wanted a capital account set out, and a current account separate and distinct from that. He proposed that the account should be referred back to the Finance Committee, in order that the difference between the capital account and the current account might be distinctly shown.

Mr. Wilkinson suggested that perhaps Professor Simonds' wishes might be met by a resolution that at the next report such a statement should be added.

It was then moved by *Professor Simonds*, and seconded by *Mr. Ernes*—

"That in the next report a separate and distinct account be shown of the deposit and current accounts."—Carried.

It was moved by *Mr. Harrison*, and seconded by *Mr. Fleming*—

"That the report and the quarterly balance-sheet of the Treasurer's account be received and adopted."—Carried.

Cheques were ordered to be drawn for the current expenses—

The Secretary having submitted to the Council from the House Committee a list of repairs and additions required to the premises—

Professor Spooner said he considered the time had arrived when the House Committee might bring before the Council some suggestions as to their future location. At present they were in a miserable plight in this respect. He hoped, with the assistance of some of his colleagues, in a short time to be able to lay before the Council some suggestion for the improvement of the College premises.

It was moved by *Professor Brown*, and seconded by *Mr. Cartwright*—

"That the report from the House Committee be received and adopted."—Carried.

The Meeting having terminated—

The adjourned Special Meeting was then resumed for the further consideration of the report from the Examination Inquiry Committee.

Mr. Ernes handed in a notice of his intention to propose alterations in the Bye-Laws, desiring that it might be suspended for three months.

Mr. Wilkinson said such a course would defer the consideration of a most important subject for six months. After the notice of intention had been suspended for three months, the proposed alterations would also have to be suspended for three months.

Mr. Ernes, in reply, said it was quite enough, according to the Charter, to suspend the notice of intention for three months. It was not necessary to suspend the terms of his proposed alterations.

The Secretary read the clause of the Charter referring to this matter.

Mr. Ernes said if Mr. Wilkinson's view were correct, any one opposed to a particular alteration would be able indefinitely to postpone it by making fresh suggestions every time it was brought forward.

Professor Brown then said if it was necessary to suspend every alteration for three months, he would undertake never to allow a single Bye-Law to be altered so long as he belonged to the Council.

Mr Fleming thought it was necessary to suspend the terms of the alterations for three months, so that the members of the Council might be able to discuss among themselves as to the nature of those alterations.

Mr. Robinson said it was not in their power to alter anything that was suspended without giving another three months' notice.

Mr. Ernes said his intentions were well known. If it was necessary, his proposals might be suspended as well.

Mr. Wilkinson then said the proper way to proceed would be to have a Special Meeting as soon as Mr. Ernes was prepared to lay the subject-matter before them. They would then be able to take a *bonâ fide* step, and communicate with the heads of the various colleges with a view to securing a more improved matriculation examination. It was not necessary to suspend any notice for that purpose.

Mr. Ernes never meant to propose what Mr. Wilkinson alluded to, because the question of preliminary examination rested entirely with another body. All that the Council had to do was to examine the pupils after they came from any of the authorised schools. He, therefore, had no intention

of meddling with the schools, but left them to reform themselves.

Professor Simonds said their object must be to improve the status of the profession by encouraging better educated men to enter it. He thought it was quite competent for the Council to appoint a deputation to wait upon the authorities of the London, Edinburgh, and Glasgow Colleges, and to take counsel with them as to the best means of improving the general education of those who entered the profession. This would be a dignified course, quite in accordance with the terms of the Charter. He was not satisfied with the teachers being the examiners. The responsibility ought to be taken from their shoulders. It would be far more satisfactory to know that a Committee, appointed by the College of Preceptors or some other independent body, undertook to inquire into the attainments of pupils about to enter one of the colleges.

The President said he thoroughly approved of Professor Simonds' suggestion. He had in his pocket letters from the professors of two colleges in Scotland to the same effect. The Council could not do better than appoint such a deputation.

Mr. Fleming wished to recall the attention of the Council to the point which they were first discussing. They ought to arrive at some definite conclusion with regard to the notice by Mr. Ernes. If three months were allowed to elapse before it was known what the alterations were to be, the intervening time would be entirely lost; whereas, if the members of the Council had three months to think about them, the discussion would be more to the point, and time would ultimately be saved.

Mr. Ernes handed in a statement of his views, which he was willing to suspend.

Mr. Fleming said the alterations must be enumerated one by one.

Mr. Ernes said he had no objection to the appointment of a deputation. It would be a good start.

The Secretary then read the report of the Examination Inquiry Committee.

Mr. Ernes said the number of professors in the colleges was too small, the time too short, and there was a want of classification. The course of training should be divided over two or three years, and at the end of each year there should be an examination, when those who could not pass might be put back for a year. As far as classical education went, he was afraid it would prove a failure.

Mr. Morgan thought Mr. Ernes was wandering from the subject. The question before them was, whether or not the notice should be suspended.

Mr. Ernes said he was speaking on the question of appointing a deputation.

Mr. Morgan said there was no motion before them upon that matter.

Professor Brown thought the gentlemen forming the deputation should go to the governors of the colleges rather as representatives of the profession than as members of the Council acting in an official capacity.

Mr. Ernes said he was afraid, unless the curriculum of studies was altered, not much good would be accomplished. At present the curriculum was adapted to those of the meanest education. Such had always been the case.

Professor Simonds.—No.

Mr. Robinson thought the governors of the colleges would not allow the Council to interfere with the education of the pupils.

Professor Simonds said the governors of the colleges would be willing to take counsel with the deputation on the subject. There was already a preliminary examination, but they wished to improve it.

Mr Robinson.—Cannot you do that without going to the governors? What necessity is there for any preliminary examination?

Mr. Wilkinson.—Do you propose that all preliminary examinations shall be dispensed with?

It was then moved by *Mr. Broad*, and seconded by *Professor Brown*—

"That a deputation wait upon the Governors of the Royal Veterinary College at their next meeting."—Carried.

The following gentlemen were appointed to form the deputation, viz. the President, Professor Brown, Mr. T. D. Broad, Mr. W. Field, jun., Mr. Fleming, Mr. Harris, Mr. Morgan, and Mr. Thacker.

The Secretary was directed to write to the Principal of the Royal Veterinary College, to know at what time it would be convenient for the deputation to be received.

Mr. Ernes's notice was then suspended *pro formâ*.

By order of the Council,

WILLIAM HENRY COATES,

Secretary.

PARLIAMENTARY INTELLIGENCE.

CATTLE PLAGUE IN ROUMANIA.

FRIDAY, JULY 2ND.

Mr. Turnor asked the Vice-President of the Committee of Council on Education whether any steps had been taken to procure a report by a competent veterinary surgeon on the cattle plague in Roumania, in accordance with a suggestion made by Her Majesty's Consul at Jassy in a despatch dated January 1, 1869.

Mr. W. E. Forster replied that after having given the despatch full consideration, and also after considering the information which the Government possessed, they did not think it to be a case in which the Treasury should be asked to incur the expense necessary to procure the report.

THE CATTLE PLAGUE IN CHESHIRE.

TUESDAY, JULY 13TH.

Earl Grosvenor rose to move, that in the opinion of this house the distress occasioned by the cattle plague to the ratepayers of the county of Chester entitles them to the favorable consideration of Her Majesty's Government, with a view to some remission of the heavy debt incurred for the amount of compensation. He pointed out how greatly Cheshire had suffered from the cattle plague, and argued that they were fully entitled to the compensation he demanded.

Mr. Egerton seconded the motion, which was supported by *Mr. Carnegie*, *Mr. J. Tollemache*, and *Mr. Henley*.

The *Chancellor of the Exchequer* regretted the calamity that had fallen on Chester, and if he could give that county relief without putting a burden on others he should be happy to do so; but Chester had borrowed £266,000 of the Government, and now asked to be relieved from their obligation. They were bound to resist such a motion in order to prevent Chester from getting rid of the obligation she had incurred.

After some remarks from Mr. W. Egerton, Colonel Amcotts, Mr. D. Chadwick, Mr. T. Collins, Mr. Melley, Mr. Gladstone, and Mr. Laird,

The house divided; the numbers were—

For the motion	... ...	85
Against it	... ...	126
Majority	... ...	—— 41

THE CONTAGIOUS DISEASES (ANIMALS) BILL.

This bill having passed through Committee, has been reported, and passed its third reading in the Commons. It is now with the Lords, but we do not opine that it will undergo any material change affecting its principle in the Upper House.

Several amendments were made in its provisions in the Commons, but the proposition to establish a foreign market for all foreign cattle was negatived on a division.

ARMY APPOINTMENTS.

War Office.

Veterinary Department.—The undermentioned gentlemen to be Acting Veterinary Surgeons: J. J. Plunkett, *vice* Berne; W. D. Sartin, *vice* Going; S. R. Sartin, *vice* Hammond: S. M. Wilson, *vice* Aitken: R. Rowe, *vice* Rogerson; J. E. Elphick, *vice* Knott; W. J. Masters, *vice* Gould—all appointed to the Royal Artillery.

THE PROFESSORSHIP OF ANATOMY IN THE EDINBURGH VETERINARY COLLEGE.

We have the pleasure to announce that the election of a Professor of Anatomy in the Edinburgh Veterinary College has fallen on Mr. W. C. Branford, M.R.C.V.S., Oundle, Northamptonshire. Mr. Branford, who was a pupil of the London College, obtained his diploma in 1857, and shortly afterwards entered on the practice of his profession at Oundle. His success as a practitioner was great, and he both well deserved and possessed the confidence of his employers. In his new sphere of action, we doubt not all his powers will be put forth for the benefit of those whom he will have to instruct.

PRESENTATION TO MR. J. FRYER, M.R.C.V.S.

A meeting of the Committee and subscribers to this testimonial was held at the Black Swan Hotel, Bedale, on Tuesday, June 8. Amongst those present were:—T. C. Booth, Esq., of Warlaby; Capt. Booth, of Killaby; C. Clarke, Esq., The Hermitage; C. Other, Esq., Richmond; Rev. T. C. Wilson, Kirby Fleetham; Messrs. J. Walker, Young, J. Outhwaite, W. Barrowby, W. H. Fisher, E.

Fryer, J. Fryer, W. White, Dobson, Whitton, H. Jerman, Donnesthorpe, Kirby, Carter, &c. &c. The meeting was convened to present Mr. J. Fryer (who filled the onerous office of inspector of the cattle plague) with three handsome presents, as a token of appreciation of the services rendered by him during the late lamentable outbreak of cattle plague. T. C. Booth, Esq., of Warlaby, occupied the chair.

The Chairman said that he could have wished it had fallen into other hands to make the presentation he was about to make to his friend on the right. Hundreds and thousands of cattle had died in the years 1865-6 through the cattle plague; and Mr. Fryer had always told him that nothing could be done to save the cattle of the country but stamping the disease out. He (the Chairman) was a large owner of cattle himself, and, at first, was rather inclined to object to the stamping-out system; but, after a good deal of conversation with Mr. Fryer on the subject, he agreed with him that it was the only safe remedy that could be adopted. He was of opinion that, through the exertions of Mr. Fryer and those working with him, the plague was stayed from going further westward. In the districts in which Mr. Fryer was appointed inspector, his efforts had proved very successful in every instance. He had great reason for thankfulness to Mr. Fryer; and it was one of the most gratifying of all things to be present on that occasion. The Chairman then read an address to Mr. Fryer, elegantly illuminated in the style of the Missal of the 11th and 12th centuries, with the colours used by the monks —principally cadmium, gold, oxide of chromium, &c. The document contained a list of about 150 subscribers, and was as follows:—

"Mr. John Fryer, F.R.C.V.S.L.

"Dear Sir,—The terrible cattle plague which afflicted this country in 1865-6 will long be remembered for the havoc it created in our herds.

"At the outbreak of the plague you were appointed inspector of the divisions of Allertonshire and Hang East, and your experience in treating the disease soon convinced you that it was *incurable*.

"Acting on that conviction you urged the landowners and farmers of Hang East to raise a *fund* to purchase the diseased animals, destroy, and bury them. This course was promptly adopted, and thus the further spread of the plague was stayed.

"There being a strong feeling in the neighbourhood that your conduct under these trying circumstances deserved some public recognition, a meeting was held on the 17th March, 1868, at the Black Swan Hotel, Bedale (T. C. Booth, of Warlaby, Esq., in the chair), when it was resolved:—'That, considering the disinterested conduct of Mr. John Fryer, and the great diligence and energy displayed by him in "stamping out" the cattle plague, his services deserve to be publicly recognised.'

"Accordingly, an influential Committee was formed, and they have now the pleasure of informing you that they have been liberally sup-

ported by the landowners, farmers, and others in carrying out the object they had in view, and it is with much satisfaction that they present you this day with three valuable and handsome works of art, which they feel sure you will be gratified to receive, and to hand down to posterity as heir-looms.

"The first :—An oil painting, a portrait of yourself, executed with much artistic taste and skill by Mr. Hugh Jerman, of Kirkby Fleetham, a portrait which, as it reflects credit on the artist, will for many years to come (as we hope) reflect a pleasing and faithful likeness of yourself, and convey to your descendants a just idea of their worthy sire, who was held in such high respect by his neighbours.

"The second :—An elegant frosted-silver epergne, with appropriate designs on the base, which suitably indicate the object of the testimonial.

"The third :—A time-piece, which we trust will long remain in your family, a memento of a past affliction, and at the same time a slight token of the estimation in which you are held by the subscribers.

"With every desire for your future welfare, and in appreciation of your past public services, the Committee now authorise me to present you with this testimonial.

"Bedale, June 8, 1869."

Mr. Fryer, who was loudly applauded on rising, said that after the very flattering remarks that had fallen from the Chairman, asking him, in the name of the subscribers, to accept the magnificent testimonial, he felt at a loss for terms in which to express the deep obligations under which he had been placed by their great kindness. He could not but think that any services rendered by him during the dreadful visitation of the cattle plague had been greatly overrated. He did, to the best of his ability, his duty. This they had a right to expect, but he was not aware that he did more than any inspector ought to have done, who had any sense of honour, or a proper consideration for those whose property was so seriously endangered. When first appointed cattle plague inspector he, like most of them, thought it very unreasonable that all cattle attacked with the rinderpest should at once be slaughtered without a fair trial of the *vis medicatum ;* but a very little experience convinced him that medicine was of no avail, and to nurse the disease was only to generate a vast amount of infection, to be carried by the winds over the whole district, so that cattle two or three miles distant were not safe from an attack of this dreadful disorder. He named to a few persons deeply interested in the matter, living in the petty sessional division of Allertonshire, the necessity for checking its progress by killing all infected animals, and giving compensation. But he regretted to say that not one of them fell in with his views, and the proposition failed. But when that terrible plague in its rapid progress reached the district of Hang East, it became to him a time of the greatest anxiety, and he had no doubt that most of them shared

that feeling with him. He had for long endeavoured to convince all with whom he conversed on this matter that if they wished to get rid of the disease, they must kill all infected cattle. With this object in view, he wrote to Mr. Pulleine, of Clifton Castle, asking him to call a meeting of the landowners and tenant farmers, and he should ever feel thankful to him for the readiness with which he complied with his wishes. What the result was they already knew—the district was saved from a severe visitation, and this with the sacrifice of only twenty-three head of cattle, and a comparatively insignificant pecuniary payment. To him it was an anxious time, because he had undertaken to carry out what all considered difficult, and many impossible; and had he not succeeded they knew the penalty that usually attached to failure, however well directed the efforts may have been. He certainly received as liberal a share of abuse as most people did who had an unpleasant office to fill. But this he could charitably overlook, and wait till the storm blew over; for he knew full well that a change of opinion must come. He had a few good and kind supporters, and when he had power to cope with this terrible malady, he could set about to carry out the wishes of the subscribers and the committee with promptitude. He felt flattered to find that they thought his efforts had done some good in the way of saving a good deal of valuable stock in this, and preventing the spread of the disease into other localities. There were some pleasant reminiscences connected even with the discharge of a disagreeable duty; and in honour to the gentlemen who were so unfortunate as to have the plague on their premises, he must say that in nearly every instance they treated him with the greatest kindness and consideration, and were ready and willing to carry out his instructions. But he could not say as much for many who had no cause to complain. He thought he ought to tell them that he never saw one killed out of the very great many cattle destroyed by his orders. This gave him just reason to be proud of the confidence that was placed in him, and that on the whole he was satisfied that his orders were faithfully executed. He would not detain them longer, but from his heart thanked the subscribers for their liberality, and the committee of management for the trouble they must have taken to raise the means to purchase such beautiful works of art. He should especially value the address, as containing the names of so many kind friends, whom he hoped for some years to see. He had great pleasure in accepting the testimonials; and would hand them down as heir-looms in his family, so that his children and their successors, as they read over the inscription and the names, might be reminded of the sad trials through which the agricultural interests had passed. In closing he hoped that God might in His mercy avert from the shores of Britain such another calamity. He thanked them again for their kindness, and resumed his seat amidst loud cheers.

Veterinary Jurisprudence.

INJURY TO CATTLE FROM EATING OAK FOLIAGE.

A CASE was heard before Judge Herbert, at the County Court, held at Monmouth, July 12. His Honour observed, it would have been well for the public at large had such a case been heard many years before.

The plaintiff, Mr. James Dyer, a farmer, occupying, under Colonel Clifford, the "Grange Farm," about eight miles from Monmouth, sued Mr. Richard Shaw, timber merchant, of Hereford, for £45, damages sustained by the death of four of his cows from browsing on the buds or foliage of some oak trees, bought by the defendant of Colonel Clifford, and standing on the plaintiff's farm.

Mr. W. C. A. Williams, of Monmouth, was for the plaintiff, and Mr. Gwillim, of Hereford, conducted the defendant's case.

The plaintiff said that there was no agreement between himself and his landlord, and consequently no reservation. In the early part of April last—on the 9th, or within a day or so of it—the defendant's men entered his farm and cut down about forty oak trees; they were engaged in cutting during eight or ten days. He had twelve young cattle which had the run of a "brake" and seven or eight fields besides. A man in his employ, named Richard Adams, had received instructions to keep certain gates closed while the bark was down in the meadow. Adams was at work in these fields during three weeks, all but a day and a half, and he (plaintiff) on going his rounds, as he usually did, night and morning, had seen the cattle in latter part of April or beginning of May, browsing on the foliage of the oak. He turned them out and shut the gate. This was on the Friday before Whitsunday, and on the latter day he went down to the field, and observed three of the cattle looking "mopy" and bad. He had a farrier to them, and got some medicine, but a "big steer" died the next day. Three others died in the course of the week, the last living about nine days from the time he first observed the cattle. Mr. G. Lewis, veterinary surgeon, made a *post-mortem* examination of the last animal that died, and proved that the cattle died from having eaten of the oak, or, in other words, from the presence of "tannin." On analysing the contents of the stomach of one of the beasts which he had taken home for the purpose, he found unmistakeable evidence of its having been poisoned by the effects of tannin. It was present in large quantities, quite sufficient to account for death. The fact was, that at particular periods of the year the oak contained a larger percentage of tannin than it did at other periods, and if taken in sufficiently large quantities, as these animals would have taken it, it was indeed the strongest astringent of its class known, and its effects would be to produce obstinate

constipation, in other words, it absorbed the juices secreted by the stomach and intestines, and hindered and prevented digestion; producing constipation, and fever and death as the consequences.

Evidence was given in support of the facts of the case, and Mr. Gwillim proceeded to address the Court for the defence, when his Honour directed his attention to the opinion of Mr. Justice Blackburn laid down in Growcott *v.* Smith, Exchequer reports, that, "As a general rule of law a man was bound to use his property so as not to injure his neighbour." It appeared to him that "when a party altered things from their normal condition so as to render them dangerous to any acquired rights, the law casts on him the obligation of fixing the danger so as not to be injurious to those rights." In the course of further argument his Honour held that it was incumbent on the defendant to have "fenced" the trees, so as to have rendered them innocuous to the acquired rights of the plaintiff. He thought it abundantly proved in this case that the cattle died from the effects of browsing on the oak trees. In his opinion it was an analogous case to one wherein an appeal was made against the decision of a brother judge of his in a county court of Flintshire. That case was one in which the mineral rights and surface rights in some land belonged to different parties: that is, the landlord let the surface rights, and reserved the mineral rights to himself, with the power to break through the surface at any time—making shafts for minerals. He did enter upon those minerals, and made shafts upon the land in the occupation of the farmer, who contended that it was necessary—but the owner contended that it was not necessary—for him to fence the shaft. One of the farmer's cattle fell down the shaft; and it was held that the proprietor was using his own rights in a way that was dangerous to the rights of the person who was in enjoyment of the field, and that he was bound to fence the shaft. That, his Honour continued, seemed to him to be a precisely analogous case to this, and it was a very recent case, being reported in either the first or second volume, he could not exactly say which, of the "Law Reports"—he thought in the Exchequer, Williams *v.* Growcott, 4, West and Smith. In this case the plaintiff had already acquired rights—the right of occupation, and the enjoyment of rights running over the whole land. But a perfect stranger to him came upon the land and exercised certain rights, uses his property, cuts down trees, and uses the property in such a way as to be dangerous to the occupation of the land; and, carrying out those principles, he was bound to fence this danger between himself and the occupier of the land. His Honour then gave judgment for the plaintiff for the full amount claimed.—*Hereford Journal.*

OBITUARY.

We regret to have to record the death of Mr. W. J. Goodwin, M.R.C.V.S., who died at his residence, at Hampton Court, on Saturday, July 17, in the seventy-first year of his age. Mr. Goodwin had held in succession the office of veterinary surgeon to their late Majesties George IV and William IV, and, on the accession of Her Majesty the Queen, the appointment was continued. A few years since, however, he retired from all active duty in connection with this office.

Mr. Goodwin was among those who took a leading part in obtaining the Charter of Incorporation of the veterinary profession, and was one of the first elected members of the Council in 1844, which office he continued to hold during a period of seventeen years. In 1853 he was elected President of the College, and subsequently he held office as a Vice-President for a period of eight years, when failing health prevented his attendance at the Council Board. For a period of six years he was also a member of the Court of Examiners.

Few men took a greater interest in the welfare of the Royal College of Veterinary Surgeons than Mr. Goodwin. His numerous presentations to the library and museum bear testimony to his uniform liberality, and evoked from the Council on many occasions their warmest thanks.

On a recent occasion he urged upon the Council the great necessity there was that the Royal College of Veterinary Surgeons should possess a building more fitted for its requirements than the present one. He justly observed that there were few persons who understood the difference between the Royal Veterinary College and the Royal College of Veterinary Surgeons, and that if a suitable building could be obtained, with a good library and museum attached, it would do much towards a better recognition of the profession by the public. He further expressed his willingness to assist with other liberal members of the profession in providing funds for such a purpose.

Mr. Goodwin was well known to the sporting world, and in his capacity of veterinary surgeon to his late Majesty George IV he laid the foundation of the royal stud at Hampton Court paddocks. He was a frequent contributor to the sporting periodicals, and also for many years a zealous supporter of the *Veterinarian*.

In 1821 Mr. Goodwin had the honour of being enrolled, by the authority of His Majesty the Emperor Alexander I, a First-Class Member in Veterinary Medicine of the Royal College of Medicine of Russia. The Diploma granted on that occasion bears date Nov. 16th, 1821, and is now in the keeping of the Royal College of Veterinary Surgeons. Besides being a member of the veterinary profession, Mr. Goodwin was also a graduate of the Royal College of Surgeons. His Certificate of Examination as a Veterinary Surgeon is dated April 22nd, 1817.

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Communications and Cases.

ON THE RECIPROCAL INFLUENCE OF ANIMALS IN THE PRODUCTION OF DISEASE.

By G. Fleming, Royal Engineers.

Among the many more notable causes which tend to the production of disease in man and the lower animals, there is one which, I think, has received but little attention, probably from the comparative obscurity which attends its operations, the fact that these operations are generally overlooked in discussing the more salient characteristics of the actual organic disturbance, and also, in all likelihood, because the observations necessary to accurately define this influence and the extent of its power are somewhat few and far between. I allude to the reciprocal action or influence of animals of the same or diverse races on each other in the production of special maladies, even when previously healthy.

Among the observations which appear to establish the existence of such an influence there are some which have long been accepted as correct, and therefore reliable, while others require further investigation before they can fairly be admitted as evidence. In the following remarks I will adduce the principal facts relating to this matter with which I am acquainted, my desire being merely to point out to those who are favorably situated for the observation of such interesting occurrences in comparative pathology that such an influence is in operation, and that by extending the sphere of inquiry much valuable information may be added to that already acquired.

My researches, I regret to say, have not been so satisfactory as I could have desired in a matter of this kind, but the pathologists, travellers, and others who have noticed this particular morbific quality are scarce, and their writings are not readily accessible.

The human species appears to afford us the most striking examples, possibly because observers have been more numerous and intelligent than in the case of the lower animals. One of these is given by my friend Mr. Bates, in a work recently published,* and is a startling instance of the mysterious manner in which disease arises from the approximation of two races of men. This distinguished naturalist, when on the Upper Amazons, writes, "The Passés are a slenderly-built and superior race of Indians, distinguished by a large, square, tattooed patch in the middle of their faces. The principal cause of their decay in numbers seems to be a disease which always appears amongst them when a village is visited by people from the civilised settlements—a slow fever, accompanied by the symptoms of a common cold, 'defluxo,' as the Brazilians term it, ending probably in consumption. The disorder has been known to break out when the visitors were entirely free from it; the simple contact of civilised men, in some mysterious way, being sufficient to create it. It is generally fatal to the Juris and Passés; the first question the poor, patient Indians now put to an advancing canoe is, 'Do you bring defluxo?' It fills one with regret to learn how many die prematurely of a disease which seems to arise on their simply breathing the same air as the whites."

Langsdorf,† many years ago, stated that the Maynas, another race of Indians, constantly suffered from catarrhs and dysentery if Europeans came amongst them.

Humboldt‡ says that the great epidemics of yellow fever at Panama and Callao were "marked," because they occurred on the arrival of ships from Chili, owing, it was supposed, to the people from that temperate region first experiencing the fatal effects of the torrid zone. "In the Port of Panama, as at Callao, the commencement of the great epidemics is most frequently marked by the arrival of some ships from Chili,—not that this country, which is one of the finest and most healthy on the globe, can transmit a disease which has no existence there, but because its inhabitants, transplanted to the torrid zone, experience to the same degree as people from the north

* The 'Naturalist on the Amazons,' pp. 194, 240.
† Schnurrer, 'Pathologie,' p. 266.
‡ 'Neu Spanien, vol. iv.

the evil effects of an excessively hot air, vitiated by the mixture of putrid emanations."

This very mortal disease was not known in America before the discovery of that continent by Europeans, or even before the introduction of negroes. Numerous authors have endeavoured to show that it has only been developed in consequence of the commingling of races.

Eichorn * informs us that, at Soto la Marina, in Mexico, a day's journey from the coast, no diseases of this kind were present until the arrival of white men; but no sooner had these taken up their abode at that place than the yellow fever appeared. Mr. Birmin reports that the western shores of America are not visited by this disease. "But," he adds, "if commerce ever gathers a number of strangers on these shores, I am sure that the disease will be as frequent as on the eastern shores." †

Darwin,‡ alluding to the destruction of the aborigines in New South Wales, by vice and disease, goes on to say, "Besides these evident causes of destruction, there appears to be some mysterious agency generally at work. Wherever the European has trod, death seems to pursue the aboriginal. We may look to the wide extent of the Americas, Polynesia, the Cape of Cood Hope, and Australia, and we shall find the same result. Nor is it the white man alone that thus acts the destroyer; the Polynesian of Malay extraction had, in parts of the East Indian Archipelago, thus driven before him the dark-coloured native. The varieties of man seem to act on each other in the same way as different species of animals, the stronger always extirpating the weaker. It was melancholy in New Zealand to hear the fine energetic natives saying, 'they knew the land was doomed to pass from their children.'"

Captain Beechey § states that the inhabitants of Pitcairn Island are firmly convinced that after the arrival of every ship they suffer from cutaneous and other disorders. He, however, imagined that this might be attributed to the change of diet many of them experienced during the time of the visit.

Vancouver makes a similar statement with regard to Otaheite; indeed, it is a general belief among the natives, that the whites import all diseases into the south—the Gambier islands, Rapa, Raivavai, Tubuai, Rurutu, and Raratonga. In the latter island a destructive pestilence broke out imme-

* 'Das Galbe Fieber, p, 155. † 'Basil Hall's Voyages,' p. 229.
‡ 'Voyages of Adventure' and Beagle,' vol. iii, p. 520.
§ 'Voyages,' vol. i, chap. iv.

diately after some trading between the natives and the crew of an apparently healthy European ship. And the Rev. J. Williams, who relates this occurrence, remarks that the first intercourse between natives and Europeans "is invariably attended with the introduction of fever, dysentery, or some other disease, which carries off numbers of the people. It is certainly a fact," he maintains, "which cannot be controverted, that most of the diseases which have raged in the islands during my residence there, have been introduced by ships; and what renders this fact remarkable is, that there might be no appearance of disease among the crew of the ship which conveyed this destructive importation." *

It is curious, but by no means remarkable, to find among these people a great dread of strangers. This is particularly the case with the natives of Niue, an island in the Western Pacific Ocean, which in former times was named Savage Island. It seems this unenviable sobriquet was obtained in consequence of their killing every stranger who landed, even any of their own countrymen who returned after a lengthened absence, from their superstitious dread of disease. In their intense fear of sickness, they prayed to the dreaded sailing gods to avoid their shores, like the Samoans and other islanders, who, before tasting the cup of ava at evening meal, poured out a libation to their various deities, never forgetting these especially. "Here is ava for you. Oh, sailing gods! do not come ashore at this place, but be pleased to depart along the ocean to some other land." †

And not without reason do these doomed people pray. "Unfortunately, those interesting islanders disappear more rapidly than the darker races. In consequence of their contact with Europeans, certain terrible diseases become almost epidemic. Malan, when first occupied by the American Mission, had a population of 20,000; last year it consisted of a miserable remnant of about 1000, or a little more." ‡

The opinion that white people carry about disease with them also prevails in Celebes, where Brooke was, on that account, prevented from landing. §

The belief that the virus carried about by Europeans was purposely let loose upon the natives—a belief that long prevailed throughout New England—probably arose from the circumstance that, after the stranding of a French ship, near Cape Cod, there broke out among the Indians, in 1616, a destructive pestilence, which so depopulated the coast for a

* 'Narrative of Missionary Enterprise,' p. 282.
† Hood, 'Cruise of the Fawn,' p. 20.
‡ Ibid., p. 178.
§ 'Narrative of Events in Borneo and Celebes,' p. 48.

distance of several hundred English miles, that the survivors were unable to bury the dead.*

Livingstone affords us a noteworthy example of people in South Africa, who were unaffected by disease, being the cause of its outbreak in others with whom they chanced to come in contact. "The Boers under Potgeiter visited Algoa Bay for the first time about ten years ago, in order to secure a port on the east coast for their republic. They had come from a part of the interior where the disease called croup occasionally prevails. *There was no appearance of the disease amongst them at the period of their visit*, but the Portuguese inhabitants of that bay found they had left it among them, and several adults were cut off by a form of the complaint called 'laryngismus stridulus,' the disease of which the great Washington died. Many of the inhabitants here were cut down, usually in three days from their first attack, until a native doctor adopted the plan of scratching the root of the tongue freely with a certain root, and giving a piece of it to be chewed."†

Nearer home we have a similar instance of the influence of proximity in the case of the people of St. Kilda, a small island lying off the Scottish coast, and inhabited by some thirty or forty poor families, who but rarely hold communication with the mainland. It is asserted, that on the arrival of a stranger all the inhabitants, in common phraseology, "catch a cold." Nearly every year there is an epidemic catarrh following the presence of visitors from the adjacent coast.‡

The effects of overcrowding of men and animals are well known. Maladies of various kinds, oftentimes of a contagious character, become rife and fatal among them. Even when apparently healthy themselves, organisms which have been submitted to these influences have not unfrequently become agents in the transmission or generation of these diseases. Many instances are related, but the following occurrence, told by Darwin,§ is a remarkable illustration. In the early part of the reign of George III, a prisoner who had been confined in a dungeon was taken in a coach with four constables before a magistrate, and although the man himself was not ill, the four constables died from a short putrid fever, but the contagion extended to no others. "It would almost appear," continues Darwin, "as if the effluvium of

* Drake, 'Hist. and Antiq. of the City of Boston,' p. 30.

† 'Journeys,' &c., p. 649.

‡ Macculloch, 'Western Isles,' vol. ii, p. 32; Pennant, 'Travels in Scotland.'

§ Op. cit., p. 521.

one set of men shut up for some time together was poisonous when inhaled by others (and perhaps more so, if the men are of different races)."

It has been believed for a long time that young people will lose their health, and even die, if compelled to associate and sleep with aged individuals. Many apparently authentic cases of this kind have been adduced.*

Among the lower animals, as I have already stated, the observations have not been so numerous, or perhaps so striking, as in mankind. With them as with the human species, however, it is undoubtedly a fact that, until the introduction of certain species of creatures, or even varieties of the same natural family, particular maladies were unknown to the indigenous races; and that as soon as these new arrivals appeared, though no symptoms of disease could be detected in them, yet affections of an oftentimes deadly nature, and frequently epizootic in character, have been developed. Some of these maladies would, doubtless, in time all but, if they did not entirely, exterminate the native breeds—just as many savage races of men on the American, Asiatic, African, and Australian continents have been decimated after their having been in contact with white people—leaving the imported ones in possession of the country.

What better proof of the truth of this assertion could we have than in the cattle plague—a disease which, in the Steppe bovine race, sometimes appears in such a mild form as to be nearly, if not quite, imperceptible; and yet the introduction of the animals among the herds of other, and particularly western countries, is attended with the greatest risk of a fearful mortality, from which the invading troops are largely exempt. Russian authors, as Lepechin and Jessen, have certainly stated that the cattle plague is primarily developed in the migrating droves, and several other authorities—amongst them Paulet, Huzard, and Rawitsch—have professed the same opinion. They quote repeated observations which show that cattle which left Russia or Hungary in perfect health and good condition were only attacked with the disease when they had been some time on the way, or even when in Germany or France. Hurtrel d'Arboval declares that a Hungarian ox, deprived of salt and heated by a forced journey, is, perhaps, the animal most to be dreaded amongst its own species. But though these fortuitous circumstances of hunger and fatigue are laid much stress upon by these veterinarians, there are, nevertheless, men of high repute who believe that such cattle have infected those of other countries, particularly

* Stark, 'Pathologie,' vol. i, p. 363.

French and German beasts, without being themselves affected. Heusinger, remarking on this, thinks it very singular, "and tends to prove that these animals develope a miasma which does not act on themselves, but on animals of another breed."*

The Texan cattle plague may also belong to this type of bovine disease.

The contagious foot-rot of sheep (*pietin contagieux* or *Espagnol* of the French, the *Spanische klauenseuche* of the Germans) is another of these instances in which we have the development of a morbific agent in these creatures after leaving Spain, and on their arrival in countries where such a disease was previously unknown. This malady had not been seen, it appears, in France, Italy, or Germany, before the introduction of Merino sheep fom Spain; and from the evidence afforded it is believed that no such affection prevails in that country. Chabert, who was the first to describe it in 1791, and who saw it on the banks of the Gironde, in Bas Medoc, and in the Pyrenees, said it was enzootic there. Some time afterwards it was observed in Central France, in Piedmont, and in England; in Germany it has been known since 1815 or 1816. This destructive contagion has frequently appeared in the epizootic form, and though it has now domiciled itself in these countries, yet the Merino breed out of Spain are most predisposed to it.

It is also worthy of note that one of the most fatal maladies to which the ovine race is liable in western countries is the "louping ill," or "trembling disease," first described by Tessier in 1810, which has only been developed and become hereditary since the importation of Merinos.† It was not known before that time, and I am not aware that it has been observed in Spain.

Mr. Darwin notices the occurrence of disease after foreign sheep had been mixed with home flocks: "I have heard it stated in Shropshire, that sheep which have been imported from vessels, although themselves in a healthy condition, if placed in the same fold with others, frequently produce sickness in the flock."

There is much mystery attached to the origin and spread of the so-called venereal disease of the horse (maladie vénérienne, syphilis, épizootie chancreuse, typhus vénérien, &c.)—a disease which does not appear to have as yet manifested itself in this country, but, doubtless, like so many which have come to us from a foreign source, only awaits importation.

* 'Recherches de Pathologie Comparée,' vol. i.

† Richthofen, 'Die Traberkrankheit,' p. 19.

This "maladie du coit" was not known before 1796, when Ammon observed it in North Prussia. It was believed, however, to have been previously known in Russia, and Renner, who thought it originated in that country, witnessed its effects in the Imperial stud; it prevails with most violence in Southern Russia. Since its first appearance it has spread to various parts of Prussia (though its ravages lately have been promptly checked by legitimate measures), Hanover, Bohemia, Hungary, Pomerania, Silesia, Styria, Switzerland, Wurtemburg, and France, sometimes showing itself in an epizootic form. It has appeared in Algeria since the French occupation of that country, and the Arabs, who designate it "El Dourine," maintain that it was introduced by their invaders. So mysterious has been the advent of this contagion, that one feels inclined to inquire if it be not one of those inflictions due to the commingling of races. As profound a mystery involves the origin of syphilis in the human species. It can be traced no further back than the end of the fifteenth century, and has generally been ascribed to contact with the natives of America. Strange to say, however, the evil is not known among the primitive tribes who have not been visited by the civilization and infection carriers of the Old World.

Bollaert, whose long and intimate acquaintance with the *indigènes* of the South American continent constitutes him a trustworthy authority, writes: "Much has been written on the subject of syphilis having been brought originally from America. I believe that those Indians only who have been in contact with Europeans have contracted it from them, and that those Indians who live in their wilds are entirely free from any such disease. I fear that this scourge, introduced by Europeans, is thinning off the people of Polynesia; and from my own explorations among the Indians of Tierra del Fuego, the disease has been communicated by sealers and whalers, who had been known to take away squaws for a time."*

These facts, concerning the results of observations on man and animals, may be worth some consideration when attempting to solve the genesis of various diseases whose presence cannot be otherwise accounted for. As intercourse is maintained and extended, and as different races of men and animals are brought into closer contact through the increased facilities offered by modern civilization, so does it appear that diseases become multiplied in number, and offer greater diversity of character. Seeing the great obscurity that veils the commencement of these, and never for a moment doubting

* 'Memoirs Anthropological Society of London,' vol. i, p. 100.

but that the human intellect will eventually be made competent to trace their source and cause, without invoking the aid of the *quid divina* of the superstitious idler, every well ascertained fact bearing on this subject should be noted, and the student of comparative pathology is in a much better position to observe what takes place around him, and to furnish better data for the medical man who seldom extends his gaze beyond his own species. It was to draw attention to this opportunity possessed by veterinarians, and to the interest and importance that invests a subject which, I fear, I have scarcely illustrated sufficiently to make this importance apparent, that induced me to throw together the foregoing notes. It must be remembered, in investigating the origin and spread of certain diseases, that animals coming from distant countries, with a constitutional predisposition to the maladies of those countries, may, when placed under the influence of certain agencies in their new abode, develop these diseases, which until then were unknown there. In this way hydrophobia has been introduced to the Mauritius in recent years, and perhaps to other regions where it was not previously seen. Glanders, strangles, bovine contagious, pleuro-pneumonia (which, within this century, has been spread to every quarter of the globe from one or two centres on the European continent), and other affections peculiar to the lower animals, can be so originated in a new country, and establish themselves there. Of this there is an abundance of evidence. Not so, however, with regard to the influence of the commixture or contact of races in inducing the appearance of disease, or in accounting for the springing up of morbid phenomena before unknown.

I have said nothing of the influence of one species of animal on another, though the existence of such an influence has been long noted. It is said, for example, that the hog is possessed of a morbid influence which it exercises over all the domestic animals kept near it, and many old laws are still to be found prohibiting their being kept in towns; and it has been told that crabs die if pigs pass under the cart in which they are being carried. It is also asserted that silk-worms perish when they are tended by negroes, probably because of the deleterious action of their cutaneous secretions on these insects. Even silk-worms themselves may, it appears, exert an evil influence, as for ages silk-worm establishments have been believed to be unhealthy for men and animals. At Milan, during the plague in 1488, 1523, and 1576, these were suppressed,* and one writer, Morici, goes so far as to

* Ferrario, 'Statis. Med. di Milano,' vol. ii, p. 267.

declare that the silk-worm breeding establishments in Sicily may be ranked as one of the causes of malignant intermittent.* But instances of this kind need not be multiplied, after what I have already stated, as I trust sufficient has been shown to indicate what a curious and valuable subject lies before us for investigation.

TREATMENT OF LAMINITIS WITH MR. BROAD'S SHOE.

By J. Woodger, M.R.C.V.S.

When I read Mr. Broad's paper "On the Treatment of Laminitis," I very much doubted that there could be any benefit whatever from such a method; but, in April last, I paid Mr. Broad a visit, and then had the opportunity of seeing, to my surprise, the treatment and recovery of a severe acute case, arising from over-exertion, which occurred some twenty miles from Bath. I must now confess that I have altered my views of Mr. Broad's treatment, and certainly believe it to be the best that can be adopted.

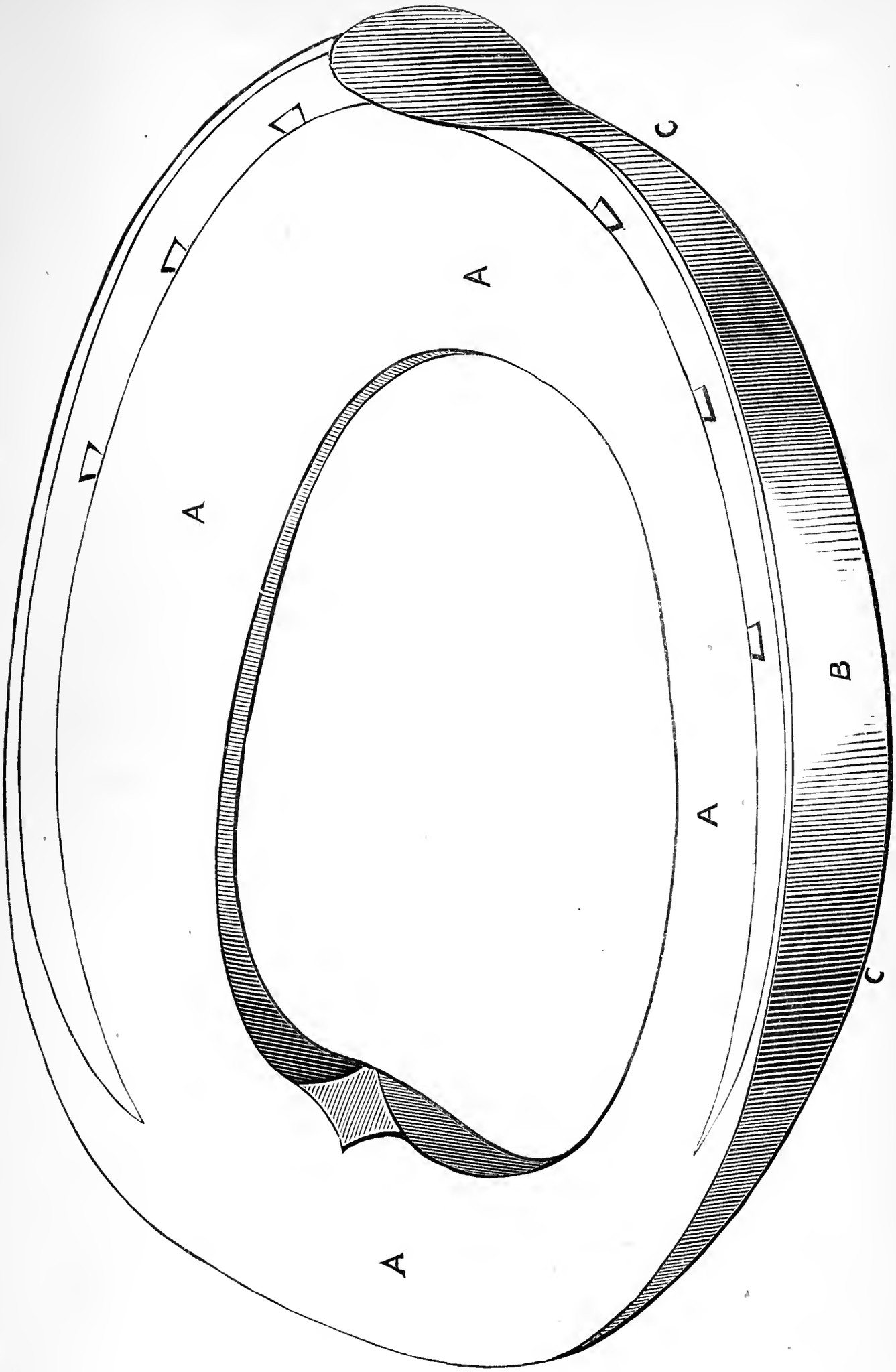
Referring to the question of stout shoes for weak flat feet, forty-eight years' experience of a large shoeing establishment in London has proved to me that there is not the slightest doubt of their benefit; and I believe every one who has had any experience in a large town shoeing business will agree with me.

THE SPECIAL SHOE FOR THE CURE OF LAMINITIS.

In reference to this shoe, of which we give an illustration (page 641), Mr. Broad writes:

I have such a number of applications from all parts of the United Kingdom for a description of my shoe for laminitis, that I think you would be doing the profession a kindness by inserting in the *Veterinarian* a woodcut of it.

* Morici, 'Sulle Febbri della Citta di Messina,' p. 7.



A.—Foot-surface, showing the seating.
B.—Thickness of the shoe at the centre.
C.—Curve of the ground surface.

LAMINITIS.

By R. H. Dyer, M.R.C.V.S.

The January number of your Journal reports the proceedings of the West of England Veterinary Medical Association, in which will be found an essay on laminitis from the pen of Mr. Broad. I do not know that I should have taken any notice of this essay after perusing it, had I not been challenged to commence an action against the author. What was written by me, and reported in the May number of the *Veterinarian*, was written with the conviction of truth; and I am still of the same opinion, that any person being guilty of performing such acts of cruelty as are found recommended in the work of "Markham," should be prosecuted by the Society for the Prevention of Cruelty to Animals. This I declare simply from the fact that the advice contained in that book, whether it points to laminitis or any other disease, is absurd in the most superlative degree, and, further, that laminitis, amongst other maladies, can be treated in a more humane, reasonable, and scientific manner. I do not feel disposed to enter the lists with Mr. Broad in the discussion so long before the members of the profession, as an able advocate has been found in Mr. Fleming, and it is more than probable enough has been said upon the subject, as it does not appear that the one advocate can convince the other of his error, if either has committed one. Knowing Mr. Broad's views in reference to the treatment of laminitis, I am prepared to read his observations. I do think, however, his remarks in reference to my "sarcastic criticism," as he is pleased to term them, of Markham's masterpiece, savour somewhat of a feeling I am unwilling to name.

MR. BROAD IN REPLY TO MR. FLEMING.

With your kind permission I will make a few remarks on the Charlier shoe, at the same time a few in reply to Mr. Fleming on stout shoes, such as are daily put on in the London forges. I must say I am somewhat surprised to find that Mr. Fleming has so garbled and misrepresented my statements, for during the discussion I have said nothing that will warrant him turning my stout shoes into "heavy, clumsy clogs, unwieldly, ponderous, awkward, massive lumps

of iron," &c.; neither did I say that a number of nails are necessary. And the following extract from the *Field* of February 13th, 1869, will show the readers of the *Veterinarian* how he has distorted my statements in that article:

"I was astonished, as most experienced men would be, upon reading Mr. Fleming's statement that the Charlier system of shoeing was the nearest to perfection yet adopted. Did not Messrs. Mavor, four or five years since, give that shoe, or one as near like it as possible, such a trial as it could not have had in any other firm in England? and what has become of it? It is almost or entirely abandoned, because it was found not to be so good for general use as the old system. Extremely light shoes might do very well on Mr. Fleming's horses, or on many others which do very little work, but test it on a horse which really works, and, however good his feet may be at the commencement, they will very soon become deteriorated; and if it is tried on a horse whose feet are bad or any ways tender, lameness will quickly be the result. Stout shoes for any other purpose than the field are the best, as they lessen the concussion, which is the principal cause of disease of the feet. The worst feet require the stoutest shoes. I have known hundreds of cases of lameness in the forefeet, where the animals were relieved in a day, only from putting on extremely heavy shoes, which not only enables a tender-footed horse to work free from lameness, but also tend to keep his feet sound. Calkings on fore-shoes are very injurious, but not so much so on the hind ones; where the roads are not slippery it is better to do without them. I have adopted the plan of not paring good feet for nearly thirty years, and still continue it; but there are very many horses whose feet are far from being good, and many naturally bad —some with low weak heels, all the strength or nutriment going to the toe; others with flat soles, weak crust, and very large frogs. In the first place it is necessary to pare the sole at the toe ('as it cannot be done properly with the rasp') to be able to lower the crust sufficiently to prevent the weight being too much on the weak heels. With flat weak feet the frogs are often so large that the horses cannot work sound, either with or without leather soles, unless the frogs are kept pared. It is quite impossible that one rule can be carried out in preparing the foot for the shoe."

The above remarks are what Mr. Fleming terms a "strange statement" to make, and one totally at variance with common sense and daily experience: and though it was put forth in opposition to certain opinions he (Mr. Fleming) had pub-

lished in that paper, he did not think it necessary to expose its absurdity ! !

Why does not Mr. Fleming give proof that stout shoes are a fallacy, instead of repeating the assertion? He refers to continental authorities, but surely English Vets. are as competent as their neighbours across the Channel to give an opinion in a matter of shoeing, inasmuch as my experience teaches me that we excel them in the art of shoeing.

Mr. Fleming has throughout his articles adopted a wrong theory, that of direct concussion between the pitching and shoe, forgetting that the concussion received by the shoe must be diffused through every particle of the iron before any portion can be transmitted to the foot.

The simple school-room experiment in physics, of suspending three balls of equal size, will prove that in the case of the light shoe, as with the light centre ball, nearly the whole of the concussion is transmitted to the foot or to the outside ball; increase the weight of the shoe, or the centre ball, and the whole of the concussion is then nearly absolved or diffused by the shoe, or centre ball, without transmitting scarcely any to the foot or outside ball. So, with all deference to Mr. Fleming's opinion, my first illustration, viz., the anvil, is quite correct. Mr. Fleming has referred to stout shoes being in use for the treatment of laminitis in Markham's days, but on reference to Markham's work I find all that is stated is, "Shoe, large, strong, and hollow." Mr. Fleming appears either not to know or to ignore the fact, that my laminitis shoe is very differently shaped from all other bar shoes, or from any that he has in his extensive collection of ancient shoes. As Professor Williams has justly stated, it allows the horse to put his foot to the ground, as he tries to do, when suffering from laminitis, and if Mr. Fleming had had an opportunity of testing it, he would have saved himself the trouble of writing such elaborate and uninstructive articles to endeavour to prove that my practice and theory are wrong. I have also heard it stated that there are shoes similar to mine in the museums of the Royal Veterinary College. By the permission of Professor Spooner, Mr. Axe and I thoroughly examined all the shoes there, but could not find one anything like it.

Mr. Fleming also refers to my remarks on his statement of riding or driving a horse sixty miles over a hard pavement on a hot day in July, and see if it is fit to repeat the journey next day. He then states that Mrs. Fleming and himself ("in September, not a hot day in July") rode two well-bred horses about thirty-four and a-half miles four days in succes-

sion, and on the return journey forty miles per day for five days ("not over hard pavement"). There certainly was not any cruelty in that feat, for Mr. and Mrs. Fleming are such nice little weights that they were not likely to injure their horses.

Mr. Fleming has no right to express doubts as to the benefit derived from the use of my shoe in laminitis, after the evidence which has been adduced in the *Veterinarian*, and I could produce much more. I presume the case of recovery of chronic laminitis to which Mr. Fleming refers is the one which he has before alluded to as having been under his treatment for twelve months. In my letter in July *Veterinarian* I stated that I had treated a cob belonging to Colonel Blathwayte without the use of any shoes; at the time I wrote I was under the impression that the cob had recovered. A few days afterwards I received a message stating that he was much worse, which I found to be the case, and deemed it necessary to put on my special shoes, which relieved him at once, without adopting any other treatment; he can now trot and gallop well, as I have had an opportunity of seeing him several times since. Although Mr. Fleming draws comparisons between his plan of treating laminitis with the use of felt pads and mine with the special shoes, still he must admit that at present I have the advantage of him in corroborative proof.

He also again states that, within a few weeks, more cases have fallen into his hands than, perhaps, I have seen in as many years. Well, I am quite content to leave that question to the opinion of the profession. Mr. Fleming states that the case of recovery alluded to in the letters forwarded to him was not a very reliable one, inasmuch as the case was reported by a groom a few days after the shoes had been applied.

Has Mr. Fleming forgotten the letter he sent me, stating that the case of laminitis to which the letters referred was a very satisfactory one? How does he reconcile his two opposite statements? The letters were written by an honourable, the veterinary surgeon's name was given, and I stated myself that the pony was doing its ordinary work quite free from lameness—as well as before the attack occurred. Mr. Fleming states that he ought to have a description of the unsuccessful trials. I am not in a position to comply with that request, as I have not received any. I have only inferred from letters received that some of the cases have not gone on so well as they ought to have done. I stated in my paper published in January *Veterinarian* that the pathology of the disease termed laminitis was congestion of the vessels of the

feet; in some cases it remains in that stage a much longer time than in others before passing on to inflammation, depending in a great measure upon the exciting cause.

Mr. Fleming has truly said, "that some practical men get strangely muddled when they begin to grapple with theory." He may also have added practice, when that happens to differ from their own. Although Mr. Fleming has thought proper to draw attention to my letters in the *Field* of February 13th, in which I differed from him in the use of the Charlier shoe, as stated by him in the *Field* of January 30th, I am in a position to prove that I was correct; for, notwithstanding Mr. Fleming's statements that the Charlier system of shoeing was the nearest to perfection yet adopted, he told me at Chatham, in February, that the shoe could not be properly fitted without cutting so near the sensitive part of the foot as to amount to mutilation. I have heard him since then repeat that statement to other veterinary surgeons at our council meetings. He also said that the shoe was not suitable for hind feet or for general use, but more for a pathological shoe, and only suitable for good feet. It requires a good workman to make, fit, and put on properly, as it is a much more difficult operation than the ordinary method. When feet have been prepared for the Charlier shoe, the ordinary shoe cannot be put on for several weeks—not until the wall has grown down to take the nails and make a bearing for the shoe; another objection is, that from the lightness of the shoe the concussive blows which it receives from the hard road produces elongation at the toe, in consequence of which it spreads open at the heels, either breaking the nails or tearing away the crust. In May last Mr. Field, senior, told me that they had shod two or three of their own horses on the Charlier system, but had discontinued it from finding that it was not so good as the old. I know other persons who have tried it, and given it up.

There is a very fair article in the *Field* of June 19th, on the subject by the editor, in which he expresses his opinion that it is more suitable for hunters than for hacks or harness horses. In the *Field* of August 7th, there is a letter from a gentleman who appears to have given it a fair trial, but not finding it answer has discontinued it. As an illustration and further proof of stout shoes being advantageous, I think that I may fairly compare the effect of very light shoes on horses' feet with the effect of very light tires on carriage wheels. It is a well known fact to coachbuilders, that with very light tires on wheels working over paved streets the wood work receives so much jar that it does not wear near so long as

when stout tires are used, as they absorb the concussion. The light tires get loose much quicker than the stout ones, from elongation consequent upon the repeated tappings or blows from the pavement, which does not affect the stout tires anything to the same degree. The same cause is in operation upon the tires of locomotive railway engines; if they are allowed to work down below a certain guage there is always a danger of their becoming loose and flying off.

M. Charlier, like most other writers on shoeing, claims as one of the advantages of his shoe, that it admits of expansion of the foot. I think it is quite time that every member of the profession should thoroughly understand that no such function exists, nor any necessity for it.

Such doctrines have not been taught at our veterinary schools of late years. It is very easily demonstrated by watching the opening and closing of a sand crack at the toe of a hind foot.

Gamgee, in his 'Domestic Animals,' enters into the physiology, showing that no such action takes place. There is no doubt that the greatest evil in the operation of shoeing is the knife. When feet are strong and the soles not touched with a knife a plain shoe without seating or bevelling is far preferable, as the sole will take a part of the pressure with advantage to the foot.

There are many feet which will never become strong either in wall or sole under any management; such feet require a seated shoe, as when the soles are thin they cannot bear pressure. One side nailing is a fallacy which originated from the false notion of expansion; nails ought to be distributed round the foot, and as few used as possible. Turning up the toe in ordinary shoeing is a crotchet; it is only necessary with bad goers. I have seen it several times stated that unshod colts and horses which have been a long time at grass wear their toes off in that turn-up fashion. If the writers of those articles were to examine for themselves, instead of copying from others, they would not make such mistakes. I have thoroughly examined the question practically, and find it very rare to find one so worn; the quarters of the foot is the part mostly broken away at grass.

If the knife was used less and leather soles more, there would be a much less number of lame horses. Thin soled horses not shod with leather are benefited by cowdung stopping, as it increases the growth of horn.

Feet become contracted ("atrophied") from two causes—excessive work, and confinement in a stall without exercise, either of which may produce a degenerated and unhealthy

condition of the tissues from impaired nutrition. The circulation being impeded congestion takes place and produces laminitis, or lays the foundation of navicular disease.

Mr. Fleming has stated "that in laminitis the sole and frog are scarcely, if at all, implicated." That theory is incorrect; in laminitis the whole venous circulation of the foot is congested, or inflamed, according to the stage of the disease, in proof of which see how quickly death and separation of the horny sole and frog takes place in cases which do not go on well.

In bringing this controversy to a close, as far as I am concerned, I beg to state that, if I had had any doubt of the correctness of the theory I have advanced, that doubt would have been entirely removed by the number of letters I have received, and the opinions I have heard expressed by members of the profession. At the same time I may be permitted to state that, in my opinion, it would not be to the interest of the profession if every practical man, who wished to record the result of his experience, had to refute such a persistence of sophistry as I have had.

LAMINITIS.

By J. M. Broad, M.R.C.V.S., Bristol.

The discussion upon the subject of laminitis has been carried on for a considerable time. For some weeks past I have been contemplating writing you a few particulars of cases which I have had under my care, but there are two reasons why I have not yet communicated them to you: 1st, I wished to read all the elaborate theories of our friend Mr. Fleming, of the Engineers; 2nd, I was determined to carefully watch the result of the last two cases which I have lately had under treatment. Now, Sir, I am fully convinced that my father's system of treating laminitis is most successful. Mr. Fleming thinks the readers of the *Veterinarian* must be getting tired of the subject of the treatment of laminitis. The only thing, I imagine, they are tired of is his wondering theories, of which he attempts to argue down every fact which no man of experience among horses for a moment doubts.

"Heavy shoes," says our friend Mr. Fleming, "are a source of injury to feet and limbs, and a waste of power." For some years I have had a large shoeing practice in the heart of Bristol, where diseases of the feet are more

common than any other cases; and I have proved beyond the slighest doubt that the thicker the shoes, in reason, the sounder will your horse go, and the longer will he last. Mr. Fleming asks, "Does a foot loaded with a heavy shoe strike as lightly on the ground as one carrying a plate of one ounce?" I say most decidedly. Does Mr. Fleming mean to tell us that because he puts on a pair of thick shooting boots that he must necessarily go and stamp his feet, or in any way walk differently from when he has on light shoes? Any man who is fond of dancing knows the tender state of his feet after an evening's entertainment in that way; well may my father, or any other practical man, express his astonishment at Mr. Fleming's assertion, that heavy shoes increase concussion. No matter how far back the use of stout shoes in the treatment of laminitis dates (*on dit*, there is nothing new under the sun), I have no doubt in those days, although the practice may have been suggested, there was not sufficient science brought to bear upon shoeing to properly carry it out. I have not the slightest doubt but that Mr. Fleming considers his method of treating acute laminitis rational and very scientific; but I hope he will allow me to doubt it, and to mention two cases in which his system has proved an utter failure. A grey cab horse, the property of Mr. Thomas, of Bristol, was the subject of acute laminitis in the month of March last, and was experimentally treated by me according to Mr. Fleming's method. I persevered, and carried out his system to the letter for three weeks, until I found the patient no better, it being quite impossible to get it out of the box. I then was obliged to have recourse to the never-failing stout bar-shoe, which has been advocated by so many practical veterinarians in your pages; and the result was in three days the horse took exercise easily, and in fourteen days was at light work again. Again: I was called to see a roan pony, which the owner thought had broken his back, as he could not move. He had travelled a long journey the day before. I found him suffering from acute laminitis, for which I administered ʒvj barb. aloes, and applied my stout bar-shoes, heavier if anything than those used by my father. The effect was magical. In three days the pony moved freely, and in three weeks was put into regular work.

I do not feel justified in unnecessarily taking up the space of your valuable journal with the particulars of any other cases, although I have had many, all of them being equally successful. I have not the slightest doubt but that, notwithstanding Mr. Fleming's dogmatical remarks, we shall see this system of treating laminitis generally adopted among practi-

cal veterinarians, particularly after the very favorable opinions which have been expressed upon its use by such men as Professor Williams, Mr. J. Greaves, Mr. Lawson, and Mr. T. Taylor. I think, Sir, there would be very little encouragement for young veterinarians to experiment and investigate important diseases which have hitherto baffled the profession if, when they publicly made known the results of their experiments, they are to be pounced upon and denounced as being "*hoist on their own petard*" and "*being strangely muddled,*" and other uncourteous remarks.

MR. BROAD'S SHOE IN LAMINITIS.

By J. Woodger, Jun., M.R.C.V.S.

About three months ago I had a severe case of acute laminitis. I decided to treat it upon the system adopted by Mr. Broad, of Bath. In a week the animal had perfectly recovered. Since then I have had several cases of chronic laminitis, which I have had shod upon the same system, with very great benefit.

PRACTICAL VETERINARY SCIENCE.

By a Working Practitioner.

Whether we go to the annual meeting of the profession and listen to the discussions there, or to the debates in the council, or to any of the provincial veterinary medical associations, or read the pages of the *Veterinarian* month after month, or even converse with the authorities of the colleges, the question of the day seems to be, "How can the profession be raised to a higher standard?" Innumerable opinions are given, "doctors disagree;" some say give the youth intended for the veterinary profession the highest classical education that can be given him at either Cambridge or Oxford, others say he must be kept at college three or four sessions; others say give him a practical education in his youth, so as to render him familiar with those duties which lie before him in daily life—an apprenticeship. Others again say, What are the authorities about that they do not get an Act of Parliament to put down quackery? and then the treatment of the whole equine and bovine races would be certain to fall

into our hands; we could then stand upon our dignity and independence, we could then charge our own charges, and this would at once place us in that higher status which we consider we ought to occupy. *Now, which opinion is right?* It is certainly quite right that we should examine these questions with great care, and, if possible, arrive at a sound conclusion, if we lay claim to a more or less scientific character, if we aspire to the status of gentlemen, if we desire to be recognised by society in general as such, if we desire to so conduct ourselves, and to possess a knowledge which will enable us to render such services to society, that society will willingly appreciate us, and recompense us according to our deserts. I believe it is fair to assume that in the main society deals justly and honestly by its members, and that whenever a man, or a body of men who are really worthy and deserving, are not duly recognised, it is the exception and not the rule. I shall, therefore, assume that the veterinary profession is recognised and recompensed, if not to the full, still pretty nearly in accordance with its deserts. My motto is this, if we want our emoluments increased we must render ourselves more worthy, and society, true to itself, will not be slow to discern it, and will recompense us accordingly; depend upon it we act as an unfair, as a packed, jury if we place our own estimate upon ourselves.

Much may be said in favour of our profession. It is a pleasant and agreeable occupation. It is respectable, interesting, useful, scientific, and tolerably lucrative. There is also something that may be said on the other side; it is not without its drawbacks; there are many dirty, disagreeable duties to perform in the exercise of our calling, many vexatious disappointments and annoyances in the conducting of our business. This much I grant you, that none of us are entirely free from these things; still I think it may be laid down as a rule, they are to a great extent in proportion as the practitioner has or has not a thorough and correct practical knowledge of his business, and that his method of conducting business is attended with success or non-success.

I am constantly coming into contact with men who are complaining most bitterly how much they suffer from the loss of customers, and loss, in a pecuniary sense, in consequence of quacks who infest the neighbourhood in which they live. These men complain most loudly that the Council has been in existence nearly thirty years, and has not in a single instance put down empiricism. These men will reason and argue, and show what an utter disregard the Council has for the welfare of the profession in so long

delaying the getting of a Bill or an Act of Parliament to put down the non-qualified man, and to force society to employ none but the qualified man. I have listened patiently to many tales from these men, some of them very plausible and very pitiable, but, after all, I could only repeat to them what I have said a thousand times before to others, that it is utterly impossible to get an Act of Parliament granted us that will force society to employ us in preference to the non-qualified men, so long as it can be shown that in many instances the non-qualified man is equally successful, and in some instances even more successful in the treatment of his cases than the qualified man is. It is in vain you show that the empiric's ignorance causes him to make blunders for which society suffers, so long as it can also be shown that the ignorance of the educated causes them to make blunders for which society suffers. Society discerns this, and hence it is that the empiric is in some instances preferred to the qualified man. This is one of the disagreeable and vexatious circumstances, or conditions, surrounding our profession.

I have been engaged pretty extensively in this calling for between thirty and forty years, and I verily believe I have scarcely an employer who would not remove his business out of my hands and place it in the care of some other man if such employer was convinced in his own mind that his interests would be better served at the same price, or that his business would be done equally well at a less price. And this totally regardless as to whether the person he selected was, or was not, a qualified man. I have on more than one occasion been told, "It does not by any means follow, because a man is a highly educated man he must, therefore, be a clever man." The fact of examiners saying that a man is competent does not (of itself) make him competent to practice the veterinary art; it is absurd to suppose that it has added one whit more to his knowledge than he possessed half an hour before such ceremony was gone through, and at which time he was to all intents and purposes a non-qualified man. To raise the profession we must in every instance become better practitioners—more successful practitioners; we must show by results that there is no comparison between the empiric and one of ourselves. Now comes the next question, how is this to be done?

(To be continued.)

THE PRINCIPLES OF BOTANY.

By Professor James Buckman, F.L.S., F.G.S., &c. &c.

(*Continued from p.* 580.)

Class I.—Thallogens.

Plants belonging to this class may be distinguished by their extreme simplicity of structure; they have no wood, properly so called, though in some of the older sea-weeds there is an apparent hard woody structure, nor is there any approach to those leafy organs so conspicuous in higher classes, and consequently *stomata* or breathing pores are also absent. The want of leaves necessitates an absence of floral envelopes; these and sexual organs then are scarcely, if at all, even represented, and reproduction is not by pollen and ovules, or ordinary seed, but by a separable cell, which is very variously prepared. "It is true," as remarked by Professor Lindley, "that such names as Antheridia and Pistillidia are met with in the writings of Cryptogamic botanists, from which it might be inferred that something analogous at least to sexes was observable among such plants; but these are theoretical expressions, and unconnected with any proof of the facts to which they are applied, performing the office of anthers and pistils. If it should be assumed, as it has been by some, that they do represent sexual organs, it is to be remembered that it is a mere assumption unsupported by sufficient evidence."

Dr. Balfour says that "in the Confervæ and Diatomaceæ there is a union of the cells of the plant by *conjugation*, so as to produce germinating bodies. In these cases the contents of one cell pass, by the formation of a tube, into the other."

But whatever may be the nature of the reproductive element, we may view it simply as a separable cell, as in the spores of the mushroom and other agarics, in which, by placing the fungi on pieces of writing paper a different coloured dust, according to the species, will in a short time be found to cover their surfaces. These are perfectly cellular grains, but after all it is doubtful whether they alone can reproduce the plant from which they spring, and if we admit such separate cells to be the true seed we shall find that many and peculiar conditions are required for its development—so many, indeed, that almost every decaying substance becomes the nidus, and probably, to some extent, the parent of one or more species

of a lower kind of vegetable organism. In this way it is that it has been concluded that the Cryptogamic vegetation even exceeds that of flowering plants in its number of species ; but if we consider that these lower tribes differ according to surrounding media, we may, perhaps, conclude that absolute species, so difficult to determine, are not so many as has been thought, but that very diverse forms are either stages in development or have been produced differently from the same spores, having been acted upon by a different medium.

If, however, we only cursorily glance at the positions in which the plants of our lowest class are found, we shall have reason to see that they must be infinitely varied, as both salt and fresh waters are full of them, varying from the minute Algæ, thousands of individuals of which might rest on the point of a pin, to the Sea tangles, some of which are many yards in length.

Then, again, every decaying heap of vegetable matter, each decomposing stick, and even the roots of dead grasses, become *nidi* for different forms of fungi; whilst the stems and branches of trees, and the surface of each rock or stone afford resting places to a long list of Lichens.

With so many families of plants in the same class it becomes necessary that we should adopt a method of grouping them to which we can readily refer; we therefore, in this place, direct attention to the grouping advanced by Professor Lindley first, which proceeds upon the principle of forming the larger divisions into which he terms Alliances.

Alliances of Thallogens.

1. Algales.—Cellular flowerless plants, nourished through their whole surface by the medium in which they vegetate, living in water or very damp places, propagated by zoospores, coloured spores, or tetraspores.

2. Fungales.—Cellular flowerless plants, nourished through their thallus (spawn or mycelium), living in air, propagated by spores, colourless or brown, and sometimes inclosed in asci; destitute of green gonidia.

3. Lichenales.—Cellular flowerless plants, nourished though their whole surface by the medium in which they vegetate, living in air, propagated by spores, usually inclosed in asci, and always having green gonidia in their thallus.

These characters sufficiently indicate family Alliances, which latter are again subdivided into natural orders, but we shall not follow out these in detail, but shall seize upon opportunity to present drawings and descriptions of some of

the more interesting objects in their different divisions, having particular reference to some points of interest in a physiological or medicinal point of view.

(*To be continued.*)

Pathological Contributions.

CATTLE PLAGUE.

The past month has been one of more than ordinary anxiety with reference to the progress of the cattle plague on the Continent, as the risk of its reintroduction here has been thereby greatly increased. For some months the disease is known to have prevailed in Poland, and in our last issue we called attention to the circumstance that it had broken out in some Polish villages through which the railway runs from the North German States into Russia. Since then intelligence has reached us that the disease had crossed the Prussian frontier, and made its appearance in the province of East Prussia. The first reports showed that the cattle in the Prussian villages of Fürstenwalde and Liebenberg, near to Ortelsberg, on the Polish frontier, were attacked, but it was hoped that the severe measures of extinction which the Government had adopted would soon rid Prussia of the plague. The contrary, however, proved to be the case, as the disease manifested itself in other parts of East Prussia, several miles to the north-west of Ortelsberg. From East Prussia the plague spread into the province of West Prussia, having been conveyed by some cattle bought at the fair of Mühlhausen. According to the latest reports, the plague had broken out at Reisenberg, on the Vistula; Landsberg, on the Warthe; Frankfurt, on the Oder; and Neumark and Kustrin, in the Governmental Department of Brandenberg, and at several other places. Besides the diseased many hundred cattle which had been exposed to the infection had been killed. Each focus of the disease is surrounded by a military *cordon*, and all cattle traffic prevented, except by prescribed routes, and with certificates from the heads of the police. The authorities in the Department of Potsden have also adopted similar precautions as to traffic, and all conveyance of cattle by railway through Berlin is suspended.

Some cattle bought in East Prussia of the feeders, and destined for the London market, are believed to be the last

which passed through Berlin prior to the closing of the railway. They came with special certificates of health, and were found on their arrival here to be perfectly free from disease.

Besides this outbreak of cattle plague in Prussia, the disease continues to prevail in Poland, Galicia, Hungary, Transylvania, and the Danubian Provinces. In Hungary the Department of Pesth has now been the seat of the plague for several consecutive months.

THE SIBERIAN CATTLE PLAGUE.

In common with other contagious diseases of animals, the Siberian plague is reported to be spreading to an extent to cause alarm for the health of the people in some parts of Russia. This is particularly the case in the district around St. Petersburg, and also at Helsingfors, on the north shore of the Gulf of Finland.

At St. Petersburg an order has been published by the head of the police directing the inhabitants of the towns and villages in which the disease has manifested itself not to buy any meat unless the slaughtered animals had been certified to be free of the plague. All persons are also enjoined to give notice of outbreaks of the disease. The cattle teams, which are employed in bringing provisions from the country into the town of Tsarskoe-Selo, are likewise subjected to a strict medical examination.

PLEURO-PNEUMONIA.

In our last month's publication attention was called to the spread of pleuro-pneumonia in many parts of England, and also in Scotland and Ireland. From the latter named country we learn that the disease is prevailing to a very serious extent in many places, and among them in the county of Dublin. Dairy cows sent from the city of Dublin into the grazing lands of the environs are reported as suffering from the malady. There appears to be no means of restricting the movement of these diseased cows, excepting within the confines of the borough itself, and even here the market inspectors, in whom the power is vested, seem to be insufficient in number to properly carry out the regulations.

The wide-spread existence of pleuro-pneumonia in Ireland

calls for some means to be adopted to check the practice of clearing out diseased herds, and sending the infected animals over here. It is well known that so long as a strict examination was made of all cattle about to be exported to England, both farmers and dealers ceased almost entirely to continue the practice for fear of detection. Portal examination should be at once re-established, and especially now that in England legal power exists to deal with animals the subjects of pleuro-pneumonia in a manner which cannot fail to most effectually limit the spread of the disease, unless the attacks are kept up by importing fresh cases of the malady.

Besides the risk of receiving infected cattle from Ireland, another exists of their introduction from the Continent, as pleuro-pneumonia is reported to have broken out in the neighbourhood of Bremen haven.

MOUTH AND FOOT DISEASE.

This malady is more widely spread in Great Britain and on the Continent than it has been since the winter of 1861-2. In England alone, both cattle and pigs in not less than a dozen counties are severely affected with the disease, and in Scotland a similar state of things prevails.

On the continent, Belgium, Holland, Schleswig-Holstein, Prussia, and Saxony are known to be infected, and, doubtless, other countries also, although they have not at present been reported.

The malady is believed to have been brought into Saxony as early as June last by some herds of cattle belonging to Bohemian cattle dealers. Goats and pigs, as well as cattle and sheep, have been attacked in large numbers in Saxony, and by the importation of infected pigs from that country, Schleswig-Holstein is said to have received the disease.

Various reports have been circulated to the effect that Spanish cattle had spread the affection in different parts of England, and in one case in particular, which occurred at Aylesbury, it was stated that the outbreak had been distinctly traced to Spanish cattle being brought near to the farm where the disease broke out. We have taken some trouble to arrive at the facts of this case, and can state that there exists no foundation whatever for the opinion. The Spanish cattle in question were landed at Southampton, on June 7th, examined and passed as being free from disease. Twenty-eight of them were bought by a butcher

and sent to Aylesbury direct, where they were all slaughtered in a perfectly healthy condition, within six days of purchase. No disease was observed at Aylesbury until upwards of six weeks after the Spanish cattle had been killed.

Mouth and foot disease is not unfrequently imported from the Continent, but it is proverbial that Spanish cattle are very rarely found to be affected with it on their arrival here. It must not be inferred, however, that they enjoy an immunity against the influence of the *contagium*, for, like all other cattle, they become affected when exposed to the disease in this country.

SMALL-POX OF SHEEP.

This malady does not appear to have declined in any of the countries in which we reported its existence in our last number. It is still devastating the flocks in many parts of Schleswig-Holstein and Pomerania—two countries from which we are weekly importing sheep. The disease has also broken out at Gallipoli, in Southern Italy.

DEATH OF A FAWN FROM CYSTICERCI.

Mr. J. N. Cooper, Veterinary Surgeon, Dover, has sent us an interesting account of the illness and death of a fawn—a lady's pet—which he was called upon to attend. The diagnosis, excepting so far as a disordered state of the digestive organs was concerned, was very obscure at the commencement. Within a few days symptoms of peritonitis set in, and the animal died on the eighth day. A *post-mortem* examination showed the presence of a large number of *cysticerci* in the subcutaneous tissue, and within the great cavities of the body. In the latter situation the entozoa were attached to the viscera in numbers which can only be expressed by the term enormous.

AMPUTATION OF A SUPERNUMERARY LIMB.

We are indebted to Mr. B. Freer, Veterinary Surgeon, Uppingham, for the particulars of a case of supernumerary forelimb in a foal, in which he succeeded, by amputation, in restoring natural formation so completely as to make it more than probable that the animal will be little or none the worse

for the original defect of development. The details, however, of the operation and progress of the cure differ so little from those which have been previously recorded in our journal as to render their publication unnecessary.

Facts and Observations.

How Fern Spores are scattered.—An American botanist, Dr. W. L. Wells, has been studying the phenomena of rupture of the sporangium of *Polypodium vulgare*. Under the microscope the sporangium could be seen to open at a point near its stem, and the opening grew very slowly larger until the continuation of the stem which previously encircled the sporangium was nearly straight. It then suddenly shut with a jerk, scattering the spores in every direction, and generally sending the sporangium itself out of focus. In the cases in which it was not entirely thrown out of focus, the same operation could be seen to be repeated two or three times. In no case were any spores scattered during the opening, which always took place very slowly.—*Popular Science Review.*

Bacteria in Glanders and Farcy.—MM. Christot and Kiener have found bacteria in the blood of glandered horses, and very abundantly and of large size in the spleen and in the pus. Along with this presence of bacteria there was usually leucocythæmia.—*Comptes Rendus.*

Re-establishment of Sensibility after Resection of Nerves.—A memoir by MM. Arloing and Tripier was read before the French Academy, November 28th, on the effects of resection of certain nervous trunks. Clinical facts have several times shown that after wounds which have altered or destroyed a portion of a nerve, sensibility returns in the integuments to which the nerve is distributed. MM. Arloing and Tripier made nervous resections in dogs, and saw sensibility reappear after a certain time in the integuments to which the branches of the nerve were distributed, and in the peripheral end of the nerve itself.—*Popular Science Review.*

The Largest Diameter of Tree-trunks.—It is a curious fact, if it be a true one, that, according to a paper by Musset before the Academy of Toulouse, the large trees of St. Cloud have the widest parts of the trunk always in an east and west direction.—*Ibid.*

THE VETERINARIAN, SEPTEMBER 1, 1869.

Ne quid falsi dicere audeat, ne quid veri non audeat.—CICERO.

THE CONTAGIOUS DISEASES (ANIMALS) ACT.

SINCE the ravages of the cattle plague taught owners of stock the true importance of sanitary regulations, the idea of legislation being brought to bear upon the diseases of animals has undergone rapid development. Not many years ago a bill, which proposed to place certain restrictions on the movement of cattle affected with pleuro-pneumonia and mouth and foot disease, met with a storm of opposition that swamped it out of existence. Recently a much more stringent measure was passed, with the concurrence of that interest which had been so strenuously exerted in opposition to the former attempts to establish sanitary laws in relation to animals. A little experience of a somewhat stern character sufficed to effect a revolution of feeling, and afforded to the members of the veterinary profession the sad triumph of a victory at the expense of their art by demonstrating the entire superiority of the "stamping-out system" over the science of therapeutics in the treatment of infectious diseases of animals. It must be confessed that it was not consolatory to discover this; but it is nevertheless true that medicine signally failed to cure a disease which was easily arrested by measures that required the action of the policeman rather than the veterinary surgeon for their effectual carrying out.

Our continental neighbours have a phrase which we translate "sanitary police," and the medical science of the day is fast advancing to this semi-judicial condition. Before the cure of disease is its prevention; and the art of preserving health, based as it is on known and infallible laws, is an infinitely nobler one than the cure of disease, founded as it is, at the best, on rational hypothesis, and, at the worst, on empiricism and error.

What will be the final result of the application of sanitary

enactments to the diseases of animals, it is not our present purpose to inquire. The law on the subject is now well and clearly defined, and there can be no doubt that the members of the veterinary profession will be consulted by the owners of diseased animals as to what is or is not within the meaning of the Act. The two Orders of Council, which we give *in extenso*, contain much that it is important for veterinary surgeons to know; and we shall, in addition, quote so much of the Act as concerns the regulation of movements of diseased animals, leaving the clauses relating to technical matters, rate in aid, local authorities, and committees to be worked out by those who are interested in their operation.

In its sanitary aspect, the Act consists of two sets of provisions, one of which refers to animals brought from abroad, and the other to animals which, whether foreign or English, constitute the stock of this country.

The foreign section, as we may term it, of the measure is easy of comprehension—indeed, is quite free from technical difficulties. Its provisions amount to the following:

All foreign animals imported from countries which are not in the schedule to the General Order of August 10, 1869, may be landed anywhere out of a defined part of a port, and, if found on inspection to be free from infectious disease, they will "cease to be deemed foreign animals," and may be treated as home-bred stock.

The conditions which affect the landing of cattle from healthy countries are specified in clause 6 of the General Order.

Animals which are imported from the countries named in the schedule to the General Order may be landed in a defined part of a port, and be slaughtered there within ten days, excepting under special regulations in the metropolis and also in Edinburgh.

Regulation of the movements of cattle in this country and the detection and prevention of disease involve a more complicated arrangement of clauses to meet possible emergencies.

First infectious diseases, and the animals liable to them, are defined in clause

"6. In this Act—

"The term 'cattle' means bulls, cows, oxen, heifers, and calves.

"The term 'animal' means, except where it is otherwise expressed, cattle, sheep, goats, and swine.

"The term 'foreign,' as applied to cattle or animals, means brought from any place out of the United Kingdom.

"The term 'cattle plague' means the rinderpest, or disease commonly called the cattle plague.

"The term 'contagious or infectious disease' includes cattle plague, pleuro-pneumonia, foot and mouth disease, sheep-pox, sheep-scab, and glanders, and any disease which the Privy Council from time to time by order declare to be a contagious or infectious disease for the purposes of this Act."

A person having an animal affected with either of the above-named diseases in his possession or under his care is bound by the Order to give notice of the fact to a police officer, who will inform the inspector of the district, and he has power of entry to examine the animals; and if he finds among them a contagious disease, he is required to report to the Privy Council and the local authority, week by week, so long as the disease exists.

Compulsory slaughter of diseased animals is only provided for in the case of cattle plague, sheep-pox, and glanders; but the following clause practically shuts up animals affected with other contagious diseases in the stables, sheds, or field where they were attacked, unless they are removed for immediate slaughter:

"57. If any person exposes in a market or fair or other public place where horses or animals are commonly exposed for sale, or exposes for sale in any sale-yard, whether public or private, or places in a lair or other place adjacent to or connected with a market or fair, or where horses or animals are commonly placed before exposure for sale, or sends or causes to be carried on a railway, or on a canal, river, or other inland navigation, or on a coasting vessel, or carries, leads, or drives, or causes to be carried, led, or driven on a highway or thoroughfare, any horse or animal affected

with a contagious or infectious disease, he shall be deemed guilty of an offence against this Act, unless he shows to the satisfaction of the justices before whom he is charged that he did not know of the same being so affected, and that he could not with reasonable diligence have obtained such knowledge.

"Where any horse or animal so affected is exposed or otherwise dealt with in contravention of this section, an inspector of the local authority or any officer of the local authority authorised to act in execution of this Act may seize the same, and cause it, if affected with glanders, cattle plague, or sheep-pox, to be slaughtered, and if affected with any other contagious or infectious disease to be removed to some convenient and isolated place, and to be there kept for such time as the local authority think expedient; and the local authority may recover the expenses of the execution by them of this section from the owner of the horse or animal, or from the consignor or consignee thereof, who may recover the same from the owner."

It is very important to note, in reference to the powers of inspectors and "officers of the local authority appointed to act in the execution of this Act," that while he may seize and cause to be slaughtered any animal affected with cattle plague, sheep-pox, or glanders, if exposed in a market, or otherwise dealt with in contravention of the section, he is only authorised to cause "to be removed to a convenient isolated place" any animal affected with pleuro-pneumonia, mouth and foot disease, or scab.

The rules which specially relate to pleuro-pneumonia are contained in the seventh schedule of the Act, and are to the following effect:

"*Pleuro-pneumonia Rules.*

"1. These rules are to have effect with respect to any field, stable, cow-shed, or other premises infected by pleuro-pneumonia.

"2. Cattle affected with pleuro-pneumonia are not to be moved from such field, stable, cowshed, or other premises, or from any land or building contiguous thereto in the same occupation, except for immediate slaughter, and according to regulations to be from time to time made by the local authority for insuring such slaughter.

"3. Other cattle are not to be moved from such field,

stable, cowshed, or other premises, or from any land or building contiguous thereto in the same occupation, except for immediate slaughter, without a licence signed by an officer of the local authority appointed to issue licences in that behalf certifying that the cattle moved are not affected with pleuro-pneumonia, and have not been in the same shed or herd, or in contact with cattle so affected.

"4. Sheds and places used by cattle affected with pleuro-pneumonia are forthwith after being so used to be cleansed and disinfected to the satisfaction of the local authority."

It is not possible within our present limits to enter into a detailed analysis of the Act; but we have endeavoured to call the attention of the members of the profession to those clauses which are likely to affect their patients in the most immediate and direct manner, and respecting which, therefore, ignorance would not only be inconvenient, but culpable.

A careful study of the Act, and the two Orders which are supplementary to it, and with it constitute the whole law of the subject, will not necessitate any serious amount of labour, and, considering the vast importance of the measure to the stock-breeding interests of this country, it is hardly necessary to insist that the labour will not be expended in vain.

HORSE-SHOEING, AND THE SCOTTISH SOCIETY FOR THE PREVENTION OF CRUELTY TO ANIMALS.

In our advertisement columns will be found a challenge which is calculated to call forth the energies of practical men who have made the art of farriery an object of intelligent investigation, and not merely of mechanical skill. The plan of the essay, as suggested by the secretary's circular, is not absolutely imperative, but it appears to us to include all the important points which require consideration, and nothing could be better for the opening of the essay than the arrangement which involves the proposition stated in paragraph 1, and the query in paragraph 2, "Can you suggest anything better?" at once opens up a discussion upon the entire principles of the art.

Considering how much evil the various systems of shoeing

have to answer for, and yet how positively indispensable the practice is, too much importance cannot be attached to the subject, and we doubt not that all who have anything to say which has not yet been said will avail themselves of the opportunity which is now afforded by the Scottish Society of expressing their views, with every chance of substantial recognition being accorded to all that is really valuable.

Extracts from British and Foreign Journals.

THE PHARMACY AMENDMENT ACT.

The following extract from the Act to amend 'The Pharmacy Act, 1868,' dated 11th August, 1869, will show the position which the veterinary profession now holds with regard to this important law. It will be further observed that the Act recognises the distinction which exists between those who are members of the Royal College of Veterinary Surgeons, and those who simply possess the certificate of the Highland and Agricultural Society, and are, in fact, not legally constituted veterinary surgeons:

"Whereas it is expedient to amend the provisions of the Pharmacy Act, 1868, in regard to duly qualified medical practitioners and veterinary surgeons, and in other respects:

"Be it enacted by the Queen's most Excellent Majesty, by and with the advice and consent of the Lords Spiritual and Temporal, and Commons, in this present Parliament assembled, and by the authority of the same, as follows:

"1. Nothing contained in the first fifteen sections of the recited Act shall affect any person who has been registered as a legally qualified medical practitioner before the passing of this Act; and the said clauses shall not apply to any person who may hereafter be registered as a legally qualified practitioner, and who, in order to obtain his diploma for such registration, shall have passed an examination in pharmacy; nor shall the said clauses prevent any person who is a member of the Royal College of Veterinary Surgeons of Great Britain, or holds a certificate in veterinary surgery from the Highland and Agricultural Society of Scotland, from dispensing medicines for animals under his care."

NEW ORDERS IN COUNCIL.

CONTAGIOUS AND INFECTIOUS DISEASES AMONG ANIMALS.

A SUPPLEMENT to the *London Gazette*, published last night, contains a series of important Orders in Council relative to the contagious and infectious diseases amongst animals. The first order simply revokes all previous orders dating from November 22, 1866, to May 6, 1869. The second is as follows:

GENERAL ORDER OF COUNCIL RELATIVE TO CONTAGIOUS AND INFECTIOUS DISEASES AMONG ANIMALS.

At the Council Chamber, Whitehall, the 10th day of August, 1869; by the Lords of Her Majesty's Most Honorable Privy Council. Present: Lord President, Lord Privy Seal, Lord Northbrook, Mr. Secretary Bruce, and Mr. Forster.

Whereas by reason of the passing of the Contagious Diseases (Animals) Act, 1869 (in this order referred to as the Act of 1869), and of the making of an Order of Council bearing even date herewith, whereby all former orders in force relative to contagious and infectious diseases among animals in Great Britain are revoked, it has become expedient to renew such of the provisions of former orders as are intended to remain in operation, and to make some further provisions for better preventing the introduction or spreading of contagious or infectious diseases among animals in Great Britain.

Now, therefore, the lords and others of Her Majesty's most Honorable Privy Council, by virtue and in exercise of the powers in them vested under the Act of 1869, and of every other power enabling them in this behalf to order, and it is hereby ordered as follows:

PRELIMINARY.

1. This order may be cited as "The Contagious Diseases (Animals) Order of August, 1869."

2. This order extends to Great Britain only.

3. In this order the term "master" includes any person having the charge or command of a vessel; other terms have the same meaning as in the Act of 1869.

FOREIGN ANIMALS.

4. Foreign animals shall not be landed except at such places, in such manner, within such times, and subject to such supervision and control, as the Commissioners of Her Majesty's Customs from time to time direct.

5. Subject to any Order of Council to the contrary (either of even date herewith or hereafter made) all the regulations of the 4th schedule to the Act of 1869 shall apply to cattle brought from any

port of any of the countries comprised in the schedule to this order, and subject as aforesaid, all such cattle shall be slaughtered within ten days after the landing thereof, exclusive of the day of landing.

6. The landing of foreign cattle elsewhere than at a part of a port defined by Order of Council at a landing place for slaughter, shall be subject to the following conditions:

First.—That the vessel in which they are imported has not, within three months before taking them on board, had on board any cattle exported from any port of any of the countries comprised in the schedule to this order.

Secondly.—That the vessel has not, since taking on board the cattle imported, entered any port of any of those countries.

Thirdly.—That the cattle imported have not, while on board the vessel, been in contact with any cattle exported from any port of any of those countries.

And foreign cattle shall not be landed elsewhere than at a landing place for slaughter, unless and until—

(1) The owner or charterer of the vessel in which they are imported, or his agent in Great Britain, has entered into a bond to Her Majesty the Queen, in a sum not exceeding £1000, with or without a surety or sureties, to the satisfaction of the Commissioners of Her Majesty's Customs, conditioned for the observance of the foregoing conditions in relation to cattle to be landed under this order from the vessel; and—

(2) The master of the vessel has, on each occasion of importation of cattle therein, satisfied the Commissioners of Her Majesty's Customs or their proper officer, by declaration made and signed or otherwise, that none of the cattle then imported therein have been exported from any port of any of the countries comprised in the schedule to this order, and that the foregoing conditions have been observed in relation to all the cattle then imported therein.

7. Foreign animals landed from a vessel elsewhere than at a landing place for slaughter shall not be moved therefrom, or be allowed to come in contact with any other animals, until they have been examined by the veterinary inspector appointed in this behalf by the Commissioners of Her Majesty's Customs; and according to the result of such inspection the following consequences shall ensue:

(1) If the inspector certifies that all the animals landed from the vessel are free from contagious or infectious disease they shall thereupon cease to be deemed foreign animals.

(2) If the inspector certifies, with respect to any one or more of the animals landed from the vessel, that it or they is or are affected with any contagious or infectious disease, all the animals then imported in the vessel shall be dealt with in such manner as the Commissioners of Her Majesty's Customs direct.

8. If a vessel arriving at a port has on board the carcase of a

foreign animal (including a horse) which was taken on board for the purpose of importation, but has died on the voyage, the master of the vessel shall, immediately on arrival, report the fact to the principal officer of Her Majesty's Customs at the port.

No such carcase shall be landed or discharged from the vessel without the permission in writing of the principal officer.

The master, if the principal officer so requires, shall proceed to sea, and shall throw every such carcase overboard into the sea at such place, or at such distance from shore, at such state of the tide, and within such time, as the principal officer directs.

9. Where it appears to the principal officer of Her Majesty's Customs at a port, with respect to any foreign animal (including a horse), or any hay, straw, fodder, or other article, brought by sea to the port, that contagion or infection may be thereby conveyed to animals, he may seize and detain the same, and he shall forthwith report the facts to the Commissioners of Her Majesty's Customs, who may give such directions as they think fit, either for the slaughter or destruction or the further detention thereof, or for the restoration thereof to the owner on such conditions, if any (including payment by the owner of expenses incurred by them in respect of detention thereof), as they think fit.

DISCOVERY AND PREVENTION OF DISEASE.

10. Every person having in his possession or under his charge an animal (including a horse) affected with a contagious or infectious disease, shall observe the following rules:

(1) He shall, as far as practicable, keep such animal separate from animals not so affected.

(2) He shall with all practicable speed give notice to a police constable of the fact of the animal being so affected.

Such police constable shall forthwith give notice thereof to the inspector of the local authority, who shall forthwith report the same to the local authority and to the Privy Council.

11. Where an inspector finds any contagious or infectious disease to exist in his district, he shall forthwith make a return to the local authority and to the Privy Council of the number and description of all animals being on the farm or in the shed or other place where the disease is found, which he considers liable to be affected with the disease, distinguishing those that are healthy from those that are actually affected with the disease, and shall continue to make a similar return on the Saturday of every week until the disease has disappeared.

12. Where, under section 60 of the Act of 1869, a horse or animal is buried, its skin shall be first so slashed as to prevent its being of any use. The local authority may, if they think fit, use for the purpose of such burial any place on the premises of the owner of the horse or animal.

13. Where a local authority is authorised by licence from the Privy Council to destroy, under section 60 of the Act of 1869, horses or animals that have died or been slaughtered as therein

mentioned, every such horse or animal shall be destroyed in manner following, namely:—The carcase thereof shall be disinfected, and shall then be removed in charge of an officer of the local authority to a horse slaughterer's or knacker's yard licensed for the purpose by the Privy Council, or other place so licensed, and shall be there destroyed by exposure to a high temperature or by chemical agents. In every such case the local authority shall report to the Privy Council the fact and mode of destruction.

14. Where a local authority exercise the power of causing premises to be cleansed and disinfected, conferred on them by section 61 of the Act of 1869, the occupier of those premises shall give all facilities for that purpose.

15. A local authority may, from time to time, with the view of preventing the spreading of contagious or infectious disease, make regulations for the following purposes, or any of them:

For prohibiting or regulating the movement of animals (including horses), on, to, from, and through, and the keeping thereof on, commons and wastes and commonable and other lands whereon there exists a right of common or other right in the nature thereof.

For preventing any person from driving animals (including horses) under his charge, or allowing them to be driven or to stray, into an enclosed field or place without the consent of the occupier thereof.

For preventing the propagation of any such disease by means of dogs, and for causing for that purpose stray dogs to be destroyed or otherwise disposed of.

16. Any officer authorised in this behalf by a local authority, or any constable or police officer, may stop and detain any animal (including a horse) which is being moved, or which he has reasonable grounds for suspecting is being moved, in contravention of the Act of 1868, or this or any other Order of Council, and may apprehend, without warrant, the person in charge thereof, and bring him before a justice, who shall inquire into the case in a summary manner, and may, if satisfied that there are good grounds for so suspecting, by writing under his hand direct the animal to be detained, and the person in charge thereof to be brought before two justices as soon as practicable.

On such person being brought before two justices they shall adjudicate on the case in a summary manner, and if satisfied that the animal was being moved in contravention as aforesaid, may direct it to be disposed of in conformity with the provisions of the Act of 1869, and this or any other Order of Council.

17. Any officer authorised in this behalf by a local authority, or any constable or police officer, may inspect any railway truck, cart, boat, or other vehicle used by land or by water, in which animals (including horses), hay, manure, litter, straw, and other articles used for or about animals are usually or at the time of such inspection carried, and may examine the person in charge thereof, with a view to ascertain whether any animals or articles are being

moved or carried in contravention of the Act of 1869, or this or any other Order of Council; and such officer may, if he has reasonable grounds for suspecting that such animals or articles are being moved or carried in contravention as aforesaid, apprehend, without warrant, the person in charge thereof, and bring him before a justice, who shall inquire into the case in a summary manner, and may, if satisfied that there are good grounds for so suspecting, by writing under his hand direct the same to be detained, and the person in charge thereof to be brought before two justices as soon as practicable.

On such person being brought before two justices they shall adjudicate on the case in a summary manner, and if satisfied that the animals or articles were being moved or carried in contravention as aforesaid may direct the same to be destroyed or otherwise disposed of in conformity with the provisions of the Act of 1869, and this or any other Order of Council.

18. Any person having charge of any animal (including a horse or thing that is being moved on a highway, railway, canal, navigation, or river, for the moving whereof a licence is requisite, shall on being so required by an officer of a local authority authorised in this behalf, or by a constable or police officer, produce the licence (if any) for the moving of that animal or thing.

19. A constable, or police or other officer, detaining any animal (inclnding a horse) under the Act of 1869, of this or any other Order of Council, shall cause it to be supplied with requisite food and water during its detention; and any expenses incurred by him in respect thereof may be recovered in a summary manner from the person in charge of the animal or from its owner.

20. Any inspector or other officer empowered to carry the Act of 1869, or this or any other Order of Council into effect, may, if authorised in this behalf by general or special order in writing of the local authority, enter, for the purpose of carrying into effect the provisions of such Act or order, any field, stable, cowshed, or other premises within his district, where he has reasonable grounds for supposing that any animal affected with cattle plague or sheep-pox has been, or has been buried or otherwise disposed of.

If any person refuses admission to, or obstructs or impedes, or aids in obstructing or impeding, such inspector or other officer, he shall be deemed guilty of an offence against this order.

CLEANSING AND DISINFECTING OF PENS, TRUCKS, &c.

21. Every pen, carriage, truck, horse-box, vehicle, or boat used for the carrying of animals on lane, or on a canal or inland navigation, shall be cleansed and disinfected once in every twenty-four hours during the time when it is used for any animal in manner following:

By sweeping out and effectually removing all dung, sawdust, litter, or other matter, from the pen, carriage, truck, horse-box, vehicle, or boat, and then by thoroughly washing the same with water, and then by applying to the floor and to all parts above the

floor of the pen, carriage, or truck, and to the sides, floor, and ceiling of the hold of the boat, and to every other part of the boat with which animals or their droppings come in contact, a coating of limewash made up by mixing good freshly burnt lime with water, and containing in each gallon of limewash either one-fifth of a pint of carbolic acid, or one-fifth of a pint of cresylic acid, or four ounces of fresh dry chloride of lime, such limewash to be prepared immediately before use.

The sweepings shall be well mixed with quick-lime and effectually removed from contact with animals.

GENERAL PROVISIONS.

22. If any person fails to give, produce, do, or observe any notice, licence, thing, or rule, which he is by this order or any regulation of a local authority thereunder required to give, produce, do, or observe, he shall in every such case be deemed guilty of an offence against this order.

23. Every local authority shall send to the Privy Council a copy of every order or regulation made by them under the Act of 1869, or this or any Order in Council.

24. Every local authority shall forthwith, after the making of this order, report to the Privy Council the names and addresses of their inspectors, under section 12 of the Act of 1869, and the districts, or parts of districts, for which such inspectors are appointed to act, and shall from time to time forthwith report to the Privy Council any changes therein.

25. A local authority shall provide and supply, without charge, printed copies of documents or forms requisite under this or any other Order of Council.

26. Every regulation made by a local authority under this or any other Order of Council shall (where no other provision is made for the publication thereof) be published by advertisement in a newspaper circulating in the district of the local authority.

27. In proceedings before justices or other legal proceedings under this or any other Order of Council, a local authority may appear by their clerk, or by any agent authorised by them in writing under the hands of two or more of their members, and a railway company or any other body corporate may appear in manner provided by section 107 of the Act of 1869.

ARTHUR HELPS.

SCHEDULE.

1. The dominions of the Emperor of Russia.
2. The Austrian-Hungarian Empire.
3. The States of the North German Confederation.
4. The dominions of the Sultan.
5. The dominions of the King of Italy.
6. The Papal States.
7. Belgium.
8. The Netherlands.
9. The dominions of the King of the Hellenes.

ORDER OF COUNCIL FOR METROPOLIS RELATIVE TO CONTAGIOUS AND INFECTIOUS DISEASES AMONG ANIMALS.

At the Council Chamber, Whitehall, the 10th day of August, 1869.

By the Lords of Her Majesty's Most Honourable Privy Council.

Whereas by reason of the passing of the Contagious Diseases (Animals) Act, 1869 (in this order referred to as the Act of 1869), and of the making of an Order of Council, bearing even date herewith, whereby all former orders in force relative to contagious and infectious diseases among animals are revoked, and of another Order of Council also bearing even date herewith relating to contagious and infectious diseases among animals in Great Britain, it has become expedient to renew such of the provisions of former orders relating to the metropolis as are intended to remain in operation, and to make some further provisions for better preventing the introduction or spreading of contagious or infectious diseases among animals in or through the metropolis:

Now, therefore, the Lords and others of Her Majesty's Most Honourable Privy Council, by virtue and in exercise of the powers in them vested under the Act of 1869, and of every other power enabling them in this behalf, do order, and it is hereby ordered, as follows:

PRELIMINARY.

1. This Order may be cited as the Metropolitan Contagious Diseases (Animals) Order of August, 1869.

2. This Order relates to the metropolis only; and the provisions thereof are supplemental to and not in substitution for those of the Contagious Diseases (Animals) Order of August, 1869.

3. In this Order words have the same meaning as in the Act of 1869.

FOREIGN CATTLE.

4. With respect to foreign cattle landed in the port of London, the following regulations shall have effect, in addition to those contained in the Contagious Diseases (Animals) Order of August, 1869:

1. If the place of landing is a landing-place for slaughter defined, as in that Order mentioned, and is not within the metropolis, the cattle shall, unless slaughtered at the place of landing, be removed thence by railway to the metropolis, and not otherwise or elsewhere.
2. They shall be brought along the railway in trucks appropriated for foreign cattle, and having a red stripe two feet wide all round to distinguish them as so appropriated, which trucks shall, after each occasion of use, be cleansed and disinfected in manner provided by article 21 of that order.

5. Foreign catttle brought within the metropolis shall be forthwith taken, either to lairs licensed in that behalf by the Privy Coun-

cil, or to the Metropolitan Cattle Market, and in either case shall be slaughtered within ten days after landing, exclusive of the day of landing, and, until taken to be slaughtered, shall be kept in lairs licensed in that behalf by the Privy Council.

MOVEMENT OF CATTLE.

6. Cattle shall not be moved along a highway, thoroughfare, or public place within the metropolis, or be moved out of the metropolis, except in the cases described in and in conformity with the provisions of this order.

7. Cattle may be moved along a highway, thoroughfare, or public place within the metropolis with a licence of the Commissioner of Police.

8. When cattle are brought to the Metropolitan Cattle Market, the person bringing them shall deliver the licence under which they have been moved to the officer of the market appointed to receive it, and it shall be retained, numbered, and carefully preserved by such officer.

9. Cattle sold or exposed for sale in the Metropolitan Cattle Market shall not be moved therefrom except with a market pass (in the form set forth in the first schedule to this order, or to the like effect) to be given to the purchaser or owner desiring to move the same by an officer of the market appointed for the purpose.

10. Cattle may (without a licence) be moved along a highway, thoroughfare, or public thoroughfare within the metropolis, from part to part of the same farm, or to water, for a distance, in either case, not exceeding five hundred yards.

11. Cattle brought into the metropolis by the following railways, namely:—Great Northern, Grest Western, London and North-Western, London and South-Western, Midland, may be moved within and out of the metropolis by the respective routes described in the second schedule to this order under the names of those railways respectively, on the following conditions:

First. That cattle so moved shall not, while within the metropolis, be taken out of the waggon in which they are brought into the metropolis.

Secondly. That if any cattle so moved accidentally or otherwise, while within the metropolis, leave or are taken out of the waggon in which they are so moved, they shall not be placed again in the same or any other waggon on any railway within the metropolis, and shall not be moved out of the metropolis.

12. Where a person occupies a farm situate partly within and partly without the metropolis, or any other contiguous premises so situate, he may, with a licence of the Commissioner of Police of the metropolis, move from one part of such premises to another cattle which have been in his possession for twenty-eight days or upwards before the date of the licence, and have been marked in such manner as the Commissioner of Police directs.

13. Where a person being the owner of a head of cattle within

the metropolis which has been in his possession not less than eight weeks, or of a calf, within the metropolis, which is not more than fourteen days old, and which is born from a cow which has been is his possession not less than twenty-eight days, is desirous of moving the same out of the metropolis, he may give notice of such his desire to the local authority, by writing, stating the following things:

1. The fact of the requisite possession as aforesaid.
2. The name and residence of the owner of the animal.
3. The name of the person to whom, and the place to which the animal is to be sent.
4. A description of the animal, stating its sex, breed, age, distinctive marks, and other particulars sufficient for identification.

14. On receipt of any such notice, the local authority shall, unless there appears to them good reason to the contrary, and on being satisfied of the fact of possession for the requisite time, proceed, as soon as may be, to cause their inspector to visit the cow-shed or place from which the animal is desired to be moved, at the times following:

1. In all cases, within three days after the receipt by the local authority of the owner's notice: and again,
2. In the case of an animal other than such a calf as aforesaid, at the expiration of twenty-eight days from the day of the first visit (both days inclusive): but,
3. In the case of such a calf as aforesaid, at the expiration of seven days from the day of the first visit (both days inclusive):

and to report to the local authority on the state of health of the cattle in the cow-shed or place aforesaid.

15. If in the case of any animal, the inspector, on each such visit, is satisfied and reports that it and all other cattle in the cow-shed or place aforesaid are free from contagious or infectious disease, and that such animal has not since the inspector's first visit been in contact with any cattle other than those in the cow-shed or place aforesaid, the local authority shall inform the owner thereof, and shall communicate the owner's notice and the inspector's reports to the Commissioner of Police of the metropolis, and if the cow-shed or place is within the City of London or the liberties thereof, then also to the Commissioner of Police of the City.

Thereupon the animal may be moved out of the metropolis at such time within three days after the second visit of the inspector, and by such route, as in each case the Commissioner of Police of the metropolis prescribes, on the identity of the animal to which the notice and exports relate being shown to the satisfaction of that Commissioner of Police, or of an officer of the metropolitan force appointed by him for the purpose.

16. Nothing in the foregoing provisions of this order, authorising movement of cattle, shall interfere with the operation of any provision of the act of 1869 or of any Order of Council prohibiting

or regulating the movement of cattle affected with a contagious or infectious disease.

MARKETS, SALES, AND EXHIBITIONS.

17. No market, fair, auction, sale, or exhibition of cattle shall be held in the metropolis except under licence from the Privy Council.

If any person holds a market, fair, auction, sale, or exhibition in contradistinction of this order, or fails to comply with any of the conditions, provisions, or regulations of any licence for the holding of a market, fair, auction, sale, or exhibition, he shall be deemed guilty of an offence against this order.

If any cattle are sold, or exposed or put up for sale, or exhibited, in contravention of this order, the seller and the purchaser thereof, and the auctioneer, if any, putting up the same for sale, and the person exposing the same for sale, or exhibiting the same, shall each be deemed guilty of an offence against this order.

18. Cattle exposed for sale in a market in the metropolis, licensed by the Privy Council for the sale of cattle for immediate slaughter, may be kept alive for ten days after such exposure, exclusive of the day of such exposure, but no longer; but this article shall not interfere with the operation of any pro-vision of this or any other Order of Council relative to the slaughter of foreign cattle.

SLAUGHTER-HOUSES.

19. The proprietor of a slaughter-house in the metropolis shall not receive for slaughter any cattle without receiving from the person delivering such cattle to him, or from the owner thereof, the marked pass or licence of the Commissioner of Police under which they have been moved.

20. On the Saturday of every week the proprietor of each slaughter-house in the metropolis shall deliver to the chief officer in charge of the police-station of the district in which the slaughter-house is situate, all the market passes and licences received by him during the week, and such officer shall give a receipt for the same signed by him to the proprietor.

FOOT-AND-MOUTH DISEASE.

21. The following provisions shall apply to cattle becoming affected with foot-and-mouth disease in the metropolis:—

1. If they become affected while in a fair they may be moved therefrom with a licence of the Commissioner of Police to a slaughter-house designated in the licence.
2. If they become affected while in the Metropolitan Cattle Market, they may be moved therefrom with a market pass to a slaughter-house designated in the pass.

INFECTED PLACES.

22. Any dung of animals, and any hay, straw, litter, or other thing commonly used for food of animals or otherwise for or about animals, may be moved out of an infected place within the metropolis (but not out of the metropolis) with a licence signed by an officer of the local authority appointed in that behalf, certifying that the thing moved has been disinfected, but not otherwise.

GENERAL PROVISIONS.

23. If any cattle or thing are or is moved or dealt with in contravention of this order, the owner thereof and the person directing or permitting such moving thereof or dealing therewith, and the person or company in charge of or removing or conveying the same, and in the case of cattle brought into the metropolis by railway, and by this order authorised to be moved out of the metropolis by railway, the railway company by whose railway the cattle were brought into the metropolis shall each be deemed guilty of an offence against this order.

24. If the proprietor of a slaughter-house fails to comply with any provision of this order, he shall be deemed guilty of an offence against this order.

25. The Commissioner of Police of the Metropolis and of the City of London respectively (who respectively are in this order referred to as the Commissioner of Police), are hereby empowered from time to time to grant licences for the purposes of and in conformity with this order, and if they think fit to revoke any such licence granted by them respectively.

Every licence for movement so granted shall state the number and description of the cattle licensed to be moved and the place of their destination.

26. Every licence of the Privy Council for the holding of a market or for fairs, and every licence for the movement of cattle, or for any other purpose, granted before the making of this order by the Commissioner of Police, or by the local authority, or any of their officers on their behalf, or by any other person authorised to grant the same, and in force at the date of this order, shall continue in force thereafter as if this order had not been made, and shall be available in like manner, to all intents, for the purpose for which it was granted, as if it had been granted under this order.

27. The Metropolitan Board of Works shall cause this order to be published in a newspaper circulating in the metropolis; and the Mayor, Aldermen, and Commons of the City of London shall cause a copy thereof to be affixed in a conspicuous place in the Metropolitan Cattle Market; and the Commissioners of Police respectively shall cause a copy thereof to be affixed in a conspicuous place at each police station.

ARTHUR HELPS.

THE FIRST SCHEDULE.

Pass No. ——

METROPOLITAN CATTLE MARKET PASS.

The following cattle being of those brought to be sold in the

METROPOLITAN CATTLE MARKET

this day by from under the licence numbered , and retained by the officer of the market appointed for the purpose may be moved to within the limits of the metropolis (in-

clusive of the City of London and the liberties thereof), but not beyond, by the undermentioned route, and no other:—

Number and Description of the Cattle.	Name and Address or Place of Business of the Owner or Purchaser moving the Cattle.	Route.	Name of Occupier, and Address and Description of the Slaughter-house to which the Cattle are to be moved for Slaughter.	Route.	Name of Drover and Number of his Badge.	Remarks.
British { Beasts...						
British { Calves...						
Foreign { Beasts...						
Foreign { Calves...						

This pass will not authorise movement, in case of foreign cattle, after eleven days from the date of landing, inclusive, or in case of other cattle, after eleven days from the day of the date thereof, inclusive.

This pass must be delivered to the proprietor or person in charge of the slaughter-house to which these cattle are taken.

(Signed, with date)

Appointed to grant passes at the above-named market.

Caution.—Persons who fabricate or commit other offences with respect to these passes are liable, under act of parliament, to fine or imprisonment.

THE SECOND SCHEDULE.

GREAT NORTHERN.

By the Great Northern Railway to its junction with the Metropolitan Railway, and thence as follows:—either,

1. By the Metropolitan Railway to its junction with the London, Chatham, and Dover Railway, and by the last-mentioned railway through Herne-hill Station out of the metropolis; or

2. By the Metropolitan Railway to its junction with the London, Chatham, and Dover Railway, and by the last-mentioned railway to Beckenham Junction, and thence by the South-Eastern Railway out of the metropolis; or

3. By the Metropolitan Railway to its junction with the London, Chatham, and Dover Railway, and by the last-mentioned railway to its junction with the London, Brighton, and South Coast Railway, at or near Battersea, and thence by the last-mentioned railway out of the metropolis.

GREAT WESTERN.

By the Great Western Railway to the West London Junction, and thence as follows: either—

1. By the West London Railway to its junction with the London, Chatham, and Dover Railway, at or near Long Hedge, and thence by the last-mentioned railway out of the metropolis; or

2. By the West London Railway to Clapham Junction, and thence by the London and South Western Railway out of the metropolis; or

3. By the West London Railway to its junction with the London, Brighton, and South Coast Railway, at or near Long Hedge, and thence by the last-mentioned railway out of the metropolis; or

4. By the West London Railway to Willesden Station, and thence by the London and North Western Railway out of the metropolis.

LONDON AND NORTH-WESTERN.

By the London and North-Western Railway to Willesden Station, and thence as follows—either,

1. By the West London Railway to the junctions with the London, Chatham, and Dover Railway, and with the London, Brighton, and South Coast Railway, at or near Long Hedge, and thence by either of the last-mentioned railways out of the metropolis; or,

2. By the North and South-Western Junction Railway out of the metropolis; or,

3. By the West London Railway to its junction with the London, Chatham, and Dover Railway, at or near Long Hedge, and thence by the last-mentioned railway to Beckenham Junction, and thence by the South-Eastern Railway out of the metropolis.

LONDON AND SOUTH-WESTERN.

1. By the London and South-Western Railway to Clapham Junction, and thence by the West London Extension and the West London Railways to Willesden Station, and thence by the London and North-Western Railway out of the metropolis; or

2. By the North and South-Western Junction Railway to Willesden Station, and thence by the London and North-Western Railway out of the metropolis; or

3. By the London and South-Western Railway to Clapham Junction, and thence by the London, Chatham, and Dover Railway, through Long Hedge Junction and Herne-hill Station, out of the metropolis.

MIDLAND.

By the Midland Railway to its junction with the Midland and South-Western Junction Railway near Hendon, and thence by the last-mentioned railway to its junction with the North and South-Western Junction Railway, and thence by the last-mentioned railway out of the metropolis; or

By the Midland Railway to its junction with the Metropolitan Railway, and thence by the last-mentioned railway to its junction with the London, Chatham, and Dover Railway, and thence as follows: either—

1. By the last-mentioned railway through Herne-hill Station out of the metropolis; or

2. By the same railway to Beckenham Junction, and thence by the South-Eastern Railway out of the metropolis; or

3. By the London, Chatham, and Dover Railway, to its junction

with the London, Brighton, and South Coast Railway, at or near Battersea, and thence by the last-mentioned railway out of the metropolis.

LONDON.

At the Council Chamber, Whitehall, the 10th day of August, 1869. By the Lords of Her Majesty's Most Honourable Privy Council. The Lords of Her Majesty's Most Honourable Privy Council, by virtue and in exercise of the powers in them vested under the Contagious Diseases (Animals) Act, 1860, and of every other power enabling them in this behalf, do hereby define the parts of the port of London within which foreign cattle may be landed for slaughter, as :—

1. Thames Haven, which is hereinafter referred to as the landing-place No. 1, and for this purpose shall be defined to be as follows:

All that place in the parish of Fobbing, in the County of Essex, the property of the London, Tilbury, and Southend Railway Company, at the Thames Haven Station of that company, lying between the River Thames and a line commencing at a point on the River Thames at the south-western corner of the property of the said railway company, near the Thames Haven Station, and running in a north-westerly direction for a distance of 610 yards along the fence or boundary between the property of the railway company and lands of Mr. Samuel Sharp; thence in a north-easterly direction along the eastern side of the carriage road across the Thames Haven branch of the London, Tilbury, and Southend Railway, to the northern fence of the railway; thence in a south-easterly direction along the fence or boundary between the property of the London, Tilbury, and Southend Railway Company and lands of Mr. Samuel Sharp to the River Thames, at a point 280 yards to the eastward of the new pier at Thames Haven, which space is coloured green on the plan thereof deposited for the purposes of an Order in Council of the 11th day of October, 1869, at the Privy Council Office, copies whereof are deposited at the offices of the clerk of the peace for the County of Essex, and of the Metropolitan Board of Works.

2. The landing-place, which is commonly called Odam's Wharf, and which is hereinafter referred to as the landing-place No. 2, and for this purpose shall be defined to be as follows:

All that space on the Plaistow Marshes, near the Victoria Docks, in the parish of West Ham and county of Essex, bounded on the north-eastern side, for a distance of 200 yards or thereabouts, by the old line of tramway or railway from London to North Woolwich, on the south-western side, for a distance of 200 yards or thereabouts, by the River Thames, on the north-western side by premises used as a sugar bakery, in the occupation of Mr. James Duncan, and on the south-eastern side by the wall forming the north-western boundary of the premises in the occupation of the London Wharfing and Warehousing Company, which space is coloured pink on the plan thereof deposited for the purposes of the said order, at the Privy Council Office, copies whereof are deposited at the offices of the

clerk of the peace for the county of Essex, and of the Metropolitan Board of Works.

3. The Victoria Docks, which is hereafter referred to as the landing place, No. 3, and for this purpose shall be defined to be as follows:

All that space situated at the Victoria Docks, in the parish of West Ham, in the county of Essex, bounded on a portion of its south-western side of the River Thames, and on all other sides and parts by a line commencing on the River Thames, at the north-west pier of the entrance lock of the Victoria Docks, and running in an easterly and northerly direction along the boundary fence of the Victoria Docks to the extreme north-western corner of the dock property, near the Tidal Basin Station of the North Woolwich Railway; thence eastwards for a distance of 307 yards along a continuation of the said boundary fence, to the north-western corner of the tobacco warehouse; thence in a southerly direction by a straight line along the western wall of the tobacco warehouse, and along the eastern wall of the tidal basin, and by a continuation of the same straight line to the fence forming the southern boundary of the dock premises; thence in a westerly direction along the last-mentioned fence to the River Thames, at the south-east pier of the entrance-lock of the Victoria Docks; which space is coloured green on the plan thereof deposited for the purposes of the said order at the Privy Council Office, copies whereof are deposited at the offices of the clerk of the peace for the county of Essex and of the Metropolitan Board of Works.

4. The landing-place, which is commonly called Brown's Wharf, and which is hereinafter referred to as the landing-place No. 4, and for this purpose shall be defined as follows:

All that space in the parish of Poplar, in the county of Middlesex, lying between the River Thames and a line commencing at the said river, at the eastern point of the pier-head, on the north side of the Blackwall entrance of the East and West India Docks, and passing in a north-westerly direction to the eastern side of Preston's Road, to at a point fifty-five yards to the south of the south-western corner of Russell Street; thence continuing westward across Preston's Road, to the south-eastern corner of the railway dock belonging to the North London Railway Company; thence continuing westward along the southern end of the said railway dock to the south-western corner thereof; thence passing straight in a north-westerly direction for a distance of 235 yards to a point fifty yards due east of the northern end of the open ditch lying between the import dock of the East and West India Dock Company and the railway dock the property of the North London Railway Company; thence westward to the northern end of the said open ditch; thence southward along the western side of the said ditch for a distance of 141 yards; thence due east for a distance of nineteen yards to the south-western corner of the North London Railway Company's boundary fence; thence eastward along the said railway company's boundary fence to a point thirteen yards to the westward of the western side of the lock between the

railway company's dock and the Blackwall basin; thence straight in a south-easterly direction to the north-eastern corner of the premises known as Lloyd's Proving House; thence southward along the eastern side of Lloyd's Proving House, to the south-western corner thereof; thence in a south-easterly direction to the water of the lock of the eastern entrance of the East and West India Company's South Dock, at the north-eastern end of the bridge which crosses the said lock; thence eastward along the northern side of the water of the lock and of the eastern entrance of the South Dock to the River Thames; which space is coloured green on the plan of the East and West India Docks and Poplar Goods Station, deposited for the purposes of an order of the 7th day of November, 1867, at the Privy Council Office, copies whereof are deposited at the offices of the clerk of the peace for the county of Middlesex, and of the Metropolitan Board of Works.

And the Lords of the Council do hereby prescribe as follows:

1. Regulation six of the Fourth Schedule to the Contagious Diseases (Animals) Act, 1869, shall not apply to cattle landed within the several landing-places aforesaid.

2. The cattle landed at the landing-place No. 1, when removed therefrom, shall be removed by the followlng route, namely:

By the London, Tilbury, and Southend Railway to Forest Gate, near Stratford; thence by the Great Eastern Railway to the metropolis.

And the cattle landed at the landing-place No. 2, when removed therefrom, shall be removed by the following route, namely:

Along a siding of the North Woolwich Railway, which is part of the Great Eastern Railway, to the Barking Road Station; thence by the Great Eastern Railway to the metropolis.

And the cattle landed at the landing-place No. 3, when removed therefrom, shall be removed by the following route, namely:

Along sidings running direct on to the North Woolwich Railway, which is part of the Great Eastern Railway, to the Barking Road Station; thence by the Great Eastern Railway to the metropolis.

And the cattle landed at the landing-place No. 4, when removed therefrom, shall be removed by the following route, namely:

Along a siding of the North London Railway to the main line thereof, and thence along the North London Railway, by way of Bow and Hackney.

3. All foreign cattle so conveyed by railway shall be brought along the said railways without stopping, and shall be discharged from the trucks in which they have been conveyed, at a station or place within one thousand yards of the Metropolitan Cattle Market, at Islington, and shall be driven immediately, on being so discharged, to that market, or to the lairs belonging thereto, or to other lairs licensed by the Privy Council for the reception of such cattle.

ARTHUR HEAPS.

Then follow a series of Orders defining the boundaries within the following ports within which foreign cattle may

be landed for slaughter, viz.:—Chichester, Bristol, Cowes, Dover, Hartlepool, Harwich, Hull, Newcastle-upon-Tyne, Plymouth, North Shields, Shoreham, Southampton, Granton, Leith, Glasgow, Middlesborough, Portsmouth, Grimsby, Dartmouth, Littlehampton, Sunderland, Goole, and Liverpool.

IRISH CENTRAL VETERINARY MEDICAL ASSOCIATION.

THE first meeting of this Association was held on the 9th inst., in the Royal Dublin Society's Buildings, Kildare-street. The Honourable Montague Mostyn, President, in the chair. The members present were—Mr. M. Murphy, senior, Mr. Paley, Mr. Farrall, and Mr. Lambert, Dublin; Mr. Clancy, Curragh; Mr. Prentice, Longford; Mr. Ashe, Cork; Mr. Preston, Mallow; Mr. Reily, Navan; Mr. Simcocks, Drogheda; Mr. Collins, Royal Dragoons; and Mr. Pallin, Kilkenny.

The preliminary business of the Association having been gone through, Mr. Pallin read a paper on "Chronic Diseases of the Lungs in the Horse," which elicited a good practical discussion.

CHRONIC DISEASES OF THE LUNGS IN THE HORSE.

(*An Essay read before the Irish Central Veterinary Medical Association, on the 9th of August*, 1869, *at the Royal Dublin Society, Kildare Street. By* WM. PALLIN, M.R.C.V.S.L., V.C.E., &c., *Kilkenny.*)

MR. PRESIDENT AND GENTLEMEN,—There is, perhaps, no profession which, within the past twenty years, has made such progress in Ireland as ours—advances, not alone in the profession itself, but advancement in the minds of the public and the country at large. Up to a few years ago the labours of our veterinary surgeons were confined to the leading towns and cities of this island, and even there men had difficulties to contend with, to put down empiricism, and to gain the full confidence of their patrons. The profession is a new one, but not the less important to a country like Ireland, where its principal wealth consists in horses and cattle; every year has strengthened our ranks, and we now have qualified men spread over the country, as well as in the more important metropolises. The supply, however, is far from sufficient, for let me assure you that there is room for much more energetic, respectable, qualified men than at present are in practice; true, you will ask, "Why do not those already there make fortunes?" but the fact is, each district wants separate working up. In the first place, to convince the stock-owners that we are really some advantage to employ, and better than the ancient cow leech or village farrier. I will admit that all

will not realize large incomes, but how many qualified, efficient medical practitioners are happy, struggling on their hundred a-year, and keeping a respectable position in society with it? The cities and large towns are well stocked, perhaps in some places inconveniently so, but the want is felt most in the horse and cattle breeding districts, where there is scope for practice, and need for energy and ability.

Until the breaking out of the cattle plague in England the country never really felt the want of professional men, but I know how uncomfortable large proprietors felt at the time in those districts where no aid could be obtained, and had that awful plague visited this country the veterinary profession in Ireland would have been found so inadequate that their efforts would be almost paralysed and useless.

Gentlemen, I have long considered we had two wants in Ireland, and I felt jealous of our brethren in England and Scotland, who have had those advantages over us, and the result is, that they stand on a firmer ground, and all classes have fuller confidence in them. I allude to a veterinary association and a veterinary college for Ireland. The former is this evening launched in the name of the "Irish Central Veterinary Medical Association," and it is the very proudest moment in my life to come here to assist in making it splash safely into the ocean, and see it sail away on its first voyage in success and prosperity. As a body representing the Irish members of the profession, we must feel indebted to those gentlemen, and especially my friend Mr. Collins, with whom, I believe, the idea originated.

The advantages to be derived from such an association are so numerous that it is impossible to say where their benefits may end. In our rules four principal ones are named, but the sequels that each will produce will be felt, not only through the profession generally, but throughout the country at large.

The first object of this Society is the elevation of the profession to that position which it should hold, but it is one which does not entirely rest with the association, but the members which compose it. As a profession, we deeply need it. I know there are many who have left nothing undone to raise a position for themselves and their profession, but whether it is due to those who have gone before us, or to the present, we must and shall get a link higher in the social scale before we can command that respect which, as an educated and scientific body of men, we should hold. There is nothing, gentlemen, which will tend more to produce such effects than the establishment and success of our new institution.

Our second object is intended to alleviate a disease which, to my mind, has long been the existing one at the heart of the profession, and the one from which it has suffered most, namely, the production of a friendly feeling amongst its members; the old adage of "two of a trade never agree" seems to satisfy many, and I have known natural dislikes to arise without the slightest cause; simply on this principle we must try and remedy the evil, and as a body of

men we should smother such feelings, no matter how they arise up before us. I will admit it is often hard while ambition is invariably at the bottom of it, but to those who feel so I say become a member of "The Irish Central Veterinary Medical Society," and you are then brought in contact with those very men, learn more of their character and abilities, and the result is a mutual respect and confidence must establish itself. It is that friendly feeling which has brought us here to-night, and we should carry it home with us to our practices.

Our third object is the supervision of our mutual interests, which alone can be done by a society of this kind. Individually our strength is comparatively small, but when combined in the formation of an association we are in a position to watch over the common interests of our profession, to protect her rights, and guard her privileges.

The fourth object is the substance of the Society—the reading and discussion of subjects connected with our science. The spirit of the age is progress, every day is bringing to light discoveries, inventions, and advantages which were before unknown. There is not one of us in our everyday practice but finds something different or unusual in almost every case. We cannot adopt the same in each, and all have their peculiarities. Our Society is to bring such results mutually to light, and to induce an interchange of ideas in our members, as well as to fasten those which have already been matured on our memories. Let me assure you there is not one who brings forward a paper for discussion but is for ever afterwards at home in it in practice, while his patrons and his patients find, when a case of the kind offers, the advantage of his close investigation of the subject.

There is, perhaps, no greater proof of the success of the profession than the formation of our Society, and anyone who would have considered the matter over six months ago and see this room to-night, could have scarcely imagined we could make so formidable a commencement. The matter is still in its infancy, and but wants time to have it develope itself and stand prominent amongst the institutions of the country. The want of a veterinary college in Ireland is publicly acknowledged, and the appropriate remarks of our Viceroy at the late agricultural dinner in Dublin, were received with deep satisfaction by all those who have the welfare of the profession at heart. At present the science has to be imported from England and Scotland, and it can never make that home and progress in Ireland which it should do until we have an institution in the country which will give it native birth. A few argue there is no necessity for it, but why should we have to send our young men across the water to educate them when we have every facility at home? only put it into operation. I cannot be made believe that the profession will overstock itself. The existence of a college would stimulate more employment, better men to join the profession, and tend to strengthen and elevate those already in it. I am confident matters will not be allowed to remain much longer as

they are. The Royal Dublin Society should take up the subject, and, I understand, that assistance from Government is already in contemplation.

Gentlemen, I have travelled too far away from the subject of my paper, and I feel that it is almost presumption on my part to become your first essayist. The subject which, as you are already aware, is

Chronic Diseases of the Lungs,

which I have been induced to select for this reason: Six years ago, when commencing practice, it so happened that several cases of the kind presented themselves for treatment, and I found myself anything but fully informed on their nature, symptoms, &c. I immediately had recourse to the standard works in the profession, but was disappointed in my researches at finding the subjects almost untouched, with but a few exceptions, by our veterinary authors. Since then I have taken some pains to collect materials and information to fill up the gap, and the following remarks are compiled from my own investigation, but in a most imperfect state but practical form; there is still much to add to so important a subject, and, I anticipate, our discussion will have that effect.

Perhaps the greatest difference which exists in human and equine pathology is in chronic affections of the lungs. In man phthisis and asthma are most prominent amongst them, while in the horse the same place is supplied by broken wind and chronic cough. As distinct or primary diseases they do not often occur, but generally as the result or sequelæ of acute inflammatory ones, while, as a rule, our diagnosis and treatment up to this has been neither satisfactory nor successful, and it thus makes it a better subject to bring before an association like the present; when we have an opportunity seldom offered of collecting practical opinions and the fruit of years of experience, we should produce at least satisfactory conclusions on the matter.

It is a difficult object at all times to define the line which demarks the one disease from the other in our patients, and we usually hear one synonym to express all chronic affections of the chest in our patients, namely, "broken wind," like many other terms in our nomenclature, such as influenza, murrain, distemper, &c., which define no particular affection, and leave a wide space to draw your conclusions after, and the public are satisfied to consider all horses suffering from anything between a slight chronic cough and the worst form of lung disease as simply "touched in the wind."

Acute lung diseases seem to occupy the principal attention of the profession, and I admit it is most important for every one of us to thoroughly understand them, but that knowledge is perfectly incomplete without a corresponding amount of information on their chronic sequels and terminations; such, however, as I have said before, has been withheld, while they are diseases which equally interest us, we are as often called on to treat and expected to be successful, but which can only be when we can form a correct conclusion as to their exact seat. Acute diseases run their courses rapidly,

and it often happens we are never called on to treat them till some unfavorable symptom or termination sets in to arouse the suspicions of the owner of the unfortunate animal, or, in other instances, till fatal ones begin to develop themselves, and it is then we are tested to exert our skill to determine its nature, or distinguish it from other diseases which might simulate the symptoms. There is, perhaps, no greater disappointment to a professional man than to have a good case of bronchitis or pneumonia, and fill himself up with an idea that our patient is safely out of it, and in all probability give his owner a promise of the same, when you find a troublesome cough continue, changing every day with all treatment, and becoming gradually, dry, short, and hollow, which betokens the dreaded sequel and only wants the spasmodic double respiration to tell the case has terminated, and the patient "broken winded;" and worse still, when we are compelled to inform his master that the animal, which may have been a favorite or valuable hunter, is only fit to be sold or turned to slow farm work. Such has happened to myself, and it is one of those awkward positions which professional men are sometimes placed in.

Chronic bronchitis is the first of those diseases I will allude to, and is one of the most common unfavorable terminations of influenza, distemper, strangles, or any acute inflammation of the air passages. It is unnecessary for me to give any explanation of the minute structure of the bronchial tubes, as they are already, as well as the construction of the air-cells and lung-tissue itself, known to all here. Chronic bronchitis is invariably preceded by an attack of acute inflammation, and shows itself after those symptoms have disappeared. Influenza in most of its forms, and strangles in many, are accompanied by or consist in an inflammatory condition of the muco-respiratory tract; and we find, after the symptoms of the disease have disappeared, and the animal should be in health, a husky dry cough remains, while the Schneiderian membrane retains its purple hue, and secretes a peculiar muco-purulent fluid, varying daily in its consistence and appearance. The signs of returning health seem delayed, and the animal has an anxious, careworn appearance. On giving exercise fits of coughing come on, and the breathing is disturbed even in walking. On closer examination the respirations are found increased five, six, and even ten more than natural, and shows particularly during exertion or excitement. The appetite is not impaired in the least, indeed, in some cases, I have seen it voracious, with a tendency to eat litter or other refuse. I have sometimes observed, as the disease advances, slight depression of the intercostal muscles, but little other symptoms show themselves until the cough gradually increases, becomes more troublesome, and changes in tone, the attendant generally remarking that it is like an attempt to remove something from the throat, and occurring in paroxysms. On carefully watching *the mouth*, or examining it after a fit, a small sputum, or piece of coagulated puriform lymph will be found, which is the reason we so seldom see this, as it is usually swallowed with the saliva. In a few cases

I have found perfect casts of the bronchial tubes, when the disease has existed for some time, forced out on the ground during a violent fit. In this state a horse may remain for months without much change, with the exception of the cough, which gradually and stealthily alters in its tone and becomes less frequent, the horse only giving a few loud hollow barks at a time, especially after being fed or watered, or leaving the stable.

Auscultation does not detect much, there is a slight but decided increased respiratory murmur, but no râle or syble. At the entrance of the chest there is a wheezing noise distinctly heard, which comes from the large bronchial tubes, or lower part of the trachea. During this time the cough varies very much in its intensity, some days the patient will not give a cough, while at another time it will be a continuous series of fits or single coughs. I can only account for such a state to depend on the condition of the alimentary canal, constipation always having a tendency to induce the paroxysms.

Dr. Tanner, alluding to chronic bronchitis in the human subject, has detected slightly impaired resonance on percussion, especially low down posteriorly, while the vesicular murmur is feebly heard, and is mingled with rhonchus and sibilus moist crepitation.

The pathology of the disease consists in chronic inflammation of the mucous membrane lining the bronchial tubes, which become thickened, and secrete, instead of the natural moisture, an unhealthy and increased discharge, which is in some parts unable to be removed by the ciliated epithelium, and either clogs up the opening, which produces a dilation of the tube behind it, or a collapsed state of the lobule to which it leads. In the large bronchii the membrane becomes thickened and unhealthy, which is due to the irritative effect of the morbid secretion, which has to pass over, and gives rise to the troublesome irritable cough. This occurs oftenest at the bifurcation of the tubes. On dissection the mucous membrane is frequently found of a deep red colour, which may, and is often, diffused in patches. It is generally of a more livid or violet tint than in the acute disease, when it is usually brighter, or verging towards brown. Not unfrequently the membrane is free from this, and it is sometimes seen whiter than usual; but this is generally in cases where there has been a copious discharge. Softening does not occur to the extent to which it goes on in inflammation of the gastric mucous membrane, but this is due to the peculiar construction and simple state of the membrane itself.

The terminations of chronic bronchitis are most important, as it is the states in which we are oftenest called on to treat our patients. The owner generally brings him under your notice as having a troublesome cough and shortness of breath; this state, on inquiry, is found to have existed for a couple of months, and we are generally informed that the cough has been several times cured, but come on again.

From the investigations I have made, I have come to the conclusion that we have the following terminations, viz. first, dilation of

the bronchial tubes producing chronic cough; secondly, thickening of the tubes having a similar effect; and thirdly, complete blocking up of them, causing obliteration and collapse of the lobule of the lung, which they lead to, producing thick wind, all of which may vary in the intensity of their attack.

The most common is thickening and dilation, while the symptoms in both are almost the same. Our principal guide is the cough, but we must be thoroughly acquainted with its sounds before we can give a decided or direct opinion as to the exact amount of disease it indicates or the part affected.

In thickening of the bronchial tubes the breathing is much shorter, and on giving exercise, say a quick gallop, dyspnœa sets in. On auscultation, at the entrance of the trachea into the chest there is a peculiar rushing sound, while over the surface of the lungs I have generally detected a wheezing sound, in all probability due to the air rushing through the confined air tubes. I have met some cases where this was not present, which I can only account for in the diseased bronchii being deep seated in the lung, and in all probability beyond the detection of the ear. The cough is peculiarly short, but not dry, and more frequent than in the other forms, and produced by exertion, as shown when the horse starts at first.

In dilation of the bronchi the cough is quite different, and to my ear sounds more like that of a roarer; it is a full spasmodic cough, without that clear resonance we hear after the natural one; it bursts out, but stops suddenly, and varies most unusually in its attacks. Sometimes a horse suffering will not cough for a whole journey, or even a day, and on the following one will have it almost continuous. Such a result, I think, depends on the nervous influence, the atmosphere, and the state of the stomach. The latter I consider is almost the principal one. I have found feeding, for instance, with oats before starting on a journey to have the most injurious effects in producing the cough, which is no doubt due to a certain extent to the mechanical inconvenience it causes by impeding the perfect action of the diaphragm. Exercise does not produce so much difficulty of breathing, but we always have a deepened expiration shown by a draw at the flanks.

While speaking of this form of bronchitis, there is one cause which may often produce dilation, and which is occasionally met with. I allude to horses which have been exposed to the effects of fire and smoke, as in a burning stable. I may illustrate it by giving a case of the kind which I have at present under my care.

A stable caught fire belonging to a gentleman near Kilkenny, in which was a rather valuable hunter, and it was some time before he was rescued from the burning edifice, and then almost in a suffocated state, which to a great extent disappeared till the following day, when he was found suffering from a severe attack of acute bronchitis.

With blistering his sides, trachea, and the usual treatment, the horse recovered gradually, and his breathing became normal, but the cough continued, and was most severe on leaving the stable, and

during the night. Considering this a case worth investigating, I got the horse under my own care for three months; during the time I treated him for chronic bronchitis, and I was successful so far as to remove the principal symptoms, and render the horse fit for ordinary harness work. However, I am convinced that dilation of the bronchi has taken place, from the symptoms which still remain. He continues to give a few short coughs on leaving the stable, his respirations are deeper, and after exercise his nostrils dilate more than natural; but if his stomach is empty he can go any distance without symptoms of distress or inconvenience.

I had another case from almost the same cause, but with a different result, which I consider is interesting enough to introduce here also. The patient was a very valuable hunter, and was exposed in a similar way to the effects of smoke in a burning stable, and all the symptoms of acute bronchitis followed; but with repeated blistering and other treatment, the horse became, to all appearance, sound, with the exception of a cough which remained. Some time after, and when beginning to get into condition, his owner's groom gave him a short gallop; he scarcely went a quarter of a mile when he heard a peculiar snore, as if from difficulty of breathing, and in another moment he staggered and almost fell forward; the man was immediately off his back, and to his head, when he found him bleeding very slightly from the right nostril, but suffering intense dyspnœa. He was led quietly back to his stable; the bleeding stopped, and by a couple of hours he was quite himself again. The blood was distinctly arterial, and I think came from the capillaries of the bronchial tubes, or perhaps from the air cells. This horse was blistered several times, had six months perfect rest, with an occasional dose of physic; and he came so far round that he could go any distance. The cough, however, continued, but for a year afterwards occasionally a slight trace of blood could be detected mixed with the mucus of the nose or froth after a gallop. Why smoke should produce such effects it is somewhat difficult to say, but it must cause dilation, and perhaps derangement of the air-cells themselves.

The *third* sequel of chronic bronchitis is complete stoppage or blocking-up of the tubes, with collapse of one or more of the lobules, and "thick wind" as a consequence.

There are other causes of "thick wind," but I look on this to be amongst the principal ones. The production of this, I consider, depends on the excessive secretion of mucus from the bronchi, which renders the ciliated epithelium so weak and debilitated as to make their development imperfect; and the important part which they play in connection with the muscular fibres of the tubes becomes either completely destroyed or, at least, impaired, and the secretion block up as the result. This usually occurs in the second or third bronchi, and oftenest at a junction; collapse of the lobule behind it follows, when it ceases to have any effect in performing the process of respiration. I have myself seen collapse of the border or edge of a lung, from blocking of the air tubes in acute

bronchitis, after death, and I consider that nature alone can work a cure by causing the suppurative process round it; in all probability, as in phthisis, a small abscess is the result, and it is some time after coughed up.

The treatment of bronchitis.—To be successful in treating this disease (like all others) we must first come to a conclusion as to the exact form which it presents, and this requires a most careful examination with the stethoscope. After first using it I generally ride the horse a little and examine again, so as to fully satisfy myself.

I will divide my course of treatment into dietary and medicinal; the former I look on as the most important, and requires the aid of a careful attendant. After I am convinced that all the acute symptoms of the disease have disappeared, our object should be to get the digestive apparatus into as perfect a state as possible, and to give then only such food as can be easily digested, and which will occupy as small a space as possible. I have made my patient live almost completely on oats and water, and with the most marked benefit. I give, say, four small feeds in the day, or even the same quantity divided into five, and as often giving a small drink of water, but never allowing the horse to gorge himself in any way, but more particularly with fluids; the hay in small portions, and I have found it, cut when good and sweet, to answer well. If horses eat their bed, turf mould or sawdust may be used, or a muzzle kept on when not feeding.

Medicinal agents in general have not those satisfactory effects on the lungs as on other special organs. I usually commence my treatment by administering a purgative, and during its action give plenty of linseed gruel to assist it, and immediately after a strong cantharides blister to each side, and in some cases along the course of the trachea. I have tried four different courses of medicine, namely, calomel, iodide of potassium, linseed-oil and Carrigean moss; the last I look on as the most successful, and, in some cases, almost a specific. I claim it as a remedy of my own, as its use originated with myself in this way:—Knowing that it had a beneficial effect in some lung diseases in the human subject, about three years ago I thought of trying it in my practice. Since then I have almost constantly used it, and with the most marked benefit, in relieving not only the cough, but changing its tone and frequency, and if continued with other treatment, almost removing all the symptoms. I will not go so far as to say that it is a cure—I have not been convinced of that myself; but this I will affirm, that at present I have two or three horses which I have treated with it, suffering from chronic bronchitis, and which their owners considered broken-winded, now doing ordinary work, and comparatively speaking sound. I use it in the liquid state, as a drink or over a mash to moisten it, by boiling down about one pound of the common moss to a gallon of water, until it sinks to the bottom, when it should be strained and allowed to cool, and given in some time after. At first horses will not partake of it freely, but I use a

small quantity in a bucket of water weak, and increase it gradually. Horses in a short time become quite fond of it, and will prefer it to any drink, when it may be given in larger quantities and any strength. I have been somewhat puzzled to account for its action; I can only surmise the following ways in which it may produce its effects. The first is by its emollient effects on the digestive organs, and assisting in their action; and the second is that I consider it very rich in such chemicals as iodine, bromine, and potassium, which it gets from the sea in its growth. I have found its fattening properties are very small, but it certainly keeps a horse in health, and makes him look well when continued to be given.

Linseed-oil is an old recipe, but not the less important or useful, as it most decidedly has a beneficial effect on the air-passages. It is known to others besides the profession, for it is one of the principal agents employed by those unscrupulous dealers who use such means as "setting a broken-winded horse;" and I can only account for this from its effects on the stomach. In small and repeated doses it certainly alleviates the symptoms considerably, and I generally administer it in two- or three-ounce doses every night, and especially in the early treatment of the disease. Its action can only be accounted for by its soothing properties on the digestive track, or by its mild aperient effects.

Calomel I have given a fair trial to in a few cases, but cannot say anything in its favour in this disease. I have produced repeated salivation in horses suffering from it, but have found no marked benefit.

In two cases where I supposed stoppage of the bronchii or collapse had taken place I tried sulphur vapour, and in one of the cases where used twice a week inhaled, it produced a slight mucopurulent discharge, probably from its stimulating the mucous membrane, which should certainly tend to induce a healthy condition of them.

Ventilation is of the greatest importance. With pure air and cleanliness, and after the effect of the physic and blister have disappeared, quiet slow exercise is beneficial.

Asthma is the next disease I will allude to, and one which the profession has heard but little of, but which, I am convinced, occurs frequently in the horse. Although depending on the same pathological condition as in the human subject, namely, spasm of the muscular fibres of the bronchial tubes, it does not occur idiopathically. Forms of emphysema, thickening of the bronchial tubes, rupture of the air-cells, forms of heart disease, or morbid states of the nervous system, are generally the causes of its appearance. I have not met or heard of a case of true idiopathic asthma, but invariably those cases of broken wind which we hear of suddenly getting well are some form of asthma, depending on derangement of the stomach. The same causes that will produce broken wind in man will produce asthma in horses. Animals suffering from "thick wind" are principally the subjects, and the spasmodic attack comes on oftenest under circumstances of respiratory excitement, as severe exertion will produce.

Mr. Haycock is almost the only author who gives us any idea of the disease, and designates it "hay asthma," from its similarity to the same disease in man, when it is attributed to a peculiar kind of dried grass amongst herbage which compose the diet. He informs us that he has treated a number of cases of the disease, and in several instances with perfect success, and continues to say that for a long time he regarded them as cases of broken wind, and was sanguine in the belief that he had found a remedy for it. Experience, however, based on an extensive observation of the facts, led him to perceive that his prior conclusions were erroneous. This I can fully endorse, for several of the earlier cases which came under my notice I considered as broken wind, and was astonished at finding them improve under treatment, or even without it.

It is not an unfrequent occurrence to put a hunter or harness-horse out for a run at grass in the summer, and find him come up broken-winded, but I have found in many of those cases proper stable management and treatment remove the symptoms almost completely. Such I consider to depend on functional derangement producing spasmodic action of the bronchial tubes and true asthma. It may also occur in another way to horses turned out to grass. A severe night may come on, and the animal, previously in a stable and well clothed, so exposed, an attack of catarrh or bronchitis is the result; this is kept up from the animal having to travel for his food, and the air-passages suffer from the irritation, and chronic condition of it follows, producing spasmodic contraction as a sequel, especially if the grass is old and bad, and a large quantity has to be consumed to sustain the horse.

The pathology of asthma is equally the same as in the human subject, but, as I have before alluded, the symptoms in the horse are generally combined with those of other diseases. It is somewhat difficult to define or distinguish the difference between those of broken wind, but the most marked ones which I have detected is the absence of the second beat or expiration. In asthma, both inspiration and expiration are even, excepting in bad cases, when the latter is performed with a spasmodic jerk. The alæ of the nostrils, as a rule, are not flapping, and the dyspnœa is more intense than in broken wind on exertion. I have failed in auscultation to satisfy myself on any marked difference between the two diseases, excepting after exertion, when a peculiar wheezing noise is detected at the entrance of the trachea into the chest in asthma. I may illustrate the subject fuller by relating a marked case which I treated in an aged hunter which was put out to grass for the summer, and his owner, much to his disappointment, found, on taking him up, all the symptoms of broken wind, but which, on closer examination, did not present the usual ones, and led me to conclude the character of the case. The horse had the increased and spasmodic respiration, and very little exercise almost produced dyspnœa. The cough was not frequent, and came on in fits. The eyes were sunken, animal debilitated, and his coat looking unhealthy and staring. Paroxysms of spasms came on three, four, or five times a day, and during their

existence you could hear the breathing of the animal outside the stable door, while his head was extended, and, if possible, pointing towards it. At night the horse suffered most, particularly if the atmosphere was cloudy or the stable impure from want of air. In the morning, before feeding, the symptoms almost disappeared, with the respirations about 18 per minute.

The treatment which I adopted in this case was to have the horses' sides blistered with biniodide of mercury ointment, and kept up the irritation and discharge afterwards by dressing with mercurial ointment every second day; to administer a strong purgative and then a small dose of linseed oil for three days, to keep up a laxative state of the bowels; after which I recommend half-drachm doses of iodide of potassium three times a day, increasing it to a drachm, with linseed mashes and no hay. The attacks lessened every day, while the cough became less frequent and troublesome. At the end of a fortnight I stopped the administration of the potassium, gave another purgative, and when its effects were over again commenced. The difficulty of breathing gradually decreased, and in five weeks the horse was sent to exercise, and since then has been raced. His diet, however, required to be carefully watched, as he was a gross feeder, and if by chance he ate his bedding or other refuse the breathing became distressed.

At present this horse is doing harness-work, and I made inquiries some time since, and he is usefully sound, but has an occasional cough.

I could enumerate several similar cases, although not all so successful in their termination. In one instance a hunter, the property of a gentleman in the Queen's Co., came to me for treatment. He recovered sufficiently to carry his owner the season, but the following summer he was not a month left out of work when he became badly broken-winded.

Iodide of potassium, purgatives, counter-irritation, and proper diet, I consider the most effectual remedies, and when all combined are successful in many cases. I have tried tincture of lobelia, but cannot say I found any beneficial effects from its use.

Salivation with mercury and arsenic in small repeated doses I also administered for experiment, but without any perceptible advantage.

The next disease which I will allude to is—

Broken Wind, a part of my subject which you will, perhaps, think should occupy the most prominent position in this essay; such, however, I do not intend, as my object is to bring before your notice the chronic diseases of the lungs which are amenable to treatment ahead, which I regret to say broken wind cannot be classed under; and having already occupied so much of your attention I shall render my remarks as concise and practical as possible.

It is a disease which has given rise to much discussion and argument, and after reading Mr. Percivall's carefully collected quotations from the different veterinary authors, we are in the end left almost to form our own conclusions as to its exact pathology, and

I have found in the profession that there are no standard or satisfactory conclusions come to. I have taken much trouble myself to investigate the subject, and I have still doubts regarding its true nature, not that our literature has been scanty in dealing with it, for all our authors have devoted a large portion of their space and given the subject, it would appear, more than ordinary consideration. For me to enter fully into each of the different theories and existing opinions would occupy a lengthened paper itself, and I will, therefore, condense my remarks as much as possible.

The name itself, Mr. Percivall tells us, is probably due to the circumstance of horses affected with it being observed constantly "breaking wind," in the vulgar sense we ordinarily use the phrase, although the late Professor Coleman considered it arose from the idea that something in the lung was actually *broken*. To my mind I have always imagined it must have arisen from the peculiar respiration which may be termed either double or broken; however, it is a matter of little importance. It is a name for which as yet we have found no substitute, and which is at all times a handy one.

The *pathology* of broken wind, by the greater portion of the profession, has been accepted as consisting of ruptured air-cells; and we have it handed to us from some of our highest veterinary authorities, and that up to a recent date. The theory I admit is a most plausible one, and which may in some cases be correct, but I am satisfied in the majority of instances we must look farther to account for the abnormal symptoms or at least for their production. Is it possible that since the days of Bracey Clark's investigations, in 1795, when the science was only in its infancy, that we have nothing new to offer to our improving profession? Some few have ventured new opinions, but had so little followers that it there ended—withal, the subject seems to drop short and remain an undecided and unfinished question.

For my own opinions I can say little more, excepting that I may have some here to-night who may accept the ideas which I have to offer as satisfactory; and I shall be proud if it only was the means of inducing others to investigate the subject deeper and bring them forth in a more developed form, and especially as my observations have been principally confined to examinations during life.

I have already said that broken wind may depend on emphysema, but it is now an admitted fact that both vesicular and interlobular emphysema can exist, and that, to a great extent, without any of the symptoms of broken wind being present. To the digestive organs I look for the cause, from the following facts, that broken wind is always seen in animals which have a voracious appetite, have narrow, bad-formed chests, and pendent abdomens (commonly called pot-bellies), are found in horses which suffer from indigestion and flatulence; and lastly is most common in mares.

Racehorses and hunters are seldom the victims of broken wind,

while low-bred carriage- and cart-horses suffer most; the difference depends almost entirely on their diet; in the one case it is properly arranged and of a better quality, in the other it is just the opposite, in many instances an excessive feed at one time for the whole day. Broken wind is generally a result of other derangements, and in the earlier stages of many cases depends on functional derangement of the lungs, and not on emphysema.

True pneumonia seldom ends in broken wind; a peculiar fact, and not in accordance with the theory of ruptured air-cells. It generally comes on gradually, and is preceded by an attack of catarrh, chronic cough, or asthma, especially if the animal is exposed to such exciting causes as impure air or bad stable management, while it is often known to come on without any symptom of respiratory derangement in horses fed on bad forage and allowed to gorge themselves. The result of this is to produce a debilitated condition of the stomach, in the first place from its over work, and in the second from its distension. Its walls become attenuated, its powers decreased, and its nervous influence participates in the general disturbance, while its functions become almost destroyed. It is the same nerve, the pneumogastric and its anastomoses, which supplies the stomach, diaphragm and bronchial tubes, and it is here I trace the connection. The whole course of the nerve becomes influenced, the inability extends, and the nervous force imperfect. The minute bronchi, as you are aware, are supplied with a distinct series of small muscular fibres, which dilate and contract the tubes at each inspiration and expiration; and it is by their means that the respiratory action is properly carried on; by cutting off their nervous force paralysis follows, and the tubes remain stationary to a certain extent, while the aid of the extra respiratory muscles has to be called on to remove the air from the cells and tubes of the lungs, and the performance of such produces the peculiar double action of broken wind. The cough which is usually the earliest symptom depends for its production on the increased bronchial secretion and the imperfect removal of it, giving rise to irritation. The breathing at first is only shortened; but as the derangement continues, and the muscular fibres remain unused from their delicacy and minute structure they soon become atrophied, and perhaps ultimately absorbed, when the disease becomes incurable and the animal almost useless. On rapid exertion, the air is not removed or changed, and the unarterialized blood does not pass through the capillaries of the cell-walls as it should do, and passive congestion follows, producing the dyspnœa which the poor animal shows on being pressed to perform extra respiration.

That the lungs of horses affected with broken wind are specifically lighter, and said to be of a whiter colour, may depend on the same cause as the dilated bronchi, and distended air-cells must give such an effect. From a similar cause the diaphragm may become imperfect in its action, but as it is principally used as a respiratory muscle, I cannot attach much importance to it.

The *post-mortem* examination invariably shows derangement of the stomach, generally distension is present to a great extent, and not unfrequently there is a similar condition found in the other of the abdominal viscera; while hypertrophy of the heart and disease of its valves have been often seen. There is also found an atrophied state of the muscles of the larynx, which may account for the fact that some broken-winded horses are difficult or almost impossible to be made cough by pressing the throat.

It is unnecessary for me to enter into the pathology of emphysema, as so much has been already written on it, and I am convinced that it is not a *post mortem* in broken wind. Some of the most careful observers—Professor Dick and Mr. Barlow amongst them—have failed to find any difference from the healthy lung, excepting in being a little paler and lighter, but it is not unusual to find them hepatized or congested, or even tuberculous.

The remote *causes* (says Mr. Blaine) of broken wind are hereditary or constitutional liability, as well as the remaining sufficiently long under the action of causes capable of exerting morbid changes in the respiratory organs themselves. A certain form of body is unquestionably favorable to its production, and it is from this circumstance that it proves hereditary. The narrow, confined chest, and the pendent belly which marks low-bred horses, and gross feeding, all of which are observed to be particularly liable to the disease, are predisponents by confining the ordinate action of the lungs, and affording no reserve for the inordinate. It must be this defect which renders it more common in mares than in horses, as well as the necessity for a more capacious abdominal viscera.

The sudden appearance of *true broken* wind after a hard gallop, or after drinking water, I have never met with *myself*, although so much has been written that it has that effect, and I should be glad to hear if any member here has observed actually such a consequence. It may produce permanent congestion, or even hæmoptysis, causing difficulty in breathing, but I have some doubts of its effects further.

It is needless for me in this essay to go over the symptoms of broken wind, so well are they known to each. Amongst the earliest indications we have the cough, which at first may be little changed, but gradually loses that peculiar sound tone, and assumes a short and husky one. As the disease advances it becomes more of a bark, less frequent, perhaps single. The increased action of the flanks is an invariable accompaniment, and is no doubt the true sign; at first only increased or deepened, but soon assuming the double-beat, dilation of the alæ of the nostrils, and on exertion dyspnœa, &c. &c. Auscultation gives us little further information. At the sides there is a low moaning sound, with increased breathing, while at the entrance of the chest, over the trachea, we generally hear a distinct rushing or gurgling sound. In some cases which I examined there was scarcely any respiratory murmur noticeable in the lower part of the lung which would denote symptoms of consolidation, which may in occasional instances take place. The dependent abdomen, with

all the symptoms of indigestion, are seldom absent, while the animal has a most depraved appetite, breaking wind per ano, and passing fæces frequently. In fact, prominent in every case of broken wind is derangement of the digestive organs, and I have noticed in some cases regurgitation of blood in the jugular vein, showing that even the heart participates in the general derangements.

Regarding the treatment of broken wind, I will simply allude to the means by which we can palliate or relieve it, so as, if possible, to render a horse suffering from the disease useful; as for curative means, we have none.

Our first object and most important one is to induce that state of health we term "condition," to get the system into the most perfect working order, which can alone be done by proper, careful feeding, giving such food as will occupy the smallest bulk, and at the same time be as nutritious as possible, making a horse almost live on oats, which should be given in small quantities and often, with as little hay as possible, or even none, and never allowing the horse to gorge himself with water. Beans are very useful, and all food should be of the best quality; and regular exercise is most essential.

The medicinal treatment consists in giving agents which will in the first place act on the stomach and bowels, either in increasing or perfecting their action, or counteracting their defects, and in the second place have a sedative effect on the system, especially the nervous portion of it.

Under the first we have laxatives which have a most beneficial effect; small doses of aloes, and particularly oils, act well. I have found the constant administration of linseed oil palliates materially the disease, and it is well known that a large dose for a short time will dispel almost all the symptoms, except the cough. In the earlier stages I apply counter-irritation to the sides (to be kept up), with a purgative, followed by small doses of linseed oil. Professor Dick's celebrated ball of calomel, opium, digitalis, and camphor, to which I add a little aloes, allays the cough, especially if irritable, but its effects are only temporary. The moss, which I have before recommended, has a most marked effect, and under its constant use as a drink the cough almost disappears, the breathing more normal, and the general health improved; in every case I recommend it, and with the most satisfactory results. Oaten straw has a peculiar effect, the symptoms almost disappearing when the animal is fed on it, particularly if it is clean and good. I have had it cut and mixed with oats, and I would strongly recommend its use in preference to hay for broken-winded horses; this, I think, can only be accounted for in consequence of it being easily digested. Amongst the other remedies is tar water, lime water, &c., which I have tried. In cases where indigestion is well marked the lime is very useful.

Chronic pneumonia is not a frequent disease in the horse, but occurs occasionally as a sequel of the acute form of it, although it may have its own origin, run its course, and terminate in its own peculiar mode. I may illustrate it by alluding to a distinct case which came under my own observation for treatment in an aged black carriage horse, which showed the following symptoms:

The horse was off his feed and declining for some time, standing in his box with head towards the door or window, and not lying down; with a soft irritable cough, and short careful breathing, but not much increased. The pulse full about 50 to 55, while the animal knuckled over on one hind leg constantly; occasionally looking at the flanks, without any secretion from the nostrils, and the mouth dry and hot. I was somewhat puzzled at first, and suspected the liver, but on using the stethoscope I at once concluded the horse was suffering from subacute or chronic inflammation of the lungs.

On inquiry I ascertained the horse had been exposed after a long drive to a severe shower of rain, and showed nothing more than dulness for ten days after, when he seemed to improve, but in three weeks again refused his food and became very weak. When I was called in I had the sides well blistered, gave a stimulant, and after salivated him with calomel, and kept at perfect rest during the treatment. He gradually improved, but was always thick winded, depending on, probably, some consolidation of the lungs.

Many horses have a continuous soft cough, which differs from both that of broken wind or the regular "chronic," which decrease at one time, and on exposure to any wet or chill comes on again; is often dependent on some subacute inflammatory action going on in a part of the lung-tissue. They are generally light-made, delicate feeders, which perhaps account for their not becoming broken winded. *Post-mortem* examination may disclose small abscesses formed, while it may induce the sequel, which is perhaps the most common, namely,—

Phthisis or tubercular disease, which I may say is rare in the horse in comparison to man. As an idiopathic affection it is even less frequent, but there is no doubt but that true tubercles are found in the lungs of our equine patients. It is unnecessary for me to enter into the consideration of the various kind of tubercles, but allude to those found in the horse, namely, the *miliary*, which Lacunie considers the true kind. The production is not only varied, but difficult to account for. Hereditary predisposition is not often the cause in horses, although it is quite possible it may be conveyed in this way; but I am inclined to consider that it is oftenest the result or sequel of some inflammatory attack, strangles more particularly. In young horses getting the disease on grass, and remaining perhaps for days without even shelter or any attendance, the symptoms do not run their ordinary course, and particularly if the horse is weak. The glandular swellings of the parotid or submaxillary glands do not come to anything more than a little induration and fulness, and they permanently remain so. There is no discharge from the nostrils, perhaps a watery moisture, but no signs of the healthy yellow discharge we have in true strangles. There is a slight cough, which also continues, but without any marked alteration in the breathing. Great emaciation is perhaps the most marked symptom, the muscles of the thighs and shoulders waste, and the old coat of hair remains on with the skin fastened to the

ribs. Such a state is often seen in young colts neglected, and I have traced a few of the most marked cases of consumption to it. The effects may not develope themselves at once; the colt may recover to a certain extent again his old looks and spirits for a time, and during the interval his breeder probably disposes of him, and his new owner puts him into the breaker's hands. He is found what is commonly termed "a soft horse." The feeding does not produce the improvement expected; if a bay, black, or chestnut, he retains a rusty look; on exertion he is easily made perspire, cuts his legs and claps; the least change of feeding induces diarrhœa, when, in all probability, the animal undergoes a severe course of treatment for supposed derangement of the mouth and stomach. In Ireland, where many breeders rear colts without almost ever seeing them in a house, this not unfrequently occurs; the animals most subject to it are well bred light bays, roans, or light chestnuts, with tucked in elbows, small across the heart, and long legs: while Mr. Percivall considers that many old horses, which have even enjoyed the best of health, end their days either by consumption or glanders.

The development of tubercles in the lungs depend on the same causes, as in man, probably small extravasations becoming organised, acting then as a foreign body, a cyst forming, and after a small abscess. I have been inclined to think that in many cases of tubercles in the horse, the minute lymphatic glands are the structure which take on disease; and it is in this way we have tubercles in the lungs in glanders, which may occur similarly in neglected strangles, which I have just alluded to. Calcareous or chalky deposits are unusual, but are represented by cheesy formations, which are often found. I may allude to one case in particular of the kind which occurred in my practice.

A bay four-year old filly, the property of a gentleman near Carlow, was taken up to be trained off a bad wet pasture very thin, and was stable fed, well groomed, and put into work. She did not improve, but remained pot-bellied, haggard looking, like an animal of twenty, and so weak as to be almost useless. I was called in, and immediately suspected the teeth or stomach to be the seat of the derangement; but after a careful examination, found them sound, excepting that the teeth were almost black. The general emaciation was intense; the mare's neck seemed as if only the ligamentum niche occupied it. The legs were dropsical, the hind ones particularly; one day she would eat well, and the following one scarcely touch a morsel of any kind. The bowels were always in a relaxed state, and the anus sunken in. With five minutes' trotting exercise she would break out in a profuse perspiration, especially along the neck and shoulders, and stagger from weakness, while her breathing seemed much distressed. I put the mare under a course of tonic treatment, with plenty of nourishing food, but without any perceptible benefit; and after some time her owner gave her to me to continue any further experiments, and have the case under my own care. On auscultation I failed in detecting

anything unusual, excepting that the ordinary respiratory murmur was much weaker and less distinct, while her breathing was varied, at one time much increased, while at another lower. She had a short dry cough, but no discharge in the least ever came from the nose. Considering the case one of true pulmonary consumption I had her sides blistered, and gave her every description of tonics and nourishment, but I found no benefit from them—if any, it was from ground oil cake and oats mixed, but it acted at first as a purgative on her. I then gave her to a farmer, who intended putting her on grass, but she was found dead in the field about a month after. Both tubercles and abscesses were found in the lungs on *post-mortem* examination.

The *treatment of phthisis* in the horse can only have effect in the early stage of the disease, at a time, perhaps, when it would scarcely be in our power to detect it. Counter-irritation, as blistering, &c., are the principal external remedies, while warmth, good diet, ventilation, and tonics, are the internal.

Oil cake, ground and mixed with oats, has a most decided benefit on colts which are delicate, either from growing too fast, or have a consumptive tendency. The production of the disease shows us how important it is to attend to our young horses during their development, and especially during the maladies incidental to colthood.

Abscesses in the lungs do not frequently occur. Mr. Field, in his valuable records, gives us some cases of them—in one instance where, on the post-mortem of a case of emphysema, he found a bucketful and a half of opaque, thick, whitish fluid in the chest, as well as a great quantity of coagulable lymph, and abscess to a great extent existed in the base of the right lobe of the lungs; in a second case of pulmonary consumption, with appearance of farcy, in which he found the lungs contained several small tubercles, with the left lobe hepatized and disposed to ulcerate; while in a third case where he found both lobes of lungs affected, but most particularly the left, the anterior, middle, and inferior parts being considerably hepatized, and containing many black abscesses of highly fetid pus, together with an enormous cavern, through which the fluctuating and rattle was distinguished during life. The right contained a less cavern, but having contracted a recent adhesion to the ribs. When abscesses of this kind take place the patient is too far gone, in all probability, for treatment to be effectual, but there is no doubt that they do occur as chronic sequels to lung diseases.

Gentlemen, I have now concluded, and the only apology I can offer for the imperfections of my essay is, that it was written amidst the hurry and difficulties of an extended practice, when, as most are aware, "hours cannot be counted on or moments trusted." If it is only the means, however, of inducing a good discussion on the various points of importance I have touched on, I will feel satisfied and repaid, whilst some benefit must result from it, and help to fill up the vacant link in our pathology of chest affections. To me

it is a high honour to be at your hands to-night, and I look forward as the commencement of a bright career and future for our new Association; the happiest results must follow its members in assisting them to win the key-note to success in our profession, namely, "Public confidence."

Veterinary Jurisprudence.

JACKSON *v.* BADDILEY.

Mr. Overend, Q.C., with Mr. Wills, appeared for the plaintiff, and Mr. Seymour, Q.C., with Mr. Ewins Bennett, for the defendant. The plaintiff, H. W. Jackson, is a corn merchant at Wakefield, and he sued the defendant, who is a farmer residing at South Kirby, near Pontefract, for a breach of warranty. In April last plaintiff was in the hunting field, and saw a brown gelding belonging to the defendant ridden by a horse breaker. Seeing the horse go well, he had an interview with the defendant next day with a view to purchasing the horse. He found it was then exceedingly stiff, which defendant explained by saying that his man had kept the horse out too long after the run. There was no sale then, but on the 12th April plaintiff went over to defendant's house again, and he rode the horse himself in a straw yard. He was very much pleased with him, and bought him for £70. The receipt for the money warranted the horse to be perfectly sound, free from vice, and four years old. The plaintiff's stables being full at the time, he arranged with defendant to keep the horse for a short time. Ultimately the horse was delivered on the 28th April. For several days afterwards the horse was never ridden except by a groom for exercise. Then on the 17th May the plaintiff got on his back and rode to Walton, about three miles from Wakefield, and then on to Heath. He found the animal was lame. On the defendant being communicated with, he said it was only a temporary lameness, and that it would disappear if he had rest. The lameness, however, did not disappear after a rest of ten days; and it would be shown that he had corns on all his feet; an enlargement of the off pastern of one hind leg, commonly known as "ringbone;" but that the great mischief from which he was suffering was the commencement of navicular disease, which had the effect of making a horse attacked by it lame. Defendant refusing to take him back, the horse was sold in the public market on the 18th June, and was bought by defendant for £36. The action was brought to recover the difference between this sum and £70. The following witnesses were called in support of the allegation of lameness:—The plaintiff, his father-in-law (Mr. Marsden), Mr. M. E. Naylor, veterinary surgeon, Wakefield; and Mr. S. F. Fallding, veterinary surgeon, Wakefield.

Mr. Seymour said the performance of the horse in the hunting field refuted the idea that he had navicular disease; but it would

also be proved that when the defendant bought the animal, when he was put up for sale by plaintiff, it was found that he had inflammation of the right fore foot [the plaintiff's case was that it was the left fore foot], which showed that a foreign body had lodged between the shoe and the hoof. The shoe was then taken off, and the horse allowed to walk for a short time on straw. After that he was shod again, and from that time to this no trace of lameness had shown itself.

At the adjournment of the Court for luncheon, the jury had a view of the horse.

In support of the fact that the horse was sound the defendant was examined, as were the man who rode him in the hunt, and the blacksmith who shod him, and other witnesses who spoke to seeing an indentation on the horse's off foot when the shoe was taken off, showing, in their opinion, that the horse's foot had sustained a crush from some foreign body.

Mr. Andrew Brown, Mr. Dray (of Leeds), and other veterinary surgeons, were examined, and spoke to the fact that the animal was perfectly sound, and without a trace of navicular disease.

After hearing the very conclusive evidence of Mr. Dray, his Lordship asked Mr. Overend if he thought he could get over it. Mr. Overend did not think he could, and a verdict for the defendant was returned.—*The Yorkshire Post and Leeds Intelligencer.*

ARMY APPOINTMENTS.

War Office, Pall-Mall, August 17th.

Veterinary Department—Veterinary-Surgeon J. G. Bushman, 21st Hussars, to be veterinary-surgeon of the first class; Veterinary-Surgeon J. Ferris, Royal Artillery, to be veterinary-surgeon of the first class.

OBITUARY.

We regret to have to record the death of two young members of the Royal College of Veterinary Surgeons, whose early deaths, within a short time of each other, have cast a gloom over a large circle of friends and acquaintances. We allude to Mr. George Robertson, of Dudwick, and Mr. George Lawson, of Countesswells, Aberdeenshire. The former took an active part in the formation of the North of Scotland Veterinary Medical Association, and officiated as its secretary to within a few weeks of his death. The latter was highly prized for abilities and stern devotion to the duties of his profession. Mr. Robertson's diploma bears date April 29th, 1861, and Mr. Lawson's, April 18th, 1868.

To this we have to add the death of one of the teachers of the Edinburgh Veterinary College—Dr. Dalzell, the Professor of Chemistry.

Dr. Dalzell was not a member of the profession; but, nevertheless, he laboured earnestly to promote its advancement. He was "indefatigable in his work, popular with the students, and much esteemed by all who came in contact with him." Like others connected with the Edinburgh College, he too has been cut off in the prime of life.

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Communications and Cases.

OBSERVATIONS ON STRYCHNIA.

By Professor Tuson, Royal Veterinary College.

In a former number of this Journal I briefly described one of the methods by which strychnia is obtained from its most common source, namely, nux vomica. By the process here referred to the alkaloid is procured in prismatic crystals varying in length from one sixteenth to half an inch. In this state strychnia is usually supplied to the medical practitioner and druggist, although an apparently amorphous preparation is frequently met with in medicine termed "precipitated strychnia." This agent is obtained by adding ammonia to a solution of sulphate of strychnia, whereby the alkaloid is thrown down as a precipitate, which, when examined by a low power of the microscope, is found to consist of minute, slender prismatic crystals. Strychnia, obtained by either process, possesses the following additional qualities by which it may be identified and distinguished from all other bodies with which we are at present acquainted:—

1. Heated in a hard-glass test-tube it fuses, decomposes, and yields, besides other products, ammonia, which can be detected by introducing into the upper part of the tube a glass rod moistened with hydrochloric acid, when dense white fumes of ammonium chloride are seen to form.

2. It is white, and when boiled with distilled water does not apparently dissolve. That the water has, however, exerted some solvent power upon the strychnia, can be easily

ascertained by filtering it through paper, and applying a minute drop of the filtrate to the tongue, when an intensely bitter taste is experienced. This character of the poison is manifested by an aqueous solution of it containing $\frac{1}{30,000}$th, and, according to some authorities, even $\frac{1}{1,600,000}$th part of its weight of strychnia. By careful investigation it has been determined that one part of strychnia requires 6667 parts of cold water, and 2500 of hot water, for its solution.

3. It is pretty readily dissolved by ordinary spirit of wine, but only slightly soluble in absolute alcohol, ether, and chloroform.

4. It is freely dissolved by dilute hydrochloric, sulphuric, and acetic acids, forming solutions containing compounds of the alkaloid with these acids, and from which strychnia is precipitated by solution of ammonia, potash, soda, and their carbonates.

5. Perfectly pure strychnia dissolves in strong nitric acid without undergoing any marked change, but the alkaloid ordinarily met with is turned of a red colour by this reagent, owing to the presence of brucia.

6. In concentrated sulphuric acid strychnia dissolves, apparently without change, and produces a solution which should be examined in the following manner:—

Place a few drops of the sulphuric acid solution on white porcelain, and add to it a small fragment of bichromate of potash. The mixture will rapidly assume a beautiful rich blue colour, which soon turns to purple, violet, red, and, in this case, in which bichromate of potash is employed, finally to green.

If other portions of the sulphuric acid solution be separately treated with minute quantities of ferricyanide of potassium, peroxide of lead, binoxide of manganese, and permanganate of potash, in each case a series of colour-changes will be observed similar to those above recorded.

In the hands of incautious or inexperienced experimenters incorrect conclusions may be drawn from the results of the application of these colour-tests when bichromate of potash, ferricyanide of potassium, or especially when permanganate of potash is employed in the detection of very small quantities of strychnia, as they themselves impart a red or purple colour to the mixture. To avoid false deductions from such possible causes of error, in cases of doubt the peroxide of lead test should be had recourse to, as in such instances this reagent, being insoluble in the cold sulphuric acid, does not impart colour to the mixture unless strychnia be present.

It may be here remarked that the production of colour

under the circumstances above enumerated is dependent upon the oxidation of the strychnia by the compounds added to the solution of the alkaloid in sulphuric acid, and that nascent oxygen, *i.e.* oxygen at the moment of its liberation from its combinations, derived from other sources is also capable of developing as similar chromatic display. In the opinion of the author, the most satisfactory mode of applying and witnessing this reaction is the exceedingly pretty and ingenious one devised some years ago by Dr. Letheby. The suspected strychnia is dissolved in a few drops of concentrated and colourless sulphuric acid, and placed in a shallow platinum capsule. The positive pole from two cells of Grove's battery is caused to touch the outside of the bottom of the capsule, and then the negative pole is made to just touch the surface of the liquid within the capsule. Directly this arrangement is completed a current of electricity traverses the fluid and decomposes it, oxygen is eliminated at the negative pole, and, as it rises through the liquid, oxidizes the strychnia, and causes the beautiful play of colour already alluded to. As the author has been enabled to easily detect $\frac{1}{10,000}$th of a grain of strychnia by this method, and as none of the agents employed in the process possess colour, it is obvious that Dr. Letheby's method is one which may be resorted to for the discovery of minute quantities of the alkaloid, and one which is free from the objections which might be raised to the employment of bichromate of potash and other coloured reagents. Other tests for strychnia have been invented by various chemists, but those described in this article are all-sufficient for the identification of even exceedingly minute quantities of the poison, so that we may now leave this portion of the subject, and proceed to a description of the methods by which the alkaloid may be discovered when in admixture with organic and other substances.

(*To be continued.*)

PERIPLANTAR SHOEING.

By G. Fleming, Veterinary Surgeon.

In 1865, the Parisian veterinary surgeon, M. Charlier, brought to the notice of his colleagues a method of shoeing horses which, after a careful study of the anatomy and physiology of the feet of these animals, and after a somewhat

lengthened experience of the new plan, he pronounced to be an improvement upon the ordinary vicious system. This, as is well known, was the same in France as it now generally is in Britain: mutilation of the hoofs by knife and rasp, and the application of unnecessarily heavy, or what some people euphemistically term "stout," shoes, attached in some sort of a fashion by a proportionately large number of nails.

M. Charlier's method, which was designated the "periplantar mode of shoeing," consisted, in brief, in the imbedding of a comparatively narrow and light rim of iron or steel around the lower border of the foot, in a space made by the removal of a certain portion of the crust, and projecting as little as possible beyond the plantar surface, with the object of allowing the unpared frog, and as much of the unmutilated sole as was on that plane, to come in contact with the ground.

This plan of efficiently protecting the foot, at the same time that it assured the integrity of its form, structure, and functions, was devised to obviate the great injury and cruelty inflicted on horses by robbing the soles and frogs of their natural protection, and then attempting to compensate for this robbery by attaching to the wall of the hoof a clumsy heavy mass of iron, as puzzling to look at as it is unscientific and unmeaning in conception. It was seen that these stout shoes removed those portions of the foot from the ground which were intended by nature to share in sustaining the weight and strain and diminish concussion by their elasticity, while they seriously injured, not only the organ itself, but also the limb, and indirectly—or even directly—contributed to render the animal's life a torturing and brief one. This injury and cruelty to the horse, as well as loss to his master, is no fiction but a stern reality, and for centuries has been as apparent in the streets of Paris and other cities of France, as it is in those of London, Bath, Bristol, or elsewhere in Britain.

Many serious and oftentimes incurable maladies have been, and are now, induced, by this unreasonable—I might even be warranted in saying barbarous—fashion, which is condemned alike by the teachings of science, the reasoning of common-sense, and the result of daily observation and experience. Look at the poor cab-, carriage-, or omnibus-horse, with its deformed, crumbling, or fissured hoofs, shrunken or convex soles, and rotten wasted frogs, surmounted by ring-bones, ossified lateral cartilages, splints, curbs, spavins, broken-knees, and contracted tendons, and then begin to inquire what share rasping, paring, "stout shoes," and other strange fancies, have had in their production. If it were at

all near the truth that lamenesses are diminished in proportion as the weight of the shoes is augmented—and by which, as we are desired to believe, "vibration" is annulled—there should be no lame horses, unsound feet, or broken hoofs, as for generations heavy shoes have been the rule, and light ones the very rarest exceptions. If vibration of metal alone be the cause of disease, how is it, we may ask, that the hind feet escape while the fore ones suffer so severely? The contrary is the truth, however, if we are to believe the evidence of our own senses, or to accept the testimony of those who even advocate heavy shoes; for it would appear that weak, flat feet, and inflammation and other disorders of these organs, are scarcely ever absent from their practice; and as heavy shoes were chiefly concerned in the production of these, therefore, heavy shoes are to cure them—*similia similibus curantur*.

For heavy shoes, we are ordered to understand, possess physical properties which, perhaps, no other bodies in creation are endowed with; as, according to some new mysterious law which is only applicable, it seems, to horse-shoes, the heavier the mass of iron attached to a horse's foot, the lighter that foot must fall on the ground. Newton's law of gravitation is simply reversed; it is not the earth that attracts, it is the heavens! Nay, more wonderful still, the more ponderous the mass of iron fixed to the periphery of the limb, so all the more easily and speedily can that limb be flexed and extended, and all the longer can it be swung backwards and forwards during progression.

In fact, to convert a Liverpool or Manchester dray-horse into an "Eclipse," or even something more fleet—to endow it with untiring energy, give it the footfall of a fairy, and make it proof against all those ills to which the soliped is liable—and which, it now appears, are entirely due to a convenient something only found in light iron shoes, and termed "vibration"—we have but to go on increasing the metal, stouter and more ponderous make the shoes, and then, behold! farriery has achieved its highest development. What has been called "practical experience" has triumphed over theory (so termed); the mole-eyed routine of centuries is to reign for ever, and science and common-sense must listen with awe and astonishment to the pæans of the self-satisfied armer of hoofs. How the shade of old Markham must exult! What stupids our trainers and racehorse owners must have been not to ballast their fleet coursers' feet with iron before the race—just as a ship is ballasted when about to proceed to sea—and keep in mind the injunction that the

more weight the greater the speed! So one would think, if the theories of what has been called practical experience are to be listened to. And besides this we are gravely told that "*there are some very weak and flat feet with very large frogs, which require cutting*" (vide *Veterinarian* for May, 1869, p. 324): and elsewhere, "*With flat weak feet the frogs are often so large that the horses cannot work sound, either with or without leather soles, unless the frogs are kept pared*" (*The Field*, February 13th, 1869; and *Veterinarian* for September, 1869, p. 643). Here, again, we have the profound science of venerated Markham taught and enforced more than two hundred years after his death, and woe betide any one who dares to dispute its wisdom!

It was, I believe, with a view to expose the fallacy of such absurdities, to endeavour to establish farriery on a rational basis, and if possible to maintain the foot in as healthy a condition as other organs, that M. Charlier exerted himself to perfect his method. And this distinguished veterinarian was well qualified to develop the resources of his science in this respect. Like myself, and perhaps at as early an age, he became a pupil of St. Eloy, and for years handled the tools of the *Marèchal*, while he studied the principles of shoeing and the structure and functions of the foot. And like many more who have commenced their professional career in this lowly manner, he has often, no doubt, had occasion to thank his good fortune that the fates ordained it so. It is not likely, at any rate, that any one could spitefully designate him an "inexperienced theorist." Indeed I am not aware that our French colleagues send each other to Bath in that polite fashion, however common it may be among "Vets." (which I presume is vulgo for veterinary surgeons, *vide Veterinarian* for September, 1869, p. 644) in other lands.

After some modifications, and also after much opposition, the "periplantaire" system of shoeing was fairly launched. Its advantages were quickly recognised by many of the best qualified authorities in France; it was subjected to the most severe tests on the feet of the Parisian omnibus horses, many hundreds of which have been so shod for some years, and it rapidly grew into favour. The public acknowledgments received by M. Charlier were as substantial as they must have been gratifying; at the Paris exhibition he gained honours, and his invention (we will in this place call it so) attracted marked attention. Since that time it has found its way to nearly every country beyond France, and from all accounts is still progressing steadily in favour.

In France—where, according even to the confessions of

those who at first most sternly contested its merits, it has revolutionized the art of farriery—it obtained the fullest praise from the principal veterinary teachers, among whom appear M.M. Bouley and Gourdon; in Italy Professors Bassi and Demarchi, of the Turin Veterinary School, have highly commended it; and in Spain Professor Bellido, chief of the Veterinary School of Cordova, has acknowledged its merits. Other well qualified authorities on the Continent, too numerous to enumerate here, have been profuse in their encomiums, and have testified to the soundness of its principles in a physiological point of view. Those "vets" whose self-esteem and irrepressible *ego* dominate every other quality (not to mention modesty), and blind them to a sense of what is due to others, may assert that these witnesses are nobodies, and that they are much more competent to give an opinion than any or all of the continental men of science; but I may be pardoned if I anywhere, or in anything, fail to discover the slightest warrant for this pompous assertion.

Such, then, was the Charlier method of shoeing on the continent at the time I wrote about it to the *Field* newspaper in February last, and as commented upon in the *Veterinarian* for this month (p. 643). Previously to that date, and subsequently, several letters of mine appeared in that journal relative to shoeing; and I have it on the authority of veterinary surgeons whom I may claim as honest friends, and whose opinions on professional matters I ever place before my own, be they in harmony with them or not, that there is nothing in these letters damaging to the reputation of our science. Having, from the very commencement of the discussion in France, taken an interest in this natural method of shoeing, and being besides engaged in an examination of the various modes which had preceded it, I at length resolved to give it a trial, as whenever I see the advantages of one system over another I try, and if successful adopt it. The result of the very limited trials I was able to make appeared in the *Field*, with the opinion I had formed of the Charlier shoeing, so far as I could give an opinion at that time.

To my astonishment, after the appearance of one of these letters, there was inserted a communication from a veterinary surgeon in which, without its author being apparently aware of what this new system was, he attacked me with a degree of acerbity for which I am utterly unable to account —except on one supposition—and which has increased to a very undignified degree. Designating himself as an "experienced man"—a designation that is almost becoming obnoxious to those who understand its meaning—he certainly

gave some strange proofs of the benefit he had derived from his experience. In evidence of this I may refer to the *Field* for February 13th; a portion only of the communication also appeared in last month's *Veterinarian* (p. 642). The editor of that journal disposed of this effusion in a few terse lines, and it has never been referred to since. It appeared too absurd to deserve notice from me, even had I been willing to enter into a controversy in a non-professional periodical.

Those who are inclined to inquire how far that writer is correct (for if we are to credit him he is less fallible even than the Pope) will see that I have stated my views very fairly in regard to this method of shoeing, and those views I still maintain. They will also find that my opinions and statements have been very imperfectly or wrongly represented by that writer; that in the "very fair trial" he mentions as reported for August 7th, instead of the reporter having discontinued the system, he is still practising it; and that every writer who alludes to the Charlier shoeing speaks in its favour. These of course it would not have been convenient to mention in the September number of the *Veterinarian*. The unaccountable *animus* against me is too bitter to permit this; and foiled in the *Field* its operations are fortunately limited to the *Veterinarian*.

From the first appearance of my letters in the former journal until the present time, every effort has been made to throw discredit on, or diminish the value of, my statement, as well as damage or destroy whatever amount of professional reputation I may chance to possess. Suspecting, I presume, that what I had stated in the *Field* with reference to periplantar shoeing and the management of the foot was incorrect, he paid me a visit at Chatham in February to assure himself of the fact, and I quote what he says after his inspection: "I paid Mr. Fleming a visit at Chatham in February last, and I feel it right to state that I never saw feet in a more natural and healthy state than those of the horses of the Royal Engineers under his charge. They were all excellently shod, and those shod on the Charlier system were particularly well done, and the horses appeared to go well in those narrow rims of iron let in level with the sole." This reluctantly given evidence I am inclined to place against certain charges brought against me, and in refutation of the proof of "correctness" claimed by this writer at page 646 of our professional journal. From what he stated to me during that visit, I inferred that he had neither tried, nor even seen the periplantar shoeing; and it appears from this

last communication that he is now in no better position to give an opinion with regard to it.

I have every reason to believe that it has received, and is receiving, a somewhat extensive trial in England, particularly in Yorkshire and Leicestershire; and that it is even a more perfect method of shoeing than I, from my limited experience of it, had pronounced it to be. Count Batthyany, who has tried it extensively for a long time, writes to inform me that he has been most successful with it on fore and hind feet, and sends some striking illustrations of the benefits to be derived from its employment. But these and the evidence of other writers it would be needless to offer, as in all probability it would not be entertained by those who habitually look upon everything not their own as unworthy of notice or credence. What I might add to what I have already stated would, of course, be at once rejected as incorrect. I have freely commented on the defects of the Charlier method of shoeing, and perhaps from my limited trials of it, and my being incompetent to apply it so skilfully as its introducer, I may have exaggerated these defects, or discovered some which, when the system is properly applied, do not exist. The *original form* in which it was brought out certainly entailed an extensive mutilation of the wall of the hoof, and this I pointed out to the Veterinary Surgeon who inspected my horses in February, and have no doubt mentioned it to others. I have also stated that better workmanship is required than with the ordinary mode of shoeing. I have certainly never said that "the concussive blows which the shoe *receives* from the hard road produces *elongation* at the toe;" but I have alluded to the accident that sometimes happens in which, when the shoe has become worn, if it be not nailed well back towards the heels, one or other branch is liable to be twisted outwards under certain circumstances. I have found no difficulty whatever in resorting to the ordinary surface shoeing on feet that have been shod on the periplantar system. But feet that have for some time been subjected to the "anti-vibratory," or clog system of shoeing, and are thereby almost ruined, require particular care when first submitted to this; as they have so little horn left, the crust is so damaged, and the feet so morbidly tender when allowed to perform those functions which nature intended them to fulfil, that it takes time to repair the damage.

If I am in error with regard to the periplantar shoeing (for I hasten to admit that like those in whom all professional knowledge is unfortunately not concentrated, and who sometimes do err), I at least find myself in good company. I

have tried it, stated my views with regard to it, and continue to maintain that, in principle—anatomically and physiologically—it is the most perfect system of shoeing yet introduced, fulfilling, as it does, more of the requirements of scientific farriery than any other mode. Such also is the opinion of the Editor of the *Field* (who is unfairly quoted to my disadvantage), in the number for August 21st. Its success certainly effectually demolishes the fantastic "vibration" theory, and proves that horn allowed to come in contact with the ground, as nature willed it, is the best medium for dispersing the concussion resulting from the foot striking against the ground. The horse's foot is not a wheel (as it is not the human foot), neither is the shoe a tire (as it is neither a shooting boot, nor a dancing slipper); though wooden wheels, if made strong enough, will sustain wear on paved streets. It is when the wheelwright reduces the wood to the lowest degree in order to secure elegance, &c., that he must protect it by tires. I am not aware, however, that horseshoes became elongated with wear, though certainly, like tires, when worn out they are liable to come off. I have not yet heard of any wheelwright who recommends leather to be inserted between tire and wheel, as is suggested at page 647 of the *Veterinarian*. The "stout" shoes don't appear to be quite effective in destroying vibration, and "cow-dung" stopping is yet needed with the infallible system of shoeing. Does the wheelwright apply or recommend this frog-destroying material for his wheels?

We all know, or ought to know, for it has been so stated in the pages of the *Veterinarian* ever since its commencement, that, practically, the lower border of the hoof does not expand, and in February last I explained to the Veterinary Surgeon who now tells us it is quite time we should all discard such an idea, why I was led to believe that such a property—in the extended sense in which it has been viewed by some writers—does not exist, and why there was no necessity for it. It is perhaps an error to assert that M. Charlier claims as one of the advantages of his shoe that it admits of expansion of the foot. Nowhere does he claim this as an advantage, so far as I can trace in his writings, but he casually mentions that it will not prevent any expansion that may take place. His method is, perhaps, one of the best illustrations we could produce in proof that no expansion takes place, and this was pointed out to my visitor in February.

I can well understand that weak flat feet never improve, and always require "stout" shoes (which this veterinary surgeon himself designates "heavy," and then accuses me of

garbling and misrepresenting his statements in this respect), when told that "very weak and flat feet with very large frogs require cutting." But it may be asked how a man, pretending to be the highest authority on the subject, can justify this mutilation of an unfortunate horse's feet, when very many, not even in the profession, would say let them alone?

I am accused of not knowing or ignoring the fact of the existence of a special form of horse shoe invented by this Veterinary Surgeon. Let me draw attention to the circumstance that in Bourgelat's 'Essai Théorique et Pratique sur la Ferrure,' published at Paris in 1771, there is a shoe figured and described which, in principle, I believe to be identical with this special shoe. It does not appear to have been so clumsy, however; and it possesses what I would look upon as an advantage—the absence of bevel on the sole surface. There can be no doubt whatever as to its convex ground surface. It has long been condemned as a proper shoe for wear, and it is obvious enough why it should be so. I believe that in congestion of the feet—or "laminitis," as it has been termed—the chief, if not the whole, benefit derived is due to exercise; and to prove that this is so, it is only necessary to shoe a horse so affected with special shoes, and keep him standing in a stall; while another, suffering to the same degree, is allowed proper exercise without such appliances. I am perfectly willing to abide by the result of this experiment, which appears to be imperatively demanded; as a short time ago we were informed that mild cases would recover without special shoes, and now it appears that none recover; also that certain cases would not recover by means of exercise and special shoes, several failures having occurred; and now all have recovered, and no failures are known.

To show, however, that the treatment without special shoes is successfully practised, to prove that it is not specially mine—though I first extensively tried it in 1860 while in China—and also to demonstrate that all veterinary knowledge is not limited to the ancient Aquæ Solis, let me refer to M. Goyau's excellent little treatise on this subject. Though a continental authority, perhaps some among us will not think ourselves above listening to what he says, but, as he is a military veterinary surgeon (and Professor at the Military School at Saint Cyr), this may be adduced as another reason why his testimony is worthless by others.

Describing the nature and causes of laminitis, he proceeds to its treatment. Pointing out that rest in laminitis is the chief cause of the chronic form, and often produces incurable lesions, he insists upon the adoption of energetic treatment.

Instead, however, of attaching very heavy shoes to the inflamed or congested feet by a number of nails, he relieves these organs from all possible restraint by withdrawing some of the nails that retain the shoes, leaving these latter upon the feet. As is customary with our *confrères* across the Channel, a large abstraction of blood from the jugular is recommended, and then, "immediately after, it is absolutely necessary to make the horse walk, and even to use coercion to compel him should he resist. If the *fourbure* is serious, and movement too painful, a vigorous friction with spirits of turpentine to the limbs fulfils the double indication of attracting the blood to the skin, and causing the animal to keep in motion. In walking, the vascular portions of the feet are alternately compressed and liberated from pressure, the blood is repelled and attracted, the vessels rapidly disgorge themselves, the circulation is re-established, soon the animal moves with ease and facility, and from this moment the blood, which had been abnormally amassed in the feet, assumes its natural course.

"But all is not completed. If the horse remains again immovable, the blood falls once more into the feet, and the same sufferings are produced. It is necessary to prevent this evil result, and with this object bathing the feet in a running stream is excellent, the cold water hindering the return of the blood. After two hours' bathing, another promenade is indicated; and this is to be followed by renewed immersion, until there is ease afforded in walking. Thus, then, it is necessary to alternate walking with bathing, and this treatment, diligently pursued night and day, *is successful in two, three, or four days, according to the gravity of the disease.* The horse may eat his food while at the bath.

"In those cases where bathing is impossible or must be suspended, the feet are allowed to remain imbedded in a deep layer of clay, frequently sprinkled with cold water; and repeated frictions, made with equal parts of turpentine and ammonia, should be applied to the limbs—frictions followed by a promenade and the application of flannels produce excellent effects." After speaking of diet and general management, he adds:—"The success of the treatment is evidenced by the facility with which the horse walks in coming out of the bath or stable. . . . . Thus is cured acute *fourbure*, and in this way are evaded those fearful and incurable lesions of chronic laminitis."

In the great desire to prove me wrong in everything, an attempt is made to give me credit for the "theory" that

the sole and frog are not so much, if at all, implicated as the laminæ, and the correctness of this theory is of course denied. In justice to the eminent veterinary authorities who have studied and described the disease, I must decline the honour and responsibility of being the author of the theory; it is not mine. I believe it, however, to be in the main correct, as in the immense majority of cases these parts are not nearly so much, if they are at all affected, neither do they suffer at all to the same degree in the disorganization consequent on inflammation. Hence the somewhat old designation of "laminitis." A knowledge of the structure and functions of the foot would explain, what experience proves, why allowing the sole and frog to share in supporting weight should not only assist in relieving, and even preventing congestion and its serious consequences, but also why the laminæ should be so largely involved when the foot is congested or inflamed.

At page 645 of the *Veterinarian* I am accused of making two opposite statements in reference to a case of disease, and am asked how I can reconcile them. Very easily. After the so-called special shoes have been applied to a pony suffering from *chronic* laminitis (and whose pathological history while so affected should be fully reported), the groom informs his master—an "honourable," which of course adds weight to the testimony—in two or three days that the animal is *cured*. Master writes to veterinary surgeon that such is his groom's report; and, *ergo*, it must be a very satisfactory case to said veterinary surgeon, albeit not a very reliable one to others. Chronic laminitis, in these days when miracles are scarce (though it must be confessed that the treatment of laminitis is fast merging into the miraculous), is, I should fancy, rarely "cured" in three days.

Thus far, then, I have endeavoured to answer the charges brought against me, on the score of professional incompetency, garbling statements, making others which are incorrect, &c. &c., in the matter of horse-shoes—periplantar, non-vibratile, and special—and their application. My chief reason, however, for attempting this unwelcome task was the desire to protest against a statement which not only involved myself, but a foreign colleague, who is not in this country to write on his own behalf. I allude to periplantar shoeing, which to satisfy the craving to be always right, was pronounced a failure without adducing the slightest evidence besides my own and that of another veterinary surgeon (who had, it appears, tried it on three horses, and who, during the trial, I understood was well pleased with it). As I think this

is unfair, and as my opinion remains what it was some months ago, I have a right to protest against such an inference, so far as my evidence is concerned. When we learn the results of other more extended and, no doubt, more carefully conducted trials of this method—which has now been in existence four years—it will be time enough to decide whether or not it is as capable of being carried into general practice as it is sound in principle. The subject of shoeing—at one time my particular, and oftentimes unwelcome, hobby—has always been to me one of great importance, and I have tried, and seen tried, both fashions of light and heavy shoeing, non-paring and paring. Unfortunately, the latter of both were first, and were rather too long, practised by me; and after resorting to the others, I would rather abjure the profession than have recourse to them again, so much injury to the horse do I believe they produce.

A communication, from a Bristol veterinary surgeon, appears in the *Veterinarian* for this month. I decline noticing it, except to remark that, though the writer takes the liberty of designating me "our friend," I am perfectly unacquainted with him, and am not sure that I ever heard of him before. This unusual familiarity and the tone of the letter are, I think, as easily accounted for as are the relations between keeping a large shoeing forge in the heart of that city where certain principles prevail, and an extensive experience among horses with diseased feet.

In conclusion, I must say I experience some regret in being compelled to state that for the future I will not notice any observations on this or any other subject emanating from the source which has provoked the above reply, and particularly with a view to discussion—though I will adopt Mr. Dyer's course, and be prepared to read them. Thinking to add my testimony to the value of a certain method of treating a particular disease—a method which had been more or less practised two centuries ago, which is mentioned in various Continental treatises on veterinary medicine, and which I have myself tried—I have been pounced upon in a manner which "savours somewhat of a feeling I am unwilling to name." Though well aware that anything an army veterinary surgeon may say or do is sure to be received with disfavour by a certain limited class, yet I acknowledge that in this instance I thought I might venture to add my humble mite without fear of its rejection with so much contumely. I lacked the practical experience of Mr. Dyer, have been disappointed, and promise I won't do so again.

A word as to my communications. I had every con-

fidence in the judgment of the Editors of the *Veterinarian*, and will indeed be greatly disappointed as to their competency for their office if they allow the publication of any writings from my pen which merit the designation of "elaborate and uninstructive articles." I put forward no pretensions in the matter, but when I am criticised I always feel inclined to review my critic, more especially when I happen to know who he is.

THE PRINCIPLES OF BOTANY.

By Professor James Buckman, F.L.S., F.G.S., &c. &c.

(*Continued from p.* 655.)

We come now to an examination of the Algal Alliance, in its connection with the animal economy, and here it will be necessary to state that, although it has been long known that certain Fungi and others of the cellular class exert a powerful—nay often a poisonous—effect upon the animal system, yet the discoveries now making show further than this, that they are not only the cause of diseased action, but disease itself. If, then, we follow Professor Lindley, and divide the Algales into five orders, and then examine some of the genera and species, we shall have a better idea of the powers to which therapeutic effects are due on the one hand, and diseased structure on the other.

Natural Order of Thallogens.

Alliance 1.—Algales.

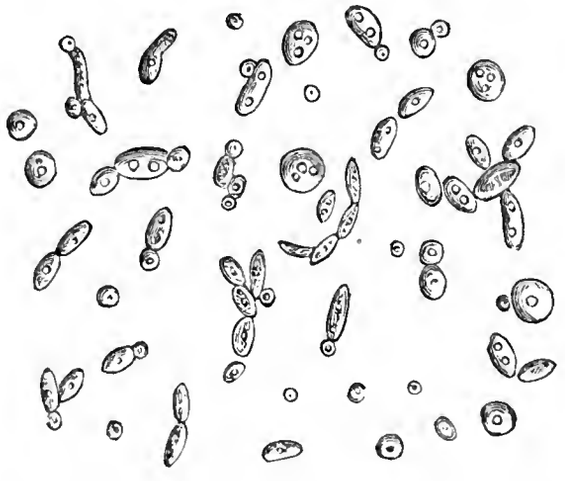
Crystalline, angular, fragmentary bodies, brittle, and multiplying by spontaneous separation . . .	1. Diatomaceæ or Brittle worts.
Vesicular, filamentary or membranous bodies, multiplied by zoospores generated in the interior at the expense of their green matter	2. Confervaceæ or Confervas.
Cellular or tubular, unsymmetrical bodies, multiplied by simple spores formed externally . . .	3. Fucaceæ or Seaweeds.
Cellular or tubular unsymmetrical bodies, multiplied by tetraspores	4. Ceramiaceæ or Rosetangles.
Tubular, symmetrically branched bodies, multiplied by spiral coated nucules filled with starch . .	5. Characeæ or Charads.

Now, amongst these, one of the simplest plants we meet with is the one to which yeast is due. The *Torula cerevesiæ*

yeast plant is found in all fermenting fluids, and, indeed, the process called fermentation is due to their presence.

The practical object of fermentation in the preparation of the different drinking fluids which we enjoy is the conversion of sugar into alcohol, and by a further extension of the process into acetic acid; both of these in their state of dilution in wine, beer, cider, &c., are extremely wholesome in their moderate use. So even spirits, which consist of alcohol and flavouring materials of various kinds, must be admitted to act as stimulants upon the animal economy, and to be of the highest use and importance. These, then, afford some of the good resulting from the effects of the growth of the yeast plant. Nay more, yeast itself has been employed as a remedial agent, both externally as a cleanser of wounds, and internally as a peculiar kind of alterative and stimulant.

But although its power is beginning to be acknowledged, when properly exhibited under the control of the practitioner, yet this should lead us to expect that it might exert a baleful influence when present where it is not required, and it is therefore of importance that the medical man should be able to recognise it. In order to do this we give the annexed wood-cut and description of this lowest form of plant from Demonstrations of Microscopic Anatomy, by Dr. Harley and Professor Brown:—



Torula cerevesiæ. (Fig. 218, p. 259.)

"This plant is found in fermenting fluids, in yeast, and in saccharine urine. It occurs also in the mouth, œsophagus, and stomach.

"It consists of numerous round or oval cells, containing in their interior minute granules resembling excessively minute oil globules.

"The mode of propagation is by a species of budding; each cell gives forth one or two minute projections, which become

perfect cells, and again develop other buds. In a few hours a row of five or six cells will be developed from a single one.

"When found in any of the fluids it indicates the existence of saccharine fermentation."

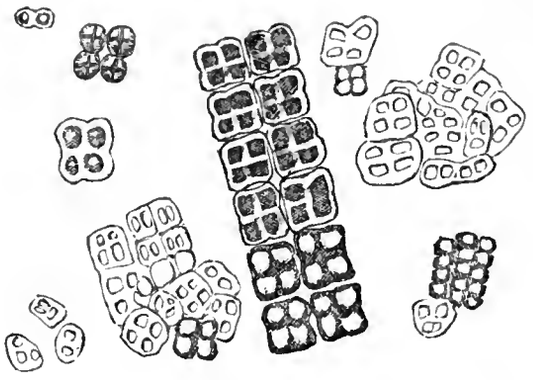
It follows then that as "a little leaven leavens the whole lump," the introduction of yeast, or what is often much the same, imperfectly fermented matter, into the animal system is productive in some states of a fermentation which cannot be properly controlled; and hence it goes on to acetous fermentation, causing acids on the stomach, eructations from the formation of gases, &c.

This at the present time is rendering beer a drink almost tabooed by some medical practitioners; the fact is, much of the fresh beer as now used is, more or less direct, made from sugar, which, in the shape of coarse raw sugar, molasses, &c., is made to take the place of barley; this is sent out in the half fermented state, and what should become a wholesome beverage is not unfrequently a poison.

Still we are told that, after all, if grain be used the alcohol is produced from the altered sugar. True, but the case is different when sugar is used directly, as here, the simple process of fermentation takes place directly, and it is incomplete by reason of its being obliged to be checked before it is over, or acetous fermentation would set in. In the fermentation from malt, starch is converted into diastase, this again into sugar, and the sugar into alcohol, all which processes are going on simultaneously; and unless the one be completed, the other cannot be commenced. This, then, is slower, and more equable in its results, and at the same time more perfect; and malt beer can scarcely be pushed into the market with its yeast in an active growing state, as it cannot possibly have attained that degree of brightness without which few would relish it.

That many of the states of disease one meets with are due to fermentation, and that this fermentation is again due to the presence of one of the lower tribes of plants it has been my object to describe, is well known, and probably, when we have learnt more of these effects, we shall be able either to enhance or retard them, as may be, for the well-being of our patients.

We copy another illustration from the valuable work to which we have already referred:—



Various forms of *Sarcina ventriculi.* (Fig. 219, p. 260.)

This is the Sarcina, which is interesting in a structural point of view as an example of a multiplication of cells by division. "The Sarcina," say Messrs. Harley and Brown, "has been found in the human subject in the vomit, fæces, urine, pus of an abscess, and in the anterior chamber of the eye.

"It may give rise to few or no symptoms; it may occur but once in the vomited matters, or, on the other hand, it may continue for weeks, and ultimately cause death from the constant vomiting it sometimes induces.

"The fluid in which sarcina is found is usually fermenting, and sometimes it is of the consistence of pea-soup, and has a brown or green appearance."

This, then, offers an example of one of the lower tribe of plants exercising a powerful influence on the human body. Does not the same or other species exert a baleful effect upon inferior animals? The mere hint that this is so should be enough to excite inquiry, and we feel persuaded that such an investigation will find most valuable fruits. Already we have made great advances in our knowledge of the effects of the lower plants on the higher animals, and it seems not improbable that such investigations may aid us in our more general inquiries in relation to the lower creatures.

For a general epitome of the uses of Algals we refer to the following *résumè* upon this subject, and shall hope in a future article on Fungals to still further enlist the reader's attention to the Thallogens:—

"Porphyra laciniata and vulgaris are stewed, and brought to our tables as a luxury, under the name of laver; and even the ulva latissima, or green laver, is not slighted in the absence of the porphyræ. Ulva compressa, a common species on our shores, is regarded, according to Grandichaud, as an esculent by the Sandwich Islanders. Common nostoc, commonly called star jelly, a trembling gelatinous plant that

springs up suddenly after rain, is by superstitious persons supposed to possess virtue as a vulnerary, and in pains of the joints. Oyster green, or ulva lactuca (the *βρυόν θαλάσσιον* of Dioscorides), is sometimes employed in scrofula. The ancients used it in inflammations and gouty affections. Its taste is so bitter and salt that it is usually given with lemon-juice. The confervals found in many thermal springs, mostly species of Spharozyga, are used empirically as external applications to goître, enlarged glands, &c. Henry has examined the confervals in the springs of Vichy, Neris, and Vaux, and found small quantities of an alkaline iodide in each."

PRACTICAL VETERINARY SCIENCE.

By A Working Practitioner.

In the *Veterinarian* for September, at page 650, I ventured to lay before the profession some thoughts upon the above subject, and in my present paper I purpose to examine in detail the various principles involved in the question, and endeavour as far as possible to draw fair and common sense conclusions from them.

In conducting this inquiry it must be understood that I am presuming that the youth, student, or veterinary surgeon, spoken of is a person of an average type of intellect, and in possession of capacities equal to the generality of mankind. We must not forget that there are men who are habitually and constitutionally idle, both bodily and mentally, and as such they are of little or no use in the veterinary or any other profession. Such men of course cannot expect to succeed. There are other men, well intentioned, who lack neither industry, intelligence, nor education, yet some how or other they do not get on, and after a short time they give up the profession in disgust and embark in another calling, assigning as the reason that society could not appreciate their talents. It would appear, however, that their acquirements are not adapted to the necessities of their calling, for such men often seem incapable of looking at plain and natural principles. They appear never to be able to take simple and clear views of their case; they cannot get into the knack of working with nature; their treatment is uncertain, and the result too frequently unsuccessful. Men of this class cannot of course succeed. They will lay blame to the want of a legal protection of the profession, to the underworking of

empirics, &c., but can never see that the fault is in themselves.

We will now inquire whether a classical education will ensure the most useful practitioner.

Much has been said about the cultivated mind being so much more ready and capable of comprehending all subjects presented to it, being more ready to receive instruction, and like seed sown upon already cultivated and fertile soil to bring forth good fruit in abundance. Let us, however, inquire what are the results of this high-class training upon the mind, and we shall find that it gives men larger and more liberal views; it leads them to take an interest in things foreign to their immediate calling; it fixes the thoughts upon great and it may be remote objects; it trains them to love virtue for its own sake—to prefer fame to life, and glory to riches. It tends also to soften and refine the tastes, to produce gentleness of demeanour, and to enable the individual to enter into conversation of a superior order with other cultivated and intellectual men. Grand, beautiful, and exalted as all this may be, what is there in it that can be made to serve the necessities attaching to the treatment of a really serious and dangerous case of illness? What does it matter if a man possesses the most profound knowledge of astronomy, or is acquainted with all the known languages of the world, if he lack that special and essential knowledge requisite to save the life of his patient? I believe it is generally admitted that a high classical education does not strengthen the understanding. If it necessarily made its possessor superior to other human beings, how is it that of the great number of men who distinguish themselves at our universities so few continue to shine as bright stars throughout their after lives? With very rare exceptions these men are never heard of after leaving college. They settle down among other men as ordinary mortals.

The vast majority of the really great men of this world are those who have not received a high class education.

My experience of highly educated veterinary surgeons is this,—they do not take clearer or more profound views of their cases; their treatment is not more successful; nor are they in themselves in any sense of the word a success. The utter inutility of any man possessing high scientific attainments without practical experience has been most clearly and incontrovertibly shown by Mr. George Fleming in his letter to the *Veterinarian* in 1867. Depend upon it a very high-class education causes the intellect to radiate and not to converge its powers. The mind engages in things visionary rather

than concentrate its energies upon a thorough investigation of the question which the man's whole life is to be employed upon. There is another objection, too, viz., that the most eventful and receptive period of the man's life has been occupied in obtaining this extraneous or extravagant knowledge to the exclusion of that which would be familiarizing (acclimatizing him if I may so speak) with the nature and habits of the animals whose maladies he will have to treat, and as a necessary consequence he goes into the sick-box, even after he has got his diploma, a comparative stranger both to his work and to his patient.

The conclusions I have arrived at are that a very high and classical education is not only superfluous but often prejudicial; that its possessors will never beat the empiric out of the field because they are so frequently found to commit such egregious blunders as to bring down upon the profession both ridicule and contempt. Such blunders, bear in mind, are looked upon as more unpardonable than if they were committed by uneducated men; hence the greater derision and disgrace.

But in all correctness I say let those who enter the profession have a good and substantial education. The Council and the Colleges will not rest satisfied, I hope, until independent boards, composed of the members of the College of Preceptors, are established at each college for the purpose of testing on a uniform system the extent of the knowledge of those who are about to enter on the study of the profession. Of course youths, already possessing a degree or certificate from some recognized college or school, setting forth that they have passed a satisfactory examination in general education, will be exempt from such examination. No time should be lost in effecting this, so that henceforth there will not be a single student permitted to enter any of the colleges unless he possesses a sound and satisfactory education.

In my next I purpose to examine the utility of three or more sessions being spent at college, and also the importance of an Act of Parliament to protect the interests of the profession, concluding my observations by pointing out what I consider to be the only remedy.

FRACTURE OF THE OS METACARPI MAGNUM OF A HORSE; REUNION.

By Neil Barrow, V.S., Turriff.

As cases of this kind do not occur every day in the common run of country practice, I trust the following details may interest some of the numerous readers of the *Veterinarian*.

Early in the morning of the 13th of June, 1869, I was summoned to the home farm at Armidale House, belonging to J. D. Milne, Esq., to see a horse that had received an injury to the near foreleg. I found the patient, a very superior dark bay cart-horse, about twelve years of age, standing in the stable, with his head resting on the manger, the injured limb extended, the ground being merely tipped by the toe, the pulse accelerated, the breathing quick, with other indications of acute pain. I learned from the attendant that he had been first noticed lame on the previous evening in a park, where he and several other horses were accustomed to graze. He was at once removed home, a distance of over half a mile, doing the journey on three legs, and with much difficulty.

On examining the limb, I found a very small opening through the skin at the inner and front part, and near the middle of the large metacarpal bone, with slight effusion and great tenderness for two inches around. I could hear no crepitation, nor was I able to detect the slightest movement in any part of the bone. By the use of the probe, I discovered what I supposed at the time to be a portion of the bone surface grazed. No small surmising occurred among the onlookers as to the cause of the accident; and when one ventured to say that he believed that there was a stake still sticking in the wound, I gave it as my opinion that it was the result of a good sound kick, received, very probably, whilst in the act of rearing. Not being well satisfied as to the nature or extent of the injury done, I resolved to see the case as soon as possible again, and, before leaving, ordered warm fomentations to the limb, to be persisted with for hours together, and during cessation to apply an anodyne liniment all around the wound; tincture of aconite to be given in his water, ten to fifteen drops, three times a day (gave no cathartic, the fæces being very soft); and the food succulent, of which he partook moderately.

On the 15th I again saw the horse. Was told he had been down, and was raised with great difficulty, had drunk almost no water, and eaten very sparingly. The febrile symptoms

were increased, the head resting frequently on the ground, fæces harder, and the effusion about the wound a little more extensive. Having enlarged the outer opening and drawn the probe gently across the bone, I felt a small ridge, which I believed must be caused by fracture and slight displacement. There was still no pain whatever evinced by pressure on any part except close by the skin wound. I now placed the animal in the "swing," as the owner called it, administered a purgative, and applied a smart blister over a considerable part of the skin covering the injured bone, with a view of causing very general swelling, which would form the most effective bandage that could be applied, ordered the tincture of aconite still to be given in water, and left.

Visiting on the 17th, I found the cathartic acting freely, the drugged water being drunk, the patient's appetite improved, the blister well up, swelling all round the bone, a free discharge of healthy pus from the wound, and yet evidences of severe suffering remained.

About this time I had a visit from my talented friend and predecessor, Mr. James Storrar, M.R.C.V.S., Chester, who, on the 19th, accompanied me to see this interesting case. He concurred with me as to the nature of ailment and method of treatment, but expressed grave doubts as to ultimate recovery.

For the next fortnight I saw the horse twice a week, and little change took place, either in general symptoms or local appearances, with the exception of the breaking forth of several new openings, on a line with each other, on both sides of the bone, all giving vent to a stream of healthy pus. These openings were gently cleaned from time to time, and dressed with diluted carbolic acid; the blistered surface was kept soft with an oily, anodyne liniment. In addition to grass, the food consisted of boiled barley and bran mashes, and into these latter an occasional diuretic powder was mixed. The pulse being lowered, the tincture of aconite was now dispensed with.

On the 3rd of July the case assumed a new and more formidable aspect. All around the knee of the affected limb a good deal of effusion had taken place, and by the 6th the swelling had increased and extended upwards to the axilla, and covered a large portion of the sternum; so enormous was it that the elbow and contiguous parts were pushed far apart from the side of the chest. The head, which for some time had been kept up sprightly, was now a disfigured mass; the eyes were shut up, with swollen eyelids, by knocking against the wall, and a lump nearly as large as a man's

head appeared between and over the branches of the lower jaw, with a raw and bloody surface, caused by leaning so heavily on the manger; the pulse wiry and very quick: appetite gone; scrotum enlarged; fæces dry and hard; and discharge less free at the wounds. He had altogether a most wretched and unhopeful appearance. At this stage great pressure was put upon the overseer, by gentlemen visiting the house and others, to have the poor animal destroyed, but the good man stood firm, determined to give the case a fair trial to the last.

In order to overcome this diseased condition I made a large incision near the axilla, giving egress to much watery fluid; inserted a rowel in the orifice, put a bit in his mouth, and tied him up to save his head; bathed the eyelids, had the jaw poulticed, punctured the scrotum, from which much fluid escaped, and ordered potass. iodid. et potass. nitras, to be given daily in mash or boiled food, and the rowel to be turned at intervals and dressed with digestive ointment. For the next two days he was much prostrated, and seemed to suffer awful pain. Seeing him on the 9th, however, I was pleasd with the marked relief he had obtained. He had eaten the drugs in mash, was partaking freely of food and water, a copious discharge of matter flowed through the rowel in the axilla, the swelling much decreased, great increase of discharge from the lower wounds, eyes open, jaw beginning to heal, fæces softer, staling with freedom, and using the "swing" less frequently than ever. The medicines were continued daily for a week, and then gradually withdrawn. The rowel seemed useful for a longer period of time, after which it was removed. The patient continued to improve in every respect, only that no weight was put on the weak limb until late at night on the 25th, when a messenger came to say that he had become very ill, and seemed determined to be out of the slings. Suspecting colic I pocketed some remedies, and hastened to the place. On inquiry I found that change of food had been allowed for a day or two—damp, half-made hay—of which he had eaten freely; the large intestines had become impacted, gases evolved, and hence the pain. The more urgent symptoms yielded to a stimulant draught and a few warm injections of soap and water. I also gave a cathartic ball to evacuate the bowels. After six hours, during which occasional spasms alternated with intervals of ease, he became perfectly quiet. The physic operated at the proper time, and health and sprightliness once more returned, and, in addition, he had acquired some confidence in his own abilities by experience, for, during some of the more severe paroxysms, he

was seen to use the affected limb with as much energy as he did the sound ones, and now he was frequently putting considerable weight on it. The swellings of head, axilla, and scrotum were totally dispelled, and the sores healed up. The parts below the knee were assuming a more natural size and shape, the openings closed and cicatrized, with the exception of one or two, near the lower end, which still discharged a good deal. Use being made of the limb, and the general health good, I resolved to have him out of the "swing" after a short space of time.

Accordingly, on the 27th, I had him carefully taken out, and he walked for five or ten minutes on a level piece of road, to the astonishment of all who saw him, putting full weight on all the legs, and the heel of the injured limb lowered to within about an inch and a half of the ground. The following day there was some improvement, and in three or four days more he could walk tolerably well, with the heel almost flat on the ground, and was able to lie down and rise with comparative ease. Having seen him thus far I expected complete recovery; but, alas! how soon our hopes may be blighted. Very late one night, about a week ago, a messenger came to my residence requesting me to see the horse with all haste, as he was now thought to be dying. Hurrying out with much anxiety I was extremely sorry to find him very near his latter end. It was evident that some serious affection of the heart was the cause of all the symptoms. Something had been observed amiss for two days before—dullness, loss of appetite, &c.—but the attendant, knowing nothing of the nature of his affection, sent me no word until the time mentioned, when he became suddenly very ill. Of course, all efforts now made to give relief were unavailing, and death took place about twenty-four hours after my visit. The *post-mortem* examination revealed a diseased state of the pericardium, with as much fluid therein as it could possibly contain, tough fibrinous clots adhering firmly to the endocardium, especially in the auricles, and the lungs were a little congested, but all the other organs seemed to have been in a very healthy state. The only consoling part of the affair was the chance now afforded for satisfying myself and others as to the exact state of the injured part. Bringing the leg home with me I dissected out the "bone of contention" from its strong encasement of cartilaginous-looking matter. The disruption had been very extensive indeed, and affecting two distinct parts of the bone.

In the first place the lines of fracture were easily traced down each side, both starting very near the superior articulating surface, with fully an inch between them at the upper

front of the bone, and becoming wider apart as each passed downwards and backwards, gradually converging directly posterior at a point rather more than an inch distant from the inferior end, and had thus divided the bone into two large pieces. And secondly, another distinct line of fracture could be traced all round the bone, about the middle of its lower third, and just a little below the convergence of the lines above mentioned. Very little displacement had taken place in either, and I wonder at it, seeing the horse had so much walking, had been down, and struggled fearfully to get up before he was put in slings. All these parts were strongly united together, and the healing process well nigh completion, except at the posterior part of the lower fraction, where a little suppurative action was still going on, but which, doubtless, would eventually have healed.

A SINGULAR CASE OF "WEED" IN A MARE.

By William Anderson, Veterinary Surgeon,
Alford, Aberdeenshire.

In the month of February last I was called to see a mare of the Clydesdale breed, the property of Alexander Walker, Esq., Fanner Mill of Fouls. On my arrival I found the animal, as the messenger had stated, all shaking, nostrils dilated, and a great steam coming from mouth and nose; the pulse was full and bounding, and the off fore leg greatly swollen, and very painful when pressed. I abstracted six quarts of blood, and gave in solution barb. aloes ʒiij, calomel ʒj. I also added treacle 4 ounces and mag. sulph. 3 ounces, as the animal was very costive, and clysters occasionally, till the medicine should operate, giving chilled water to drink all the time. I also ordered the leg to be well fomented three times a day, and well rubbed after till nearly dry, and then enveloped in flannel bandages, leaving orders to give every second hour 8 minims of fluor. tinct. aconite in a glass of cold water, till four or five doses were given, telling the owner at the same time if the animal tried to cough when giving the drops to let down her head, as he would choke her if kept up. Having given all the doses till the last well, in giving it she attempted to cough, when they still kept up her head till she almost fell down, but with the assistance of some ropes she was kept up till I saw her. She was now left half-standing, half-hanging in the ropes, with a great discharge of frothy

mucus coming from mouth and nose, and very tympanitic. The sweat by this time was running down her legs. I at once ordered hot fomentations to the loins, belly, and sides, also the whole length of the trachea, and warm clysters. After three hours constant fomenting, the symptoms began to subside, and some flatus per anus came off, and the swelling disappeared. The discharge from mouth and nose by this time was a little abated, and the animal seemed to stand better on her legs. After the fomentations I had her well rolled up with blankets and rugs.

On reviewing my patient next day, there were still slight eructations continuing, but the animal was able to take a little thin oatmeal gruel. The medicine given about thirty-six hours previous had never operated, and the leg was still much swollen and painful, having a tendency to increase rather than decrease. I inserted a rowel in the inner side of the affected leg to prevent the swelling twisting at the knee-joint, but it had not the desired effect. Thinking that the former medicine had passed off by the kidneys, I made and gave the following ball: barb. aloes ʒv, calomel ʒi, croton. sem. vii, zingib. ʒij, com. mass. qs. Having her previously prepared with gruel and mashes, I fully expected a purge. I waited for three days, and still the same negative results; not so much as a laxative effect. The swelling by this time was very large at the knee-joint (at the trapezium), when it burst, and a great quantity of fœtid matter mixed with blood came out, leaving a very ragged wound. I need scarcely say by this time the rowel was discharging a good deal. I still continued the fomentations and bandages, and dressed the wound at the knee with digestive ointment. The mare was now eating and drinking quite well, and taking gentle exercise. I was still anxious to move the bowels, and made and gave a ball one third stronger than the last, but still the same results; not even a laxative. I may also state that none of the balls were missed, nor did they remain in the mouth when given, as the owner as well as myself saw them pass down the œsophagus; and when the animal was let into the stall she began to eat mash.

Owing to the lingering illness of the mare, and the time for sowing being at hand, the owner was anxious for more skill to bear on the case. Mr. William Dewar, veterinary surgeon, Midmar, a gentleman whom I have always great pleasure to meet, was called to consult on the case. He thought at first sight an open joint might be apprehended, but, after I had fully explained the history of the case, and how it had progressed, he considered the course of treatment

pursued was very satisfactory, but stated the case was an obstinate one. The wound healed up favorably after the discharge was all gone, but left a thickening of the part.

THE STATUS OF THE VETERINARY PROFESSION.

By "O."

Several contributors to the *Veterinarian*, and amongst them Mr. Barker, whose communications have frequently found a place in our journal, bewail the position of the profession, and the support farriers and charlatans receive in the face of licensed practitioners. I am not about to dispute the question, but I venture to ask how far members of the profession are themselves to blame? Can it be wondered at when a certificated veterinary surgeon sinks the dignity of his profession by such an announcement as I find on a card now before me?

"Horses broken to the saddle or harness."

"Horses clipped and singed by the season, or otherwise."

"List of medicines always on hand."

"Physic, cough, condition, and staling balls; cow purging, felon, and cleansing drinks; also cough powders, healing, blistering, and hoof ointments; lotions and liniments for wounds. Dog medicines," &c.

Let every member of the veterinary profession respect himself, and there will be no fear of the farrier, the cowleech, and the charlatan doing him harm; but with such a combination as horse breaking, horse singeing, and claptrap advertisements, how far is it reasonable to expect the profession to advance, and its members to occupy a place by the side of the practitioner of human medicine?

There are, probably, two thousand living veterinary surgeons. Of how many of these may it be said that their social status is not inferior to that of an ordinary tradesman? Who is to blame?

"The fault, dear Brutus, is not in our stars, but in ourselves."

PATHOLOGY OF BROKEN WIND IN HORSES.

By "Veritas."

On perusal of Mr. Pallin's essay in your last month's issue I was struck by the remarkable similarity which exists between the explanation there given of the pathological condition of the lungs in broken wind and that given by Professor W. Williams, of the Edinburgh Veterinary College. Now, it would appear to me—I hope Mr. Pallin will excuse me if I say so unadvisedly—that the note-book of his brother, who was one of Professor Williams's students during the winters of 1867-8 and 1868-9, may have something to do with the originality of the theory which he there brings forward and claims as his own.

Perhaps it may be that I am mistaken in my cogitations, and that Mr. Pallin's amount of anatomical and physiological knowledge is still sufficient to enable him to form such a complete and beautiful theory as that at present under consideration—be it far from me to say that it is not—and if it be so, which I hope it is, it redounds greatly to his credit, and entitles him also to the admiration and respect of the profession at large; but still the question of priority gives precedence in the question at issue to Professor Williams, who has, at least for the past two sessions, taught his pupils this view of the pathology of broken wind.

I believe Professor W. Williams to be the first gentleman in the profession who has taught and given to the public this, which I believe to be the only true, rational, and scientific explanation of the pathology of broken wind; and it is but justice to that gentleman that the general body of the profession be made aware of the fact. With all due deference, then, to Mr. Pallin, I would say let us do justice, and give "honour to whom honour is due." I will here quote, as correctly as I can, from my few imperfect notes of Professor Williams's lectures, his words to us when lecturing upon the above subject. They are as follows:—"In all cases of broken wind, without exception, you have derangement of the stomach, and it will be more or less enlarged. Primarily this disease is the result of indigestion, and the breathing is irregular from the irregularity of the nervous force; but it is worst when the stomach is full, when it sometimes takes on a spasmodic action. The bronchial tubes and air-cells have a certain contractile power in virtue of the muscular fibre which they contain; and in the healthy action of the lungs

these fibres contract, diminish the calibre of the bronchial tubes, and press the air out of them. The diaphragm, with the thoracic, abdominal, and other muscles of the trunk, by contracting, press the air out of the lungs, and after them the muscular fibres of the bronchi contract, and still further press the air out, so that this forms the second movement, and completes the act of expiration. In broken wind, however, the muscular fibres of the bronchial tubes do not contract, as the nerve which supplies them and regulates their action is paralysed, and as a result of this the abdominal and other muscles have to take on their function, and hence the second movement of the flanks, so characteristic of this disease.

"The nerve which supplies the stomach and lungs is the par vagum or pneumogastric, and its functions are threefold, viz., motor, sensory, and ganglionic or nutrient. This is quite evidently the case, as the nerve is visibly larger after passing the petrossal ganglion; and as this nerve not only presides over the functions of the organs of digestion and respiration, but also sends branches, both motor and sensory, to the voluntary muscles of deglutition, &c.

"The first pathological change which takes place in broken wind is paralysis of the terminal extremities of the sensory filaments of this nerve on the walls of the stomach, and from want of tone and a due amount of nervous influence this organ becomes distended, its walls attenuated, and its functions impaired, or, indeed, almost suspended; the paralysis extends thence along the course of the nerve towards the brain, and by reflex action the motor filaments which supply the lungs are affected, so that they, and the muscular fibres of the bronchi with them, become paralysed, and atrophy and fatty degeneration is the result. In some cases rupture of the air-cells and emphysema may be established."

Again, in arguing against the mechanical theory of the influence of the stomach in causing broken wind, the Professor says:—"If broken wind was due to mechanical pressure of the stomach upon the lungs, then the inspiration would be laboured and expiration easy; but, on the contrary, the inspiration is very easy, and the expiration difficult; therefore I think, as I have already told you, that it is due to paralysis of the ultimate ramifications of the pneumogastric on the walls of the stomach, which paralysis extends and becomes reflected on to those branches of the same nerve which go to supply the lungs, and when these have become paralysed the functions of the lungs and bronchial tubes become impaired, so that the air cannot be properly expelled from them, and hence the difficulty in expiration."

Hoping that no one may be offended with me for making this attempt at placing the saddle upon the proper horse, sticking the feather into the proper bonnet, or twining the laurels round the proper head, I remain, &c.

TREATMENT OF LAMINITIS.

By T. D. Gregory, M.R.C.V.S., Bideford.

The readers of the *Veterinarian* must be getting somewhat weary, and the combatants Broad *v.* Fleming must have nearly exhausted their literary strength in the laminitic warfare that has been waging with such pertinacity for so many months in your pages; and, as far as I can see, neither has yet gone far in convincing the other that he is wrong.

In obtruding myself upon your space, I assure you I have no wish to prolong this wordy warfare; but having since Mr. Broad first introduced his somewhat novel mode of treating laminitis to the members of the West of England Veterinary Medical Association, had many excellent opportunities of fairly putting his principles to the test of experience, the last two summers, from some cause, probably the great heat of the weather, having been more than usually prolific of acute and subacute laminitis.

After all that has been written upon this subject, it would be, doubtless, too great an infliction upon the time of your readers were I to enumerate or individualise my cases; but I am happy to be enabled to say that my patients have, under the treatment recommended, made rapid and good recoveries. I have followed out as nearly as circumstances would admit the details of Mr. Broad's treatment, and in spite of the cry of cruelty which has been set up, and which I repudiate, I have particularly persisted in exercise, and I have invariably found the pain lessened thereby, and each succeeding walk taken with less and less difficulty. My object and wishes in thus addressing you and your readers will be accomplished when I have discharged the duty—and I am sure it is a pleasurable one—of adding my testimony and thanks to Mr. Broad for first drawing attention to this most valuable, because most successful, mode of treating a disease which has heretofore not been satisfactory; and I would certainly advise those who from prejudice or otherwise have not tried it, to fairly, when opportunities offer, put it to the test, and I feel convinced the results will fully justify all that the author, Mr. Broad, has advanced.

TREATMENT OF LAMINITIS.

By John Wells, Whitechapel.

Having been twenty months a pupil under the late Professors Coleman and Sewell, and forty-two years in rather extensive practice in London, I will with your permission state that as soon as I read Mr. Broad's paper on "Laminitis," I was surprised at the simple means recommended as treatment. I am now able to state that I have treated several cases both acute and chronic with perfect success, and without any alteration of structure resulting in either case. I know several other practitioners who have been equally successful, yet they have not given themselves the trouble to record it, which I think unfair towards Mr. Broad. It has been truly stated by Professor Williams that if those persons who have written and spoken so much against Mr. Broad's heavy shoe for laminitis were to try it, they would then find if they did their duty they would apologise to Mr. Broad for having condemned it without a trial. There cannot be a doubt that this system of treatment will become general, and the profession is greatly indebted to Mr. Broad for its introduction. Mr. Fleming and Mr. Broad being both unknown to me, except by their writings, I shall take the liberty of expressing my views plainly in reference to the use of stout shoes for weak flat feet, by stating that I am astonished to find any person possessing practical knowledge of town shoeing can deny the benefit of stout shoes for such feet,—and I go a step further by saying any other feet, of horses continually working over the paved streets,—and am not afraid of being differed from by any practitioner who has had much experience of a London shoeing forge. I am also surprised to see how few members have taken sufficient interest in the discussion to record the result of their experience. Had any member of the medical profession published such a thing as that of Mr. Fleming's in reference to stout shoes, it would have been quickly denounced by so many members that he would scarcely have had the courage to repeat the statement even if the editors would have allowed it. I cannot help thinking that Mr. Fleming must know his theory is wrong, but like many other clever men does not like to admit he is beaten.

[As Mr. Fleming has expressed his determination not to continue the discussion, he will not of course notice this communication; and we think, under all the circumstances, the controversy cannot be beneficially carried on any longer.]—Eds.

QUALIFIED AND UNQUALIFIED PRACTITIONERS.

By J. Barker, M.R.C.V.S., Scarborough.

In last month's number of your journal there appeared an article on "Practical Veterinary Science," by a "Working Practitioner," who, under that title, leaves us to guess whether he belongs to the body corporate, or is one of those unfortunate outsiders who, after serving an apprenticeship to the profession and passing the requisite two sessions at college, have failed to pass that ordeal which constitutes the veterinary surgeon proper, though not in any way making the aspirant possess more knowledge than he did the hour or day before. But as I take it, all such learning and study is entered upon with a view of passing such a creditable examination as shall be sufficient to entitle the student to his diploma and the title of veterinary surgeon, and that if there were not any honour or advantage in being such, few or none would take the trouble of a preparatory study of any kind, but be mere imitators of their compeers and predecessors, and the treatment of dumb animals be only worthy of the dark ages long since past. With shame be it said, ignorance, credulity, and superstition are still rife in many outlying districts even in England, and much more so in Scotland and Ireland, not from a deficiency of practitioners, indeed it would be much better if it were so for the welfare of our noble animals; on the other hand, there are plenty of these so-called "practical men" who make capital out of the condemnation of theory, which is above their comprehension, and whose practice generally consists in what would generally be far better left undone, as far as their employers are concerned.

As to getting an Act of Parliament to force society to employ us in preference to non-qualified men, we must surely be of much too sanguine temperament to expect anything of the sort, especially when a "Working Practitioner" assures us that it can be shown that in many instances they are equally successful, and in some instances more so, in the treatment of their cases than the qualified man is, and which society is so ready to discover. If such do really exist, it is unlucky for the interests of the profession that their natural modesty deters them from coming forward before a competent body of practical men and showing to the world their merits, and receiving such certificates as to enable them to be put on the register and be received among us as qualified

men, seeing that practice varies so much according to locality and other circumstances that we require as many various classes of practitioners to undertake all the arduous duties belonging to the profession; and, I trust, some such resolution will be shortly put in force that we may observe how many of these outsiders (who from sheer envy are constantly condemning qualified men as mere theorists, and bragging of their own practical knowledge) will avail themselves of the advantage,—while it would be a positive boon to many respectable men who have passed their two or three sessions at college, and been from various causes rejected, or have not had confidence to offer themselves for examination, and who, we many of us know, are more competent to practice the veterinary art than many who now disgrace it. When this has been done we can go with a good grace to Parliament and ask for that which will not be a second time denied, as then no hardship will exist to a respectable class of men as heretofore, as those who fail to avail themselves of the opportunity offered in that way will stand self-condemned, and no longer be even recognised by the public as belonging to the profession, and those who may still employ them will do so with their eyes open to the facts. That Parliament is disposed to recognise members only is evident from the fact of the wording of one of the clauses in the Pharmaceutical Act lately passed, which exempts members of the Royal College of Veterinary Surgeons from the penalties attaching to non-qualified men. Much has lately been said with regard to inducing gentlemen to join the profession with a classical education, as a basis. I will ask, is it desirable in any other point of view than their being intended for army vets., where we know a farrier is kept to dispense their medicines and do their work? and perhaps, in after life, to settle down in some town with "Veterinary Surgeon" on his door plate. I think some of us know a few of the kind, but we do not find them engaged in active practice, and throwing any new light on subjects connected with the profession; but if we take up some of our sporting journals, we find the knowledge they have acquired venting itself in a special column for the edification of people who like a little amateur doctoring on their own account, and likewise instructing their grooms in the various mysteries connected with horses, dogs, &c.; and it is really amusing to find recipes from "Clater" given occasionally. The above facts, I think, go far to prove what the late Mr. Hawthorn, of Kettering, used to assert so often,—that there may be such a thing as "too much science" imported into our every day transactions,—as it is notorious that

our clients and customers often hold opinions of their own, and actually inform us what they wish to be done according to notions of their own, and the veterinary surgeon who opposes them or confutes such as being unscientific and useless, often has cause to repent doing so.

Anyone who consults that useful work, Oliphant's 'Law on Horses,' &c., will find the finish of the preface to be thus: "It often happens that a purchaser of a horse gets a veterinary surgeon's opinion, and most likely a certificate of soundness of the horse in question, and, being disappointed at the result, takes the object of his choice to another veterinary surgeon and gets a second certificate of soundness, but varying from the first; he therefore takes the horse on the dealer's word, and in six months has the pleasure of congratulating himself on the possession of a sound horse, and escaping two or more unsound certificates." Such cases, and analogous ones often exhibited in courts of law, damage our cause, as the result of too much science, and it would be well for us as a body to come to some more definite and practical resolutions with regard to that much vexed question of soundness, so as, if possible, to accord more with the public view, the opinion given by Mr. Winter in his work being as good as any, viz., "That there be no partial or total loss of function of any part, so as to interfere with the ordinary duties of a horse of his class."

LAMINITIS.

By E. Stanley, V.S., 5th Lancers, India.

The discussion between Messrs. Broad and Fleming on the Pathology of Laminitis, and the numerous articles that have appeared in the *Veterinarian* during the last few years having failed to elucidate the subject, I have been led to theorise and to ask myself the following questions, which I have endeavoured to answer. All your readers cannot be expected to entertain the same ideas, but food for thought may fall on fruitful ground :—

Questions.	Answers.
Can laminitis be produced artificially?	Not with any certainty.
What is the inference from this?	That it is not inflammatory in the ordinary acceptance of that term.
Does the disease evince a tendency to shift to the joints?	No.

Questions.	Answers.
What is the inference from this?	That it is not rheumatic.
What is laminitis?	Query, What?
Prove that it is more than simple inflammation of the laminæ.	Neither the French operation of stripping the hoof from the sensitive laminæ, which undoubtedly causes acute inflammation; nor punctures of the laminæ, causing true inflammation and suppuration, nor sinous wounds extending from the sole to the coronet, also attended by true inflammation of the laminæ, ever cause the diagnostic symptoms of laminitis, namely progression on the heels.
What structure is primarily affected in the disease termed laminitis?	The vascular tissue ramifying in the os pedis.
What is the pathological state of this vascular tissue?	It is acute congestion.
What symptoms are there that indicate the primary seat of congestion to be the interior of the pedal bone?	First. The excessive pain caused by distended vessels in a structure that cannot yield. Second. The dilatation of the foramina in chronic cases, showing that nutrition of the bone has been suspended or greatly modified.
How has this morbid change been brought about?	Through the arrest of the controlling power of the sympathetic nerves over the vessels at so great a distance from the nerve centres.
What has interrupted the controlling power of the sympathetic nervous system?	Whatever is known to *cause* the disease termed laminitis, such a cause operating on the sympathetic nervous centres, producing excessive expenditure of nerve force at the seat of irritation, diverts the nervous power from its peripheries.
What are the first symptoms of this congested state?	Acute pain, heat, throbbing arteries, &c., and the animal's weight thrown on his heels.
Does the congestion extend?	Yes, to all the vascular tissues of the foot.
Why does the animal throw his weight on his heels?	To relieve the congested and intensely painful vessels of the foot. He does this by throwing his weight on the flexor tendons, and on the soft and almost insensitive structures of the posterior part of the foot.
What is the consequence of his remainining unrelieved in this position?	Displacement of the pedal bone.

Questions.	Answers.
How is displacement of the bone effected?	By persistent traction downwards and backwards of the toe of the os pedis, caused by the weight of the body being unduly thrown on the flexor pedis tendon, instead of the weight being supported on the bony pillars of his legs, as it is in a healthy condition when at rest.
Has effusion any part in this displacement?	None whatever.
When does effusion take place?	Not within the first two or three days.
What is the character of the effusion?	Not fluid, but plastic lymph for organization.
At what rate does the effusion, so called, take place?	Very slowly indeed, and only as is required for reparation or conversion into horny laminæ.
Why does not the effusion burst out and escape from the coronet?	Because it is not a morbid product, and does not exist in sufficient quantity.
From what vessels does this plastic secretion or so-called effusion take place?	From the same vessels that the laminæ lining the wall of the hoof are secreted or nourished.
Is there any appreciable effusion at all in ordinary cases of the disease?	I never saw any. Cases of sloughing hoof are excluded because extraordinary.

The disease rapidly becomes inflammatory, involving the whole vascular system of the foot, and the distended state of the vessels in the os pedis causes the intense pain, to relieve which the weight of the body is thrown from the bone on to the flexor tendons and ligaments, causing the antero-inferior margin of the os pedis to be drawn downwards and backwards in virtue of the attachment of the flexor pedis tendon to its inferior surface. The extensor pedis tendon being relaxed, the spinous process of the os pedis bulges forward, carrying with it the coronary ligaments, and the supero-anterior part of the wall of the hoof; its centre in front falls in, and the toe bulges from the organised lymph, forming hypertrophied laminæ occupying the space of the receded bone, and the margin of the latter becomes absorbed by abnormal action of the blood-vessels, while the foramina of the bone become dilated, making it light and porous. The pressure of the antero-inferior edge of the bone not only arrests its own development, but prevents, by pressure, the growth of the horny sole, which consequently becomes thin and absorbed until protrusion of the bone and suppuration result.

Treatment must be constitutional as well as local. As Mr. Dyer said, "we have a fire and must put it out."

I have adopted his treatment with success in acute cases.

I take this opportunity of thanking Mr. Broad for boldly giving the profession the benefit of his unfailing success in the treatment of the chronic form of the disease, as his suggestion of raising the toe supplied my theory with the desideratum, thus affording the mechanical support the poor animal tried in vain to obtain for himself. Exercise by increasing the circulation would naturally tend to restore the healthy function of the blood vessels, and is therefore indicated; but it appears important not to overdo it, as torpid action, or congestion, would be likely to follow.

I have only given expression to my thoughts in the hope of inducing others to contribute their views on the pathology of the disease.

AN URINARY CALCULUS AND ITS EXPULSION.

By Richard Poyser, V.S., Royal Horse Artillery,
Peshawur, India.

Prefaced by the history of the expulsion of an urinary calculus from the bladder of a mare in the 3rd Bengal Cavalry, I have much pleasure in adding an account of the specimen which was kindly placed at my disposal by Colonel Hall, commandant of the above regiment.

I regret the case did not come under my immediate observation, but careful interrogation afforded the following remarks that refer to a bay country-bred mare, nearly fifteen years old, seven of which have been passed as a trooper.

Up to the time of the passage of the calculus, which occurred without any manual assistance being rendered, she had neither been reported sick nor unfit for duty. Her usual work was performed without any apparent inconvenience, and the functions of the urinary organs did not indicate anything abnormal. It is, however a matter of some surprise that the formation and retention of so large a foreign body should not have produced a series of untoward symptoms at a much earlier date.

It was only two days prior to the expulsion of the stone that any evidence of pain or irritation, in connection with the urinary organs, manifested itself by general uneasiness, by the maintenance of a straddling attitude for various spaces of time, and the sharp switching of the tail which preceded

spasmodic efforts to urinate. The flow of urine was scanty, irregular, and abrupt, sometimes in jets, at others in small streams (voided without force), which now and then were suddenly checked by spasm of the neck of the bladder. The colour of the fluid became slightly tinged with the colouring matter of the blood.

On the second day, excepting that the symptoms were more aggravated, there was little alteration in the patient.

On the third day she evinced extreme pain when about to urinate, by kicking, stamping, and sometimes lying down, but failed to pass much urine. After excessive straining and many unsuccessful attempts to relieve herself of something per vaginam, she at last forcibly expelled a calculus. Its removal was immediately followed by a copious discharge of highly coloured fluid.

From this time she experienced relief. For several days the urine was somewhat discoloured, due to slight laceration in the neck of the bladder and urethra. Within a week she recommenced her duty, and has since continued in health and condition.

The only treatment adopted was the administration of Potassæ nitras, increased in dose from the first to the third day.

Description of the Calculus.

The size and weight of the calculus, looking upon it as a body passed per urethram, struck one as being enormous.

Size.—The former, by its greatest circumference, measures nine inches, by its smallest seven and a half inches. It is three inches long and $2\frac{6}{8}$ broad, and its greatest thickness is two inches.

Weight.—The latter, after several months' exposure to a very dry and heated atmosphere, is exactly six and a half ounces.

Odour.—It possesses a strong ammoniacal and urine-like odour, particularly pungent and disagreeable on its inner surfaces, which have been exposed by section.

Shape.—An irregular ovoid, having a triangular tendency, laterally compressed, presenting upper and lower surfaces, three borders, and three rounded angles.

The upper surface, or that which is considered to have been more or less free in the cavity of the bladder, and the upper half of the borders, excepting at their anterior and posterior parts, are roughened and tuberculated, that is, of the mulberry character.

The lower or contiguous surface, which is much less convex

than the upper, is remarkably smooth, and several places are almost polished. The lower division of the borders are slightly roughened, but not beaded, simply corresponding with the asperities of those parts which have been in partial apposition to the mucous surface of the bladder.

One of the angles, which would appear to have rested in the fundus of the bladder is less obtuse, but smoother than the remaining two, which were only semi-contiguous and posteriorly placed, their aspect being uneven and rough.

General Character.—Its colour externally, when dry, varies from that of a pale yellow or light clay tint to that of a brownish-red, the former, however, preponderating. Exposure has considerably bleached the specimen.

A horizontal section (through its greatest circumference), exposing the largest amount of inner surface, presents two appearances, which, for the sake of description, may be called marginal and central.

The former is dense, hard, laminated, and shell-like, and has been rendered smooth and semi-polished by the saw. It measures from half to one and half lines broad, and is composed of three principal layers, which, however, do not maintain themselves entire throughout the circumference; but, after preserving an uninterrupted position for half the distance, the outer layer ceases, and reappears at irregular intervals. The remaining parts of the marginal surface are made up of the inner layer, which in some places is surmounted by the middle one.

These layers are of two shades. The middle one, which is narrow and undulating, is very much darker than the two wider ones which confine it, probably due to a greater admixture of organic matter.

In some parts the difference in colour is less defined, but the darker hue pervades the whole. In whatever direction the calculus is fractured the same features are preserved.

The latter (central), with one or two exceptions, shows a tolerably uniform colour, a light gravelly brown. Its surface, whether cut or fractured, is uneven, coarse, and much less condensed than the marginal crust. Its substance is friable, and resembles fine gravel massed together.

Looking upon the cut surface, an appearance of irregular radiation is definable, and there are slight evidences of concentric rings, both features originating in a dark body, which is a carbonaceous looking mass about the size of a large horse-bean, and forms the nucleus, around which the whole calcareous matter was constructed. It holds a position not quite central to the stone, and is of a deep chocolate colour, soft,

tough, and compressible, yet easily fractured, of organic origin, chars, decomposes, and disappears by the continued application of heat, leaving a very small trace of inorganic matter. This nucleus was in all probability a coagulum of blood. The component parts of the specimen are much more condensed in some places than in others; for instance, that half considered to be the lower one, and resting on the floor of the bladder, has its particles more closely arranged, more condensed, than those of the upper or free half, where there are many small interstices, and which, unlike the lower half, is partially made up of a soft, smooth, chalky material, reducible to powder by slight pressure. The remainder (referring to the internal part) is of the gravelly nature. The difference seen to exist in these two characters is considered to be due to molecular arrangement, and not to their possessing different chemical compositions.

The weight of the lower half very much exceeds that of the upper, and the nucleus is placed at a point nearer to the lower surface than to the upper one; in other respects it occupies a central position.

From the contour of the exterior of the calculus, the disposition of its interior, and the fact that its presence in the viscus had not caused any previous derangement, it is to be inferred that the foreign body maintained a stationary position, or that its degree of movement was of a very limited extent.

The containing organ had adapted itself to the gradual increase of the stone, the formation of which must have extended over a considerable period.

Its displacement from the usual position it held no doubt gave rise to the symptoms described, and its ultimate expulsion. Evidence is not furnished that would tend to account for a cause of its dislodgement, but it would be interesting to ascertain in what way the removal from its original site was effected.

The size of the calculus has nothing particularly attached to it to recommend its detailed description; but this may be interesting, at least to a few. Viewing it as a body, offering immense resistance to the muscular contractions of the bladder, as one subject to no modification of form to render its expulsion easy, and considering the fact that so large a mass was expelled per urethram by the sole exertions of the mare, it does become a case of unusual interest, and is worthy of being placed on record.

The results of a rough chemical analysis, and those of a microscopical examination, have afforded a general idea of

the composition of the calculus, but they might fail to satisfy the present "Veterinarian;" therefore specimens have been forwarded to Professor R. V. Tuson, F.C.S., who will, I am sure, be most happy to append the results of his analysis and examination, for the benefit of the profession and science generally.

[Three portions of the calculus referred to in the foregoing paper were sent to me for examination by Mr. Poyser. One portion was labelled, "Outer part of calculus, hard, dense, laminated, and shell-like;" a second portion was labelled, "Inner part of calculus, which is almost entirely of a gravelly character;" and a third portion labelled, "The least condensed part of the inner part of calculus, smooth, soft, and and chalky." By analysis it was ascertained that each portion consisted substantially of the same constituents, viz., carbonate of lime, with traces of iron and nitrogenised organic matter.]—Richard V. Tuson.

EXAMINATION FOR THE DIPLOMA OF THE ROYAL COLLEGE OF VETERINARY SURGEONS.

By T. Walton Mayer, Veterinary Surgeon, 7th Class, R.E.

Your pages have frequently been occupied by papers relating to the education, and latterly to the examination, of the veterinary student.

As one who some years ago gave this subject the most earnest attention, and who had the honour of submitting to a sub-committee of veterinary surgeons some propositions respecting it, I am anxious to direct the attention of the profession to its great importance, and a careful consideration of the interests involved.

If I am correctly informed, the council of the Royal College of Veterinary Surgeons, having in contemplation a revision of the present system of examining candidates for the diploma of the college, have determined—

(1) That one hour of examination is not sufficient to test the qualification of the student;

(2) That the examinations be oral, written, and practical, the latter to be on the living as well as the dead subject;

(3) That the examinations should be limited to once a year.

(4) That they be divided into three periods, and be held on different days, at intervals determined by the council.

Having had the honour of holding the appointment of examiner to the Royal College of Veterinary Surgeons for some period, I beg to express my concurrence in the major part of these propositions.

But I beg leave to tell the council that, if they wish to accomplish these results, they must go hand-in-hand with the governors, directors, and managers of the schools of London, Edinburgh, and Glasgow; they must have the opinion and co-operation of the Board of Examiners generally, as to the best and most practical method of carrying out this subject in detail, and they must have the concurrence of the veterinary profession.

I am very sorry to say that I see little attempt on the part of our governing body to obtain either, but I think some good may be done by ventilating the subject by a friendly discussion in your valuable Journal.

Presuming, therefore, that most of your readers are of opinion that the present examinations are not sufficient to test the qualifications of the student, I beg to submit a plan founded on that adopted by the Society of Arts, with whom I am connected, and therefore know to be perfectly successful.

In the first place, we must suppose that the student has been duly admitted at either London, Edinburgh, or Glasgow, and the council have determined that there shall be an *elementary examination.*

I propose that such examination shall be held at the end of the first session, or eight months after the student's admission to college or school.

That the examination be in writing, and extend over a period of three days, and for three hours each day.

I do not bind myself to details, but in order that my proposition may be understood, I suggest—

That on the first day the examination shall be confined to questions on the osteology and myology of the horse and other domesticated animals; on the second day, to the outlines of physiology and pathology; and on the third day, elementary chemistry and materia medica.

In order to prevent the students being put to unnecessary expense, the council propose that this examination shall be conducted by local boards, consisting of two or more members of the Royal College of Veterinary Surgeons, elected by the examining board and conducted in this manner; that is to say—

Arrangements having been made in London, Edinburgh, and Glasgow, places appointed, and time specified, uniform examination-papers will be forwarded, in a sealed envelope, by the examiners on the before-mentioned subjects, to the chairman of the local board. The subjects must, of course, be kept secret from the candidates until the time of examination.

Fourteen days previous to examination the candidate will be required to forward to the secretary of the Royal College of Veterinary Surgeons a return according to the following form:

Form 1.—CANDIDATES' RETURN.

No.———

[This number will be inserted by the Board of Examiners.]

1. Candidate's Name in full.
2. Age last birthday.
3. Residence.
4. Student at
5. Father's name.
6 „ occupation.

I, the above-named , declare that the above returns are correct, and that I desire to present myself as a Candidate at the ensuing Examination, to be held by the Royal College of Veterinary Surgeons, at

N.B.—The above return must be entered by the Candidate *in his own handwriting.*

Form 2.—LETTER OF INSTRUCTIONS.

[This letter will explain the working of the system and the duties of the Local Board.]

Royal College of Veterinary Surgeons.

Sir,—I beg to inform you that the papers for the ensuing Elementary Examinations will be forwarded by post on the day of , in a parcel addressed to you at

You will have the goodness to let me know by post, or by telegraph, if necessary, if the parcel is not duly delivered to you on the following morning, so that I may, if required, send duplicate papers in time for the Examination.

The outer wrapper of this parcel should be opened as soon as received, when you will find the papers for each evening enclosed in a separate envelope, *which has endorsed upon it the number of papers in each subject. Should there be any error in these numbers, you should communicate with me immediately.*

The seal of each separate envelope is to be broken in the presence of the assembled Candidates, at the commencement of the time appointed in the Time-Table. This direction, as well as the *order* and *hours* of examination laid down in the Time-Table, must be *strictly* observed.

I beg to invite your careful attention to the "Advice to Candidates" at the foot of the enclosed copies of the Time-Table, and to the forms which will be sent with the papers.

One of the forms for each subject will have to be signed by two members of the local board. To provide for this it will be necessary that you should immediately make arrangements with your colleagues on the local board to secure the attendance of a sufficient number of them in rotation on the different evenings of the examination.

The college will provide writing paper of foolscap size, scribbling paper for rough drafts, and blotting paper for the use of the candidates, who should be desired to bring their own pens and inkstand to the examination-room, but nothing else. They must be required, on entering the examination-room, to give up all books, papers, memoranda, writing books, or blotting paper which they may have brought with them, under the penalty of immediate exclusion from the examination, and the rejection of any papers they may have written, if any such articles should hereafter be found in their possession. After such notice the plea of accident or forgetfulness cannot be admitted.

The candidates should sit, in the order of their numbers, as far apart from each other as possible.

Three hours only are allowed for each paper.

All writing must cease at the end of three hours to a moment; and, if there is no clock in the room, notice should be given to the candidates when one or two hours have elapsed, and again when they are within ten minutes of the end of each sitting.

The candidates should leave their answers at their seats, after having carefully fastened them all together in order through the upper left-hand corner.

The papers should then be collected, and arranged in the order of the candidates' numbers. After a separate declaration has been filled up and signed in reference to the papers on each subject, it should be tied up with them; and the whole set or sets completed each evening should be sealed up and forwarded to me.

A numbered card and a copy of the time-table are enclosed for each candidate. Previously to the distribution of the cards, it would be well for you to make a list of the candidates, with the number of each opposite to his name, for

reference in case of difficulty. A copy of this should be hung up in the examination-room.

Form 3.—TIME-TABLE.

Advice to Candidates.

Read over the Time-Table carefully, and note the hours appointed for the subjects in which you are to be examined. Be at your seat in the Examination Room *five minutes before the hour appointed.*

When the paper is given to you *first* look to the instructions printed at the head of it, and *then* read the questions carefully over, marking those which you think you can answer best. Do these first, and, if any time remains, you may try some of the others, but do not exceed the number of questions appointed to be answered. Remember that a few accurate and sensible answers will gain a higher number of marks than a great number of indifferent attempts.

As soon as notice is given (ten minutes before the end of the time), finish your papers, see that they are numbered rightly and in their proper order, fasten them with twine at the upper left-hand corner, and leave them unfolded at your seat. On no account are you to append your name to the answers.

Caution.

Any Candidate attempting to take unfair advantage, such, for example, as having in his possession *any* book or written paper, or seeking or receiving assistance from another, will be immediately expelled, and all papers worked by him will be rejected.

Stationery, including blotting-paper, will be furnished by the Royal College of Veterinary Surgeons for the use of the Candidates. No one can, therefore, be permitted to bring anything into the room with him, except an inkstand and a supply of pens. No Candidate may speak to another Candidate under any pretence whatever, under pain of expulsion. If a Candidate has any question to ask, or wants anything in the course of the Examination, he should not leave his place, *but should stand up and call out his number*, when some one will attend to him.

No Candidate will be allowed to resume the working of a paper after he has once left the room in the course of the time appointed for paper.

Whoever gives assistance will be treated in the same manner as he who receives or asks for it.

The papers should be carefully and neatly written.

Ill-spelt papers will be rejected by the Examiners of the Royal College of Veterinary Surgeons.

Form 4.—DECLARATION.

Place and Date.

Local Board of Veterinary Surgeons.

We, the undersigned, hereby declare that the papers on , which are forwarded herewith, were written, in our presence, by the * Candidates whose numbers they respectively bear,

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* Insert number.

without any assistance whatever from books, notes, or memoranda, from each other, from ourselves, or any other person. We declare that not more than three hours were occupied in writing those papers; that they were written at the time appointed for them in the Time-Table issued by the Royal College of Veterinary Surgeons, and were sealed by us at the conclusion of the sitting; that no Candidate was allowed to resume or complete a paper after having left the Examination Room in the course of the time assigned to that paper. We further declare that the paper of questions given to each Candidate was taken from the envelope in which it was transmitted from the Royal College of Veterinary Surgeons, the seal of the envelope being broken in our presence and that of the assembled Candidates at the commencement of the time appointed for the paper in the Time-Table issued by the College; and, finally, we declare that we were present uninterruptedly during the whole of the time respectively specified after our names.

Name, Designation, and Address of Members of Local Board who were present during the working of the papers referred to in the above declaration.*	A. B., &c.,	from	to
	C. D., &c.,	from	to
	E. F., &c.,	from	to
	G. H., &c.,	from	to
	I. K., *Hon. Sec.*,	from	to

One member must have been present during the whole sitting, and one other member in relays of not less than one and a half hours.

N.B.—The members of the local boards will appreciate the importance of this declaration. To sign it without a certainty of its truth would be to attempt a fraud on the Royal College of Veterinary Surgeons, on the examiners, on the candidates, and the public at large. The Council is confident that the local boards will not only act with perfect good faith, but will use such scrupulous care and caution that errors in their declarations will be impossible.

Should some such propositions as these be adopted by the Council, enough, I trust, has been described in order to show the working of the system, which is capable of extension to another period, viz. the second session of the pupil's residence at college, or sixteen months from the date of admission.

But the final examination—partly oral, written, and practical—must be held by the general board of examiners at the end of the third session of the student's residence, or twenty-four months from the date of admission, at such times and places as may be determined upon by the Council. No candidate, however, to be admitted to this examination

* This declaration must be signed, in every case, by at least two members of the Local Board; and when more than twenty Candidates are examined in any one sitting, by at least three such members. It must not in any case be signed by a member of the Board from whom any Candidate has received instruction on the subject of the paper to which it refers.

unless he has passed one or the other of the previous examinations.

In order to enable the councils to carry out these different examinations with uniformity, it will be necessary to form *one united board of examiners,* in order to insure that the same questions be placed before all the students at the different schools for the written examinations, as well as to enable the candidates to make use of the same text-books.

The examining board should be empowered to divide themselves into such subdivisions as they may find desirable, and when these have been arranged the Council should announce the arrangement in somewhat the following manner :—

Section 1.—Anatomical, Physiological, and Pathological, relating to the Horse and all Domesticated Animals.

Examiners.—Messrs.
Chairman.—
Text-Books.—

Section 2.—General Animal Economy, Principles and Practices of Shoeing, Jurisprudence, Veterinary Surgery, &c.

Examiners.—Messrs.

Chairman.—

Text-Books.—

Section 3.—Chemistry, Materia Medica and Pharmacy, &c.

Examiners.—Messrs.

Chairman.—

Text-Books.

It will be the duty of the examiners in these several sections to prepare the questions for the written examinations. These, having been duly prepared, will be printed by the college, and forwarded to the local boards, as proposed.

The examiners will also elect one or more of their members in rotation to examine the papers which, when filled up, will be returned to the examiner so elected, who will determine by the number of marks which he puts on the paper the relative value of the answers.

I will not now take up the pages of your Journal with further details; enough has been said to secure the consideration of the profession.

One word to the council of the Royal College of Veterinary Surgeons; may their deliberations be conducted in harmony and with goodwill towards existing institutions; and may they not strive to build up new institutions with untempered mortar.

Pathological Contributions.

CATTLE PLAGUE.

Reports from the Continent respecting the progress of cattle plague in East Prussia were, up to the last week of September, far from re-assuring. At the end of August two outbreaks were reported near Dantzic, and the disease was suspected to exist in a village in the district of Marienburg. It appears that cattle plague was introduced into Prussia across the eastern frontier by cattle which were purchased by dealers in Poland, and sold generally singly to different persons at Mühlhausen fair, on July 19th. Twelve of these animals were sent by railway to Küstrin, near Frankfort, on the Oder, and in this way the disease was communicated to cattle in that district.

Later reports are more satisfactory. We learn that the measures which were adopted by the Prussian Government have been completely successful in exterminating the plague, with comparatively trifling loss of cattle; the malady still prevails in some Russian-Polish provinces, and also in Hungary, Roumania, Galicia, and Bulgaria.

PLEURO-PNEUMONIA AND MOUTH AND FOOT DISEASE.

These affections have extended, since our last notice, in England and abroad. The latter malady has assumed a malignant epizootic character, and in many instances has proved fatal. Several calves have died suddenly after sucking cows affected with the disease. Breeders should be aware that the milk when given warm to young animals is poisonous to them; if used at all it should be boiled, and then allowed to become cold. Sheep have been attacked in many places, and in the neighbourhood of Southampton it is reported to have affected these animals in a very severe form.

Cattle on many common pastures have been recently attacked. An outbreak has been reported to have occurred in Welney Washes, in Norfolk, a common pasture, about twenty-one miles long, and on the average one mile wide. Thousands of cattle are now grazing upon this land. The

disease has also shown itself in the Isle of Ely in a severe form. It was also taken into the neighbourhood of Arundel, Sussex, by cattle from Pevensey.

Altogether there are nearly thirty counties in England in which the mouth and foot disease prevails. Reports from abroad show that the affection has appeared in Switzerland, and also in Denmark. Other accounts refer to its progress in the direction of the Black Sea.

In Holstein and Schleswig its ravages have been so serious that dairy operations are in some places quite arrested, and the local police do not permit the consumption of milk from diseased animals. Only the best of the fluid is given to pigs, and not to them until it has been boiled.

From the examinations which we have made of milk from diseased animals, we are not disposed to consider these *precautions unnecessary*.

SHEEP-POX.

Variola is reported to be present among sheep in Stettin; also in the district of Fricase, twenty-four miles from Gallipoli, and near Bari, on the Adriatic coast.

Facts and Observations.

Decomposition of the Sesqui-salts of Iron.—At the meeting of the French Academy on the 19th of April, a memoir was presented from M. Debray. "When," says the author, "we heat a solution of neutral chloride of sesquioxide of iron, so dilute that its colour is hardly perceptible, until it reaches to above 70° Cent., it becomes decidedly coloured, and assumes the characteristic tint of the basic chlorides of the sesquioxide. This transformation is not due to the disengagement of hydrochloric acid, since the transformation can be effected in close vessels, and the colour is maintained on cooling. The chemical properties of the iron salt are profoundly modified; thus, whilst the primitive liquor gives with the yellow prussiate of potash an intense precipitate of Prussian blue, the coloured solution gives with this reagent but a pale greenish blue precipitate; also sea-salt, which has no action in the colourless solution, gives with the modified chloride a gelatinous precipitate of hydrated

sesquioxide of iron." The author concluded by expressing the hypothesis that the iron is reduced by the temperature to a colloidal condition, which is kept in solution either in hydrochloric acid or in sesquichloride of iron.—*L'Institut.*

A Phosphorus Holder.—A suggestion has been made by Mr. E. Kernan, in a letter to the *Chemical News*, June 11th, which, we doubt not, may be found useful by lecturers and others engaged in demonstration:—A few inches of lead tube $\frac{1}{4}$-in. bore, is contracted to an open cone, at one end. As much phosphorus as one may choose is put into the cone of the tube; the phosphorus is made to project slightly from the cone; the upper part of the tube is filled with water, and corked. Thus is had a phosphorous "crayon" perfectly safe in the hand for luminous writings, &c. To put in the phosphorus, as much as may be required is melted in a conical glass, or test-tube, the cone of which is larger than that of the lead tube. This is put standing in the melted phosphorus, which fills the cone and tube to its own outside level. When cold, there is a nice projecting crayon, from the form of the glass. Any phosphorus outside the lead tube may be melted off. To renew the writing point, a test-tube, conical below, is fitted to the cone of the lead; the whole held in warm water for a minute, as much phosphorus flows out as forms a new point.—*Ibid.*

The Desiccation of Rotifers.—The *Proceedings of the Literary and Philosophical Society* contain a report by Professor Williamson on some observations on this questionable phenomenon by Lord Osborne. Professor Williamson exhibited some small glass tanks or Rotiferous aquaria, some of which had been prepared by Lord S. G. Osborne, which had been dried up again and again. One of these, in a dry state as it had been for five months, was moistened by the addition of a little water, and in five minutes the animals were in full activity, looking thin and hungry, but perfectly vigorous. The experiments of Lord S. G. Osborne confirm the statements of Spallanzani, that these Rotifers may be dried up for years without vitality being destroyed. Tanks for the preservation and examination of these objects are readily made by joining two ordinary microscopic glasses on three sides by means of electric cement, and then stocked by the introduction of a little Rotiferous dust. In such tanks they multiply rapidly, the occasional addition of a few drops of water to counteract evaporation being all that is needed for their preservation.—*Ibid.*

THE VETERINARIAN, OCTOBER 1, 1869.

Ne quid falsi dicere audeat, ne quid veri non audeat.—CICERO.

APPOINTMENT OF INSPECTORS IN CHESHIRE UNDER THE CONTAGIOUS DISEASES (ANIMALS) ACT.

NOT being good at enigmas, the following record from the *Crewe Guardian*, September 4th, is altogether beyond our resolvent faculties, and we publish the account which is headed "Important Resolutions," with the charitable intention of putting as many members of the profession as we can in the same state of Egyptian darkness as ourselves.

"THE CATTLE DISEASE.

"*Important Resolutions.*

"A meeting of the Committee appointed at the adjourned Quarter Sessions for the county of Chester, held at Knutsford on the 16th of August, for the purpose of considering 'the Contagious Diseases (Animals) Act, 1869,' was held at the Crewe Arms Hotel, Crewe, on Wednesday last. There were present—Lord Egerton of Tatton (in the chair); Sir Richard Brooke, Bart.; James France France, Esq.; John Hurleston Leche, Esq.; Lieutenant-Colonel Edward Tomkinson; Robert Daglish, Esq.; George William Latham, Esq.; David Reynolds Davies, Esq.; Richard Christy, Esq.; and the Rev. George Eaton, clerk.

"It was resolved—1. That the superintendents, sergeants, and others of the constabulary, as detailed below, be appointed inspectors under the Act for the several districts as below named, viz.: For the district of the Broxton police division, Supt. Wilson and Sergeant Powell; for the district of the Altrincham police division, Superintendent Steen and Sergeant Morgan; for the district of the Eddisbury police division, Superintendent Gwynne and Sergeant Forster; for the district of the Nantwich police division, Superintendent Laxton and Sergeant Watson; for the district of the Northwich police division, Superintendent Roubottom and Sergeants Naylor and Bohanna; for the district of the Wirral police division, Superintendent Hammond and Sergeants Martin and Roche; for the district of the Hyde

police division, Superintendent Little; for the district of the Macclesfield police division, Superintendent Williamson and Sergeants Garner and Gibson; for the district of the Stockport police division, Superintendent Lawton and Sergeant Turner; for the district of the Runcorn police division, Superintendent Egerton and Sergeant Howe; that Police Inspectors Burgess, Hilton, and Walker be appointed inspectors for the whole district of Cheshire, except the municipal boroughs and towns having a separate police establishment.

"2. The veterinary surgeon when called in by the inspector will be paid on the usual terms of his practice, proportionate to time, &c.

"3. Each inspector shall keep a separate account of all expenses incurred by him in carrying out the Act, including the amounts to be paid to the veterinary surgeons, and shall forward the same to the chief inspector as soon as possible after the termination of each quarter, when they will be audited and passed by the said committee.

"4. Estimates for expenses under this Act will be sent in by each inspector to the chief inspector, and, when approved and signed by him, will be transmitted to the county treasurer, who will thereupon remit the sums required.

"5. Cattle affected by pleuro-pneumonia are not to be moved for immediate slaughter by the owners thereof, or any other person, from the field, stable, cowshed, or other premises in which pleuro-pneumonia may have been declared to exist by any inspector, or from land or building contiguous thereto in the same occupation to any other part of the farm and premises without the authority of the inspector.

"6. That a sub-committee be appointed for the purpose of carrying out the 54th and 55th sections of the said Act within the hundreds of Broxton, Wirral, Eddisbury, and Nantwich, two to be a quorum; such committee to consist of the following gentlemen, viz.:—John Hurleston Leche, Esq.; Robert Barbour, Esq.; Wm. Atkinson, Esq.; Wilbraham Frederick Tollemache, Esq.; Wilbraham Spencer Tollemache, Esq.; Lieutenant-Colonel Edward Tomkinson; Christopher Bushell, Esq.; and Richard Barton, Esq.

"7. That a sub-committee be appointed for the purpose of carrying out the 54th and 55th sections of the said Act within the hundreds of Northwich, Bucklow, and Macclesfield, two to be a quorum; such committee to consist of the following gentlemen, viz.:—Lord Egerton of Tatton; L. P. Townshend, Esq.; Sir Harry Mainwaring, Bart.; Sir Richard Brooke, Bart.; Robert Daglish, Esq.; Thomas Ashton, Esq.; Richard Christy, Esq.; Edward Joynson, Esq.; D. R. Davies,

Esq.; Clement Swetenham, Esq.; Wm. Coare Brocklehurst, Esq., M.P.; Thomas Wm. Tatton, Esq.; John Wood, Esq.; James France France, Esq.; George Wm. Latham, Esq.; and the Rev. George Eaton, clerk.

"8. That all the inspectors be appointed as officers to issue licenses under the 3rd clause of the 7th schedule of the said Act.

"9. The committee and sub-committees to be summoned from time to time when required."

First, policemen are appointed inspectors in every district; and, secondly, veterinary surgeons, *when called in by the inspectors*, are to be paid on the usual terms of their practice. Might we, without incurring the faintest suspicion of impertinence, ask under what Act these arrangements are made. In the Act of the 9th of August, 1869, we find it stated in Clause 34 "Where an inspector finds cattle plague or sheep-pox to exist within his district" he shall do certain things. Again, in Sec. 54, "Where an inspector finds pleuro-pneumonia to exist within his district" he shall take certain steps. Once more, in the general order of August 10th—

"Every person having in his possession, or under his charge, an animal (including a horse) affected with a contagious or infectious disease,"—

"He shall with all practicable speed give notice to a *police-constable* of the fact of the animal being so affected."

The police-constable is required forthwith to give notice to the inspectors of the local authority, and then in Clause 11, when the inspector finds any contagious or infectious disease to exist, he shall do so and so.

Is it conceivable that the local authorities of Cheshire intend the policemen to do all these things?—first, to receive notice from the owners of diseased animals; then give themselves or each other notice of the fact; then to inspect and determine whether there is an infectious disease in their district or not; and, finally, to give a certificate that an animal is affected with cattle plague, pleuro-pneumonia, or sheep-pox, a certificate which "shall, for the purposes of this Act, be conclusive evidence, in all courts of justice and elsewhere, of the matter certified." Is this what is meant and,

if so, is it exactly what the farmers of Cheshire wish? Is it a thing of so little consequence whether a disease is infectious or not that a policeman's certificate will do for evidence of the fact, "for the purposes of this Act"? or is the veterinary surgeon in an unofficial capacity to appear in the somewhat novel *rôle* of prompter to the inspector of the local authority, always setting him right when he is about to blunder, and never permitting him to certify that a horse "has the glanders" when he only has a cold in his head, nor to condemn a "scabby sheep" as a victim to variola ovina? If this is to be the permanent office of the veterinary profession in Cheshire, the profession has need to congratulate itself on its sudden elevation. But, seriously, was anything of this kind contemplated by the framers of the measure which is to protect us from foreign diseases, and help us to eradicate the maladies which have become indigenous in this country?

Review.

Quid sit pulchrum, quid turpe, quid utile, quid non.—Hor.

Horses, How they ought to be Shod: being a Plain and Practical Treatise on the Principles and Practice of the Farrier's Art. By William Haycock, M.R.C.V.S., &c. London: J. Churchill and Sons.

Horse shoeing has lately attracted an unusual degree of public attention, and many inventions have been discussed without any definite conclusions being arrived at. The author of the little book now before us does not enter upon vexed questions, but prefers to state in plain terms his own views of the correct principles of shoeing, and his ideas on the practice of the art. In the preface we are warned to expect nothing scientific respecting the structure or functions of the foot. Whether the organ expands or contracts under pressure is, in the author's mind, a matter of indifference, so far as any benefit to the animal in reference to the application of his shoes is concerned. Mr. Haycock's opinion of the true principles of farriery is thus expressed at page vi of the preface:—

"The farrier's art may be said to possess four cardinal

principles; two of which relate to the construction of the shoe; and two to the application of the shoe to the foot—principles which in our opinion ought to be enforced by Act of Parliament. These cardinal essentials we may state as follows:

"(1) The shoe should be seated as shown at Plate V, and in the manner explained at page 17.

"(2) The toe of the foot and the toe of the shoe should be curved in a manner to fit each other exactly in the way shown and explained at Plate I, and as explained at pages 20, 21, 22, and 23.

"(3) The frog of the foot should not, when healthy, be pared; and only the exfoliating parts of the sole, as explained at Section IV, pages 15, 16, and 17.

"(4) The wall of the foot should not be rasped.

"Such are what we designate the cardinal essentials of the farrier's art; and all who own horses, or are in any way interested in their comfort and welfare, will do well to study the nature of these essentials as explained in the present treatise, and thus obtain a full knowledge of their importance in their application to the well-being of the foot."

Keeping these "essentials" in view, the author proceeds to give direction for the proper performance of the mechanical work of removing the shoe, preparing the foot, and fitting the new shoe. On the manner of paring the foot, the author remarks:

"We have stated that the sole is cast from the foot in layers or flakes. Let the farrier remove *only* those layers or flakes which are loose, and which would, if left alone, be exfoliated naturally; to go beyond this, is to encroach upon what is necessarily the proper protection to the sensitive tissues of the organ within. The farrier should be careful to remove any undue elevation of the sole within the angle of the heels. Such elevations, if left, may grow, and press upon the inner surface of the shoe; and corns, as a consequence, will result. The farrier should also carefully remove all loose or broken portions of the wall, if any exist. He should not violently twist or tear them away with his pincers, as is too frequently the case, thus inflicting injury on the sound horn, as well as removing that which is useless; on the contrary, he should remove such portions with the knife. The ground surface of the wall, when practicable, should be left as follows:—The lower border of the hoof, when the animal is standing with his foot upon the ground (supposing the sole to be flat or semi-concave), should be a quarter of an inch

below the sole; the ground surface of this projection of the wall should also be made perfectly level from toe to heel, or the entire circumference of the wall.*

"The frog, if healthy, should be left alone. The knife, in its application to this organ, should be strictly prohibited. It is shown in Section II (page 6), and at Plate III, fig. 77, that the frog is the great protector of the navicular joint, a joint if not of greater, is at least of equal importance to any joint within or contiguous to the foot. The frog, as previously stated, is a buffer to the joint in question; and to cut its horny substance wantonly away, is to inflict what may ultimately prove a fatal injury to the soundness of the foot and the usefulness of the animal. Numbers of gentlemen and owners of horses will insist upon the removal of large portions of horn from the frog; they like, as they express it, to have the foot left neat. To sacrifice this organ from mere caprice, and thus render their horses liable to injury of an irreparable nature, is a matter of regret.

"The bars are the only parts left unnoticed in our remarks. The bars, like the frog, should be left untouched with the knife. It is a common matter with dealers and many horsemen to insist upon the farrier paring the bars to a level with the sole, which is done to give the foot a wider appearance than it really possesses; this, to say the least of it, is a foolish and reprehensible practice."

Curving the toe of the foot and the shoe is strongly insisted on, and the evils of a perfectly level ground surface are pointed out.

The various modifications in the form of shoe to meet extraordinary requirements, are described and rendered easily intelligible by numerous illustrations, by the aid of which an amateur, quite unacquainted with the arrangement of the different parts of a horse's foot, both external and internal, and innocent of all knowledge of shoes, may become sufficiently learned, after a careful study of the book, not only to understand the principles on which the farrier's art is based, but to exercise his judgment in the supervision of the process of shoeing his own horse.

As a familiar exposition of the mechanics of the art of farriery we commend the book to the notice of all who are interested in the preservation of the foot of the horse.

* "Unless the toe has been previously curved to adapt it to a similar curve given to the toe of the shoe; a matter to be fully treated upon ere the present section is concluded. When once the toe of the foot has received its due curve, the farrier can work as readily to it as to a foot perfectly level."

Extracts from British and Foreign Journals.

ON HYDRATE OF CHLORAL AND ITS USE IN PRACTICE.*

By T. Spencer Wells, F.R.C.S., Surgeon to the Queen's Household, and to the Samaritan Hospital.

Through the kindness of Professor Bardeleben, of Berlin, I received last July about two ounces of hydrate of chloral, a substance which had been brought before the Medical Society of Berlin as a new hypnotic and anæsthetic on the 2nd of June, by Dr. Otto Liebreich, Chemical Assistant in the Pathological Institut of that city.

Chloral and chloro-acetic acid were discovered thirty years ago by Liebig. When anhydrous alcohol is acted on by perfectly dry chlorine-gas, a remarkable result takes place. Five-sixths of the hydrogen of the alcohol are removed and are replaced by three of chlorine, and after separation of a large quantity of muriatic acid, a dense oily liquid, chloral, $C_4HCl_3O_2$, is obtained. The process takes place in the following way:—At first the chlorine removes two equivalents of hydrogen, and thus reduces the alcohol to aldehyd; then it acts on the hydrogen of the radical acetyl and replaces it, forming a new compound radical, the acechloryl C_4Cl_3. This combines with the oxygen and the water in chloral, as acetyl is in aldehyd. The rational formula of chloral is therefore C_4Cl_3O + aq.†

$$\underbrace{C_4H_6O_2}_{\text{Alcohol.}} - H_2 = \underbrace{C_4H_4O_2}_{\text{Aldehyd.}} = \underbrace{C_4H_3,O}_{\text{Acetyl.}} + \text{aq.}$$

$$\underbrace{C_4H_6O_2}_{\text{Alcohol.}} - H_5 = C_4O,HO;$$

$$C_4O,HO + Cl_3 \quad \underbrace{C_4Cl_3,O}_{\text{Acechloryl.}} + HO = C_4HCl_2O_2.$$

This new substance behaves like all aldehyds. An aldehyd is a very unstable compound, and soon changes its physical properties. It will become polymeric; and so will chloral. The anhydrous chloral is a very pungent oily fluid, which, after standing some time, is converted into a solid substance. It combines with water, forming a crystalline hydrate of chloral, and by degrees is converted into an isomeric sub-

* Reprinted from the 'Medical Times and Gazette.'

† Old atomic weights are employed in this paper.

stance like porcelain. The crystals of hydrate of chloral are very soluble in water. Concentrated sulphuric acid will not affect them; they are resistent against acids, but alkalies decompose the chloral. This reaction is very remarkable. Adding a small quantity of hydrate of sodium to a solution of chloral in water, chloroform will be formed in the shape of oily drops. Thus chloroform may be obtained of greater purity than by any other known method. The aqueous solution will also contain formiate of soda—

$$\underbrace{C_4HCl_3O_2+HO}_{\text{Chloral-hydrate}}+\underbrace{NaO,HO}_{\substack{\text{Hydrate of}\\ \text{sodium.}}}=\underbrace{C_2HCl_3}_{\substack{\text{Chloroform}\\ \text{or}\\ \text{Perchloride}\\ \text{of formyl.}\\ Fo,Cl_3.}}+\underbrace{NaO,C_2HO_3+2aq.}_{\substack{\text{or}\\ NaO.FoO_3+2aq.\\ \text{Formiate of sodium.}}}$$

This change helps us to solve the problem how far substances introduced into the body, and decomposing there, become active through their components, and to which of its components a drug owes its remedial properties. Chloral readily dissolves in water, and the solution is easily absorbed. The alkaline liquids of the body would therefore set chloroform free in the tissues. The other component, the formic acid, from its comparatively small proportion, can have but very slight effect.

A minute dose of chloral was sufficient to produce the symptoms of narcosis from chloroform in a young rabbit; the animal fell gradually asleep, but without the stage of excitement. Regular pulse and respiration were the only evidences of life.

In a middle-sized rabbit complete hypnosis was produced during nine hours by an injection of seven grains of choral, which correspond to about three grains of chloroform. Experiments on frogs are still more conclusive. The first effect of chloral on frogs is a cataleptic stage, during which the animal may be placed and kept in any position, but reflex motion may be produced by irritation. In the next stage, however, no reflex motion can be effected. If the dose is not too large and fatal, the animal returns to its former condition. If, however, the dose is too large and the animal dies, the ventricles and the auricles will be found distended by blood. Death takes place from paralysis of the heart. The same effect has been observed in other animals. Liebreich concludes from these and other experiments that chloral at first paralyses the ganglionic cells of the brain and then those of

the spine, and, if fatal, finally the ganglionic cells of the heart. The effects of chloral on animals are identical with those of chloroform. The absence of the stage of excitement may be explained by the more gradual formation of chloroform within the animal body—actually in the tissues of the body, even in the brain itself. Liebreich tried also the effect of chloral on man, in the Charité, at Berlin. The first experiment was made on an insane person, by subcutaneous injection, at first of very small doses. No local irritation took place. One dose of about twenty grains of hydrate of chloral produced five hours' sleep.

In another case of a patient suffering from stupor and melancholia fifty grains of chloral in a wineglassful of water produced sleep during sixteen hours. In a very painful inflammation of the wrist-joint in a woman, forty grains of chloral produced sufficient anæsthesia to admit of the painless application of an apparatus. In every case the sleep was normal, and followed in about five minutes after the administration of chloral.

VACCINATION AND EQUINE DISEASES.*

To the Editor.

Sir,—The value of vaccination as a preservative from the cruel effects of small-pox is a subject of the utmost importance to the whole world, and cannot be looked upon with indifference by any nation, community, creed or profession. We have been so long accustomed to look upon it as an assured defence against this scourge of the human species, and the evidence that it is and has proved itself to be so in nearly every region of the globe is so overwhelming, that the agitation recently set up against the compulsory adoption of this protective measure might almost appear unworthy of notice, if it were not attended with such serious consequences to individuals who resist the law. This agitation appears to be increasing, owing to the exertions of some persons, and we may expect the number of those who object to vaccination, and who will not submit their children to its supposed risks, to increase with the spread of the excitement.

It is therefore to the interest of every one to know on what basis the agitation is founded, and whether these, again, are supported by facts sufficient in number and powerful enough in character to warrant their being accepted as trustworthy.

* *Standard*, Sept. 3rd, 1869.

The principal objections brought to bear against vaccination are, that it is not a preservative from the ravages of small-pox, and that other maladies of a dangerous nature are liable to be introduced into the systems of those who are vaccinated, either through some taint conveyed along with the matter used, or from some inherent and malignant quality of the virus itself.

The first of these objections I have no intention of noticing here, as it lies more immediately within the province of the medical philosopher and practitioner of human medicine. The second, however, I would ask the favour of your permission to examine, though only in so far as it has been attempted to implicate veterinary science in the agitation.

Certain medical men, who, from the position they assume in this anti-vaccination movement, and from the authority with which they speak, are no doubt regarded by a particular section of the public as perfectly competent to discuss and disprove the value of Jenner's discovery, have boldly asserted on more than one occasion, that the increase of consumption in mankind was due to vaccination, and that the vaccine virus was derived from horses suffering from diseased lungs. For instance, at a conference on compulsory vaccination, held in the rooms of the Ladies' Sanitary Association, on July 28th, a Dr. Collins is reported to have made the following extraordinary statement in referring to the evil effects of vaccination:—"It was well known by expert veterinary surgeons, that Jenner's lymph was the grease arising from long-established lung disease in horses. Jenner saturated old rags with the matter from greasy-heeled horses, with which he inoculated. This was the original source of the virus, which never arose naturally in cows, but was transmitted to them from the horse." And this gentleman concluded by moving the following resolution:—"That the true vaccine of Jenner, pure lymph as it is called, being the product of tubercular consumption or phthisis, carries the seeds of that disease with it," &c. A Dr. Pearce agreed with Dr. Collins as to the origin of the vaccine of Jenner. "It was the product of tubercular consumption in the horse."

If I remember aright, evidence to the same effect was given before a member of the present ministry by a deputation headed by one or both of these gentlemen; and your impression of the 31st ult. informs us that at a meeting of the ratepayers of the Mile End district, held on the previous evening, it was moved "that the meeting, being of opinion that enforcing vaccination by law is repugnant to the principle of the British constitution, and wasteful

of the funds paid by the ratepayer, desire that boards of guardians shall resist the tyrannical dictation of the Poor-law Board and the medical department of the Privy Council until the vaccination laws are repealed." Dr. Collins, a St. Pancras guardian, in supporting the motion, said that he had been a public vaccinator for twenty years, and had come to the conclusion, after numerous experiments, that vaccination was a farce and a sham, and no protection against smallpox. The vaccine, in the majority of cases, introduced diseases into the system and poisoned the blood of healthy children. Consumption had been greatly increased in this country since Dr. Jenner first introduced vaccination; and deaths from that disease stood high in the lists of the mortality of England.

The resolution was supported by Dr. Pearce, Mr. Edmond Beales, and others.

This evidence of Drs. Collins and Pearce has been embodied, I believe, in a pamphlet, so that those of your readers interested in this subject may satisfy themselves that the above opinions are really those promulgated by these gentlemen.

In the mean time I am only anxious to state, that so far as these assertions refer to the horse and cow they are erroneous and untrustworthy, and their enunciation deserves the severest reprobation, eminently calculated as they are to mislead the more credulous and simple portion of the public, and thus cause the gravest mischief. The vaccine of Jenner was not and is not the product of tubercular consumption or long-established lung disease in horses, neither has it had anything whatever to do with diseased lungs in its origin. The disease vulgarly known as "grease" in the horse (nowadays very rare) is a local inflammation of the skin covering the lower portions of the limbs, accompanied by a discharge to which it owes its name, and is in the great majority of cases caused by external agencies (such as cold, wet, and dirt) acting on these parts. I am not aware that the lungs are ever involved in this malady; indeed, tubercular disease of these organs in the horse is far from being common, and is in nearly every instance an accompaniment of that terrible equine disorder, glanders.

Grease, particularly in its early stages and before the inflammation has become chronic, is readily cured, and I cannot find a case on record in which the lungs were at all implicated in this affection of the legs. Besides, since the days of Jenner, some of the very highest authorities, medical and veterinary, have entertained doubts as to whether the

discharge from the diseased skin of horses' heels would, by inoculation, induce cow-pox in man or cow, as carefully conducted experiments have failed to produce it, particularly in the latter. And though recent observers, and more especially the French veterinary professors, Lafosse and Bouley, have observed an eruptive disease in horses, which may be termed "horse-pox," that is communicable to man and the cow, yet in this malady the lungs are unaffected. So that this phantom of consumption, which has been so carelessly raised, and so energetically paraded before the public as a reason why vaccination should not be practised, may be unhesitatingly exorcised to the realms of dark ignorance.

With respect to the assertion that cows never have cow-pox naturally, or rather spontaneously, this also is incorrect, as already stated. It has been witnessed to occur in this form in India, Persia, South America, France, Germany, Norway, Holland, Italy, twice in Algiers, and also in this country; and it may be remarked that in some of the regions where it has been so observed, "grease" in the horse is unknown.

Thus far, then, Mr. Editor, I have ventured to trespass on your columns in laying before your readers what I believe to be a correct statement of facts relative to vaccination, as it bears on veterinary science. Beyond the grave public question involved in the discussion as to its utility in conferring immunity on our own species from a deadly and loathsome disease, it is one full of interest to the comparative pathologist; but, unfortunately, in all the creatures beneath man in the scale of intellect and organisation, vaccination is powerless to defend them from the terrible destructiveness of their variolæ, as witness the small-pox of sheep. Mankind alone appears to be favoured in this respect.—I beg to remain yours, most obediently,

G. FLEMING, Veterinary Surgeon, Royal Engineers.

Chatham, Sept. 1.

Analysis of Continental Journals.

By W. Ernes, M.R.C.V.S., London.

Recueil de Médecine Vétérinaire.

REPORT OF A COMMISSION APPOINTED BY THE IMPERIAL GOVERNMENT TO INQUIRE INTO THE MALADY COMMONLY CALLED *MAL DE MONTAGNE.*

The commission consisted of one doctor in medicine, three veterinary professors, among whom were MM. Bouley and Chauveau, and two veterinary surgeons, and the rest civilians,—a somewhat different arrangement in regard to the number of the members of our profession to that of the Royal Commission on the cattle plague.

It appears, from records of previous researches, and various documents examined by the commission, that this malady has prevailed from time immemorial at various epochs amongst the cattle which are depastured on the mountains between Allanche and Marcenat (Cantal), and on the mountains of Puy-de-Dôme which are in that vicinity.

M. Marcet, who studied this malady in 1856, believes the cause to be in the quality of the vegetation on these mountains. He estimates the yearly losses on an average at 850 head, and describes the symptoms as follows: It frequently happens that without the least sign of illness the animal is attacked, falls in the pasture on the mountain, dies in a few minutes in violent convulsions; nevertheless, in most cases, though the course of the malady is always very rapid there is time to observe it. At first, there is unsteadiness in locomotion, weakness in the legs, dulness, the coat is staring and dry, the appetite is either lost or languid, the excrements are dry and expelled with difficulty, in bad cases they are suppressed altogether. The morbid state does not last above two or three days, but when it reaches this last period it generally ends in recovery. As a general rule, the malady attacks the animals in the best condition, those that are either fat or fattening. Very often during the course of the malady white tumours appear, called by the country people *pachades*. These tumours are more particularly situated in the region of the larynx and the ribs and under the belly; though this condition is very dangerous the animals frequently recover afterwards.

The *post-mortem* appearances are: an enormous distension

of the carcase, with mephitic gas immediately after death, the subcutaneous veins are gorged with black blood; the muscular tissue is of an unnatural colour, as if partly cooked, the peritoneum is injected, the ganglia are tumefied, the epithelium of the three first stomachs becomes easily detached, and in parts remains on the injesta, showing traces of violent inflammation on the subjacent membrane; the mucous membrane of the intestines is of a dark red, almost black, and in a pulpy state, can be easily scraped off, and muscular membrane with it, leaving only the peritoneal; gangrenous ecchymoses are seen on some parts; the abdominal organs usually contain a quantity of half digested aliments; sometimes, however, they are filled with bloody effusion, which easily explains the cases of sudden death. The spleen is of an enormous size and filled with black blood the consistence of treacle; the veins are also filled with black disorganised blood. In the cavity of the chest the lymphatic ganglions present the same alterations as those of the abdominal cavity. The lungs are healthy but injected; the parietes of the heart are friable, its cavities are filled with black coagulated blood. The cranial cavity presents nothing particular except the special injection which pervades the whole vascular system.

In reference to treatment, M. Marcet expresses himself as follows:

"The prophylatic treatment consists in removing the animals from the influence of the cause, when the malady will cease as if by a charm; unfortunately, this cannot always be done, as the owners may have no other pasture to feed their cattle on, and *fas* or *nefas*, are compelled to have them exposed to the baneful influence. The curative treatment is mostly impotent; this is easy to understand, the cause being permanent, acting constantly on the organism. Nevertheless, the medication which seems to have had the most chances of success, has been the abstraction of blood at the commencement (that moment gone by, it becomes detrimental), setons with the root of black hellebore, bichloride of mercury, or cantharides and purgatives; phosphorated oil, recommended recently in carbonaceous fever, in doses from fifty to fifty-five minims in an aromatic infusion has been attended with some favorable results."

The summary of M. Marcet is, 1st, that the malady is enzootic but not contagious; 2nd, that the cause is in the nature of the herbage, either that there are poisonous plants, or that they are too nutritious in certain seasons; 3rd, that the water has no influence, except inasmuch as it tends to

favour the rank vegetation; 4th, that to discover the true cause, and thereby arrive at the means of arresting the malady, it is indispensable that a commission should be appointed competent to study the matter; 5th, that the commission should be composed of botanists, geologists, chemists, and veterinary surgeons; 6th, the inquiry should be comparative; that is, the flora of the obnoxious mountain shall be compared with that of other mountains, and the proportion of other plants which grow on them.

DROPSY OF THE AMNION.

By M. N. P. Roinard.

This case occurred in a cow eight months gone in calf. She had never been ill. About a month previous to the detection of the disease the proprietor perceived unusual development of the abdomen, which from that time gradually increased. The animal fed well up to the time, but suddenly the appetite ceased, and the secretion of the milk also. On the visit of the author, the cow was lying on the sternum. The respiration was difficult. The animal was made to get up for the purpose of examination. She lay down again immediately. The pulse was small but regular; the conjunctiva injected; the abdomen enormously distended, more particularly on the right side inferiorly. There was dulness on percussion, no pain; a little meteorization also existed; evacuations scanty; urine free but not abundant. The volume of the abdomen, the dulness of sound, principally at the lower region, though there was not the usual bruit (gurgling) led the author to the diagnosis of dropsy of the amnion.

Thinking that the life of the animal was seriously compromised, still he was reluctant to advise an operation which might be followed by death, viz. to procure abortion; he therefore temporised by prescribing some treatment. But the cow died the next day. The autopsy completely bore out the diagnosis.

INTESTINAL APOPLEXY.

By M. Genée, Veterinary Surgeon.

Under this designation, the author describes a malady which broke out in the sheds of a cultivator and distiller

of alcohol from beet-roots, who fattened from 80 to 100 head of cattle on the residue of his distillery, the animals being permanently kept in the sheds. On the 23rd of November, 1868, the malady suddenly broke out, and in less than twenty-five minutes one ox and two cows died. The author, who was sent for immediately, had neither time to diagnose the malady or to devise a remedy before the malady declared itself on several other animals in the same shed. He at once ordered the remainder of the animals, sixty-two in number, to be removed out of the sheds; he had then time to attend to the six attacked, two of which were menaced with as sudden a dissolution as the three first. At the sight of the vital depression of these animals, a thought struck him that they might be threatened with syncopy, it being an admitted fact that ruminants in general are not endowed with much vital reaction, and that they unexpectedly die without a moment's notice. A quantity of vinegar being at hand, it was ordered to be used in friction on the head and other parts of the body, until more active remedies could be procured. Bleeding was also resorted to, and though one animal supported it to the amount of two litres, in the next hardly was the vein opened than death appeared imminent. After the application of about a litre of vinegar to a cow of the Britanny breed, she began to shake her head, though at first she had taken no notice of it, and she soon recovered. To another which had fallen, notwithstanding the efforts of the men to keep her on her legs, the affusion and frictions of the vinegar which had just begun to be applied were continued for a quarter of an hour. As soon as she felt the effect of it she got up, walked a few paces, and began to feed. As to the remaining four, as soon as they began to defend themselves against the application of the vinegar, they were cured.

The first symptom of the malady is a collapse, against which the animal instinct resists till the last moment, to prevent the relaxing of the muscles and maintain the standing position, the act of lying down being generally followed by speedy death. The eyes are sunk and weeping, the muzzle icy cold; paleness of the mucous membrane; pulse imperceptible; while the beatings of the heart are just perceptible at times, and at others abrupt.

The autopsy presented a singular contrast, viz. the mucous membrane in general was pale and bloodless, while at the anus it was of a dark red; there was no discharge from the nostrils, but from the anus there was a sanguineous discharge resembling iron rust; the vulva in the cows was of the same

dark colour as the anus. On opening the abdominal cavity, the peritoneum was found intensely red, as well as all the other organs, principally the jejunum, but this redness did not extend to the omasum and the duodenum. On the mucous membrane were found lesions which explained the dark colour, the blood-vessels being distended and forming a series of convolutions some of which had given way under the pressure of the blood; neither the glands of Peyer or other glandular organs, not even the spleen and the liver, showed signs of morbid alterations. The thoracic organs showed no lesions to account for the sudden deaths.

In the incertitude as to the nature of the disease, a report was made to the competent authority in case the malady might be contagious, and in order to conform to the law, up to the 24th of November nothing unusual occurred in the sheds of the distiller, but on the 26th of the same month eight animals were again suddenly attacked, one of which died almost immediately, and there seemed very little chance of saving the others. The author was not present at this second outbreak, but the proprietor informed him that the seven had been saved by the application of vinegar. In the evening of the same day, two veterinary surgeons were sent from the chief town of the department, as there was an exaggerated report of an outbreak of the cattle plague. On visiting the sheds with his two colleagues at feeding time, nothing unusual could be detected. All the animals fed with good appetite, and examining the residue of the beet-roots from which the saccharine principles had been extracted, it was thought that at times it might undergo some sort of fermentation which it was, perhaps, impossible to appreciate, but which might have a noxious effect on the health of the animals. To the way in which the cattle were lodged no objection could be made. The autopsy of the cow which had died on the 26th was made before coming to a decision. The carcase was greatly distended with gas; the visible mucous membranes were pale, except those of the anus and vulva, which were of a dark red colour. On removing the skin, the blood-vessels which were cut through were found filled with thick black blood; the muscles of the skin were speckled with black spots. On opening the abdominal cavity, intense congestion of the small intestines was the first thing perceived. Through the peritoneum could be seen granulations of the same dark colour, about the size of a No. 6 shot. These granulations were composed of soft tissue, and not of concentric fibrous layers, and were found difficult to cut with the scalpel. The alimentary substances were not in

excess, and the dung in good order. There was intense injection of the mucous membrane of the small intestines, which was covered with a thick layer of a black substance like treacle. It was also observed that the mass of blood was not in proportion to the size of the carcase, and that the former was of a dark colour and of tarry consistence. The remaining abdominal viscera as well as those of the thoracic cavity were healthy. While yet engaged in the consideration of the morbid lesions, and comparing notes so as to come to a decision, information was brought that one of the animals of the last attacked had a relapse; this was very opportune, as it gave a chance to his colleagues to observe the malady. The patient was a black cow of the common breed of the country, about eight years old, and in moderate flesh. She was kept up by four men, while two others were applying the vinegar frictions. The symptoms might be summed up as follows: grunting during the expiration; mucous membranes bloodless; pulse imperceptible; beating of the heart irregular; extremities cold; frequent evacuation of the urine. After half an hour's application of the vinegar, the animal began to defend itself against it. The men were ordered to let her go a bit. She could not yet stand without support, laid rather than fell down, and remained quiet in that position for about an hour, after which she got up and began to feed. To render the acetic acid more active, one of the party recommended the addition of the spirit of turpentine, but this produced sores which remained painful for three weeks after the cure.

After taking into consideration the rapidity of the attack, the almost sudden death of three of the animals, the rapidity with which the others had recovered by the sole application of vinegar, the autopsy, which showed the lesions to be confined to the intestines, the decision was, that it belonged to the undefined type of maladies designed as charbon or anthrax. Some modifications in the quantity of the refuse of the distillery were recommended, and all seemed to be going on satisfactorily, when on the 9th of December there was a fresh invasion of the malady in one of the cows, which was restored as before by the application of vinegar, though not so rapidly as in the previous cases, but in six hours after she began to feed. While the men were gone to supper a heifer died suddenly from the same disease, without having shown previously the slightest symptom of it. Some corn soaked in the dark substance contained in the small intestines of this last cow was given to some fowls without any bad results. The causes of this malady the author says are very difficult to

define, but, no doubt, are to be attributed to the alimentation on the refuse of the manufacture of saccharine matter from beet-root; and although he had, in concert with his colleagues, considered the malady as a carbonous fever, he thinks it is more appropriate to consider it as an intestinal apoplexy. This opinion is founded chiefly on the facility with which some of the animals were cured with the application of vinegar, which would not have been the case had the malady been of a carbonous type.

MIDLAND COUNTIES VETERINARY MEDICAL ASSOCIATION.

The thirteenth meeting and fourth annual meeting of the above association was held at the Hen and Chickens Hotel, Birmingham, July 27th, 1869.

There were present: the President (Mr. Carless, of Stafford), Messrs. Dayns, Litt, and Markham (Vice-Presidents); E. Baily, sen., Blakeway, Perrins, Stanley, Meek, Hill, Price, jun., Barry, and the President of the Royal College of Veterinary Surgeons (T. Greaves, Esq.), who is an Hon. Associate.

Letters were read from several members expressing regret at not being able to attend.

The minutes of the last meeting were read, and agreed to.

A great number of fines having been incurred at former meetings by members not giving notice of non-attendance to the secretary, and none of these fines having been hitherto collected, the subject was considered at this meeting.

It was moved by *Mr. Perrins*, and seconded by *Mr. Blakeway*, "that at each future meeting a strict account be kept of fines incurred, and that they be regularly collected by the treasurer, and that fines hitherto incurred be excused."

This was agreed to.

It was proposed by *Mr. Markham*, and seconded by *Mr. Blakeway*, "that two pounds be expended out of the funds of the association, at each meeting, to provide a lunch for the members who arrive before the meeting commences."

After some discussion this was agreed to.

The Treasurer was requested to draw the attention of members in arrear with their subscriptions to the rule, stating the time of payment to be the 1st of January in each year, and the further provisions of the rule in respect of non-payment.

The rules of the association were then read.

The Secretary was directed to have one hundred copies of the amended rules printed for distribution amongst the members.

It was agreed to hold the next meeting at Derby; and Mr. Blakeway, of Stourbridge, volunteered to read a paper.

The *President* then addressed the meeting on the great importance of each member attending the meetings as regularly as possible, and taking part in the proceedings, urging that according to the zeal of each individual member would be the success of the association and the benefit to be derived from it.

Mr. Dayns, of Darrington, Salop, then read a paper on "The Causes of Abortion in Cows and Ewes."

Mr. President and Gentlemen,—About twelve months ago I was requested by the committee of the Wenlock Farmers' Club to furnish that body with a paper upon the subject of abortion in cows and ewes; with which request I complied. The paper, which was not written for a professional audience, was read and discussed by the agriculturalists present at one of their quarterly meetings. In going into the subject upon that occasion I found that a field was opened up for further investigation; and as I never published the general remarks I then made, I have been induced to lay them before you, in an altered form, in this paper, for your consideration this evening, feeling assured that the discussion to which they may give rise will be beneficial to many of us, and can hardly fail to prove interesting to all.

The causes and prevention of abortion in cows and ewes are subjects which appears to have received but little attention commensurate with their importance, and upon which very little light is thrown in the pages of veterinary literature. By way of preface to the remarks I am about to make, I will ask your indulgence while I glance briefly at the connection which in a normal or healthy condition exists between the mother and the fœtus in utero, and make a few very general remarks upon the physiology of the reproduction of the higher forms of animal life, so far as the part performed by the female is concerned. And in order to do so I will first give a brief anatomical description of those organs in the female whose functions are devoted to this end.

Although the male animal exerts such a powerful influence over the type and character of the progeny, his share in its production is small, when compared with the long and tedious part contributed by the female. The chief organ in the latter is the uterus or womb, which is a hollow, musculo-membranous viscus, united to the anterior part of the vagina, and destined for the reception of the fruits of impregnation. It is situated in that cavity of the trunk called the pelvis, to the walls of which it is attached by broad productions of peritoneum termed ligaments. This organ is very small in the virgin, but acquires immense proportions during the period of utero-gestation; and although after the completion of that period it becomes considerably smaller, it is never again reduced to its original capacity. From the extremities of those projections of he uterus known as the horns are two canals called the Fallopian

tubes, which run in an extremely tortuous manner within the folds of a ligamentous material to the ovaries or female testicles, two in number, and in which is formed the first germ or egg from which the future fœtus springs.

When the ovum or egg is ripe for impregnation with the seminal fluid of the male animal that peculiar condition of the system termed æstrum or heat is brought about; the parts at this time becoming more vascular and otherwise greatly changed. If access to the male is now denied, the ovum is broken up and cast off as effete matter, and the quietude of the system is resumed, until the periodical recurrence of the same thing—that is, when another ovum is ripe for impregnation; but if access is allowed to the male, and the ovum is impregnated and becomes fertilized, it is then seized by the fimbriated edges of the Fallopian tubes before mentioned, and through them conveyed into the uterus, where it undergoes a series of gradual and very beautiful changes, until an exact fac-simile of its parents is produced, remaining here, in the natural order of things, until it becomes fitted to exist apart from its mother. The time required to sufficiently mature the young animal for the enjoyment of this separate existence is called the period of utero-gestation, and varies in animals of different species. In those we are now more especially considering the average period is, in the cow, two hundred and eighty, and in the sheep one hundred and fifty-four, days. During this period the fœtus lives as part and parcel of its mother, receiving from her the blood which is necessary for its nourishment and growth. When the embryo has made some considerable progress in its development, it is found to be surrounded by three membranes, which have been gradually forming since the time of conception; the first one, immediately contiguous to the fœtus, is called the "amnion," which secretes a fluid—the *liquor amnii*—in which the fœtus floats, thereby being, to a great extent, preserved from concussion and injury. The quantity of this fluid varies under different circumstances, being generally greater in aged animals that have bred many times, and the size of the pregnant animal in a great measure depends upon the amount of this fluid.

The middle membrane (which does not entirely surround the fœtus) is called the allantoid, and is continuous with the urachus, a tube coming from the fœtal bladder, and one of the constituents of the umbilical cord. Into a sac formed by this membrane is deposited the urine formed by the fœtus during its existence in the uterus.

The external membrane (the chorion) in the cow and the ewe presents a totally different appearance to the same membrane in the mare. In the former animals it is studded with rose-like protuberances called cotyledons, which being attached to corresponding projections from the temporary lining of the uterus form the points of connection between the mother and the fœtus; whereas in the mare the union is a kind of dovetail one, somewhat resembling that between the horny and sensible laminæ in the foot of that

animal. Taken together these are called the placental membranes. During the existence of the fœtus in the womb its lungs are inactive, the blood, as I have before said, being derived from the mother, receives in her lungs the oxygen from the atmosphere which is so essential to the preservation of life, and parting with the deleterious carbonic acid with which it has become charged.

It is in the outer membrane (the chorion) that the fœtal blood meets that of the mother; and if you do not consider me tedious in these preliminary observations, I think it may not be uninteresting to notice very briefly the mode in which the vital fluid circulates in the fœtus, which is in a very different manner to the circulation in the adult. From the placental membranes the blood is sent to the fœtus by the two umbilical veins; part of it passes to the liver, where it mingles with that from the vena portæ, and after ramifying through the structure and capillaries of that organ, passes by the hepatic veins to the vena cava posterior. The remaining portion of the blood from the umbilical veins does not go through the liver, but reaches the vena cava by means of a direct channel called the ductus venosus, which I may remark in passing is believed to have no existence in the horse, consequently the whole of the blood circulating in the equine fœtus passes through the liver before it reaches the vena cava. This large vessel (the posterior vena cava) conveys the blood to the right auricle of the heart, whence the greater portion passes through the foramen ovale to the left auricle, thence to the left ventricle; the other portion being sent from the right auricle to the right ventricle, and into the pulmonary artery, part passing through that vessel to the lungs, the remaining portion through a channel called the ductus arteriosus to the posterior aorta; that portion going to the lungs is returned to the left auricle of the heart, as in the adult, by the pulmonary veins, and from the left ventricle passes through the general arterial system, the internal iliac arteries giving off the umbilical, which return the blood to the placental membranes. The arterial and venous blood of the fœtus, for obvious reasons, does not present the same characteristic differences as in the adult.

Having thus given a brief and consequently very imperfect description of the manner in which the young animal is developed and nourished in the uterus, I come to the immediate object of my paper, viz. To inquire into those causes whereby the beautiful process I have been attempting to describe is interrupted. A premature disconnection takes place between the mother and the fœtus, the latter loses its vitality, and is cast off as an useless burden. This is called abortion, which is defined as the expulsion of a fœtus, which is either already dead or is at a too early period of fœtal existence to live. It occasionally happens that a fœtus which is expelled before the proper period of utero-gestation has been completed does live; this is not true abortion, but may be more correctly called premature birth. Abortion may occur at any period during pregnancy; the causes may be divided into those which act primarily upon the mother and depend upon her, the maternal and the

ovuline,—those which are connected with and are owing to some diseased condition of the fœtus itself or its membranes. The remarks I shall now make upon the general causes of abortion will apply not only to the cow and the ewe, but to our domestic animals generally; that form of it to which the cow seems more especially liable I will notice presently. The maternal causes may be again divided into the predisposing and accidental, the former being due to certain morbid conditional states of the uterus favouring abortion; among these may be considered, great rigidity of its fibres, rendering it unyielding, its natural dilatation being thereby prevented, too great a determination of blood to the womb from the nerves of the part being suddenly excited, inflammation of and ulceration of the womb, besides many other conditional states of the organ rendering it predisposed to the expulsion of its contents; diseases of parts situated near the uterus, as of the bladder or rectum, may predispose to it; debility is also a predisposing cause, and the administration of a drastic purgative may be so. There is frequently very great local or constitutional susceptibility to uterine excitation, and in such a case a very slight shock or injury would be sufficient; at another time, when this great susceptibility or predisposition does not exist, the pregnant animal may suffer the most severe injuries, and endure the most acute pain without the production of abortion. The presence of any acute disease in a greater or lesser degree renders the animal susceptible, and during the prevalence of the epizootic diseases of "cattle plague," "pleuropneumonia," and "eczema," abortion was of very frequent occurrence; but this may have depended to some extent upon the poisoned character of the blood, whereby it was rendered unfit to sustain the vitality of the fœtus, the disease of the mother in fact being transmitted to it. Habit is another predisposing cause, each occurrence rendering the animal susceptible.

The accidental causes may be thus enumerated: blows, falls, violent concussions, excessive or sudden exertions, &c. These act by first inducing congestion of the placental membranes, and secondly, their partial or complete separation from the uterus, whereby the life of the fœtus is sacrificed; it then becomes a foreign body in the womb, an irritating agent which nature soon makes an effort to get rid of, the uterus is excited, and the expulsion of its contents is affected. The death of the fœtus (although it is generally) is not always followed by its expulsion, it may be retained in the uterus, undergo decomposition, and be expelled a putrid mass at different times.

The causes referable to the fœtus may be said generally to be anything which induces its death, and many of the causes mentioned as maternal may consequently be included under this head; in addition, the death of the fœtus may be brought about by a diseased and weakened condition of its membranes, interfering with its perfect nutrition, the blood, from debility of the mother, being deficient in some of the elements necessary for its nourishment; this weakened condition of the membranes may give rise to a rupture of

them, the liquor amnii would escape, and the expulsion of the fœtus follow. A sudden shock to the nervous system, or fright, may excite the uterus to action, producing the death and expulsion of the fœtus.

Having thus alluded generally to the causes of abortion, I come now to the consideration of that special form of it in cows which assumes somewhat of an epizootic character. Of late years the malady (if I may be allowed to term it so) does not appear to have occurred to the same great extent as formerly, and it is possible that this decreased frequency of it may in some measure depend upon the improvement by means of drainage, &c., that has been made in the management of land, especially grass land, whereby the herbage produced is of a more nutritious kind. It is, I think, certain that the drainage of land has tended greatly towards the prevention of other diseases, such as red water in cattle, rot in sheep, &c., which formerly caused more serious losses to the farmer than they at present do. But to return. Nearly every extensive breeder of cattle stock has at some time or other experienced considerable losses from abortion in cows, occurring in this wholesale manner; and it has happened in high and low situations, upon all descriptions of soils, and at various times of the year, which circumstances have rendered the accounting for it a by no means easy matter, and that there should be great difference of opinion existing respecting it is not to be wondered at. I have, when speaking of the general predisposing causes of abortion, before alluded to the great susceptibility to a recurrence of it when once it has taken place; this, although applying to some extent to all animals, especially does so to the cow; she appears to be particularly susceptible to the action of any of the exciting causes, and the repeated occurrence of abortion in her is much more frequently observed; indeed, when it has taken place in a herd of cows to any considerable extent, the same state of things the following year is almost a matter of certainty, and it very commonly exends over three or four consecutive years; this may not altogether depend upon the predisposition to abort after such has once taken place, but may be due to the same exciting causes being in operation in each year; and this seems probable from the fact that heifers which were not in calf the first year of abortions occurring on any particular farm, are amongst the first subjects the next. The question then arises, What is the cause of abortion taking place amongst cows to this extent? I cannot for one moment believe that it in all instances, even when occurring to the same extent, depends upon the same cause; but I cannot doubt that there exists in the cow a peculiar predisposition to abortion, and a greater susceptibility to the action of exciting causes than is the case in any other animal; therefore, in considering the probable causes, I think it is necessary to keep this in mind.

First, then, cows which are fed upon coarse indigestible food, such as straw, bad hay, rough grass, growing in wet situations, are liable to derangement of their digestive systems, their stomachs

being over-burdened with a bulky material which contains but little nutriment, and contributes little to the support of the animal frame; debility ensues, the blood becoming poor, and infiltrated for the nourishment of the fœtus, a weakened condition of its membranes results, its vitality is lost, and separation takes place, followed by its expulsion, the bulk of the food in the stomach materially assisting in the production of the death of the fœtus by the pressure it exerts upon the uterus.

Mr. Flower, V.S., of Derby, has informed me that having had considerable experience in these cases, he is of opinion that this is the most fruitful source of abortion in cows, and believes that he has in many instances checked it by advising a change to food of a more nutritious character. On the other hand, abortion is doubtless sometimes induced by feeding upon food of a too nutritous and stimulating kind, whereby a state of plethora is brought about, and as the uterus during the period of pregnancy is more liable to congestion and inflammation than at other times, it follows that if an undue quantity of blood is formed, these states may probably result, the organ would be excited to action, and its contents expelled; in this case, especially if the abortion occurred at an advanced period of pregnancy, there may be very great danger attending it. I think abortions from this cause are of far less frequent occurrence than those due to the opposite condition, debility.

Next, there is the mysterious agency of the atmosphere, which we know plays a most important part in the causation of disease, certain changes from the usual course of the seasons, prolonged drought, protracted rains, being favorable to the production of various maladies; but it would be beyond the limits of a paper such as this, to attempt to go into the different theories bearing upon the propagation of epidemic and epizootic diseases; it is sufficient that I should say that I have little doubt but that abortion, more frequently than is supposed, depends upon the existence in the atmosphere of a peculiar principle which may specially predispose to it by inducing some of those conditional states of the uterus which I have before mentioned as being favorable to its occurrence.

There is a general opinion (and this is the most popular one) that when one abortion occurs in a herd, from any accidental or other cause, it is likely to be propagated afterwards through the medium of contagion and infection, and the spread of it is believed by many to be due at all times to these circumstances. I am not disposed to accept the terms contagion and infection as correctly applying here, but it is certain that the cow is an animal of an irritable and possibly an imaginative disposition, which is more especially manifested during the in-calf period. Is it not, therefore, likely that at this time she may be capable of receiving impressions and exhibiting a feeling of sympathy—if that term can be correctly applied to the lower animals—when near a companion in distress, so that the nerves of the uterus may be excited in a degree sufficient

to bring about contraction of the organ and expulsion of its contents? Many, I am aware, entirely repudiate the idea of abortion even being due to this cause, but there are instances recorded which seem to afford very conclusive evidence that the theory is not altogether a fallacious one. In one of the volumes of the *Veterinarian* a case is mentioned, by Mr. Field, of abortion occurring in a mare which was near enough to observe the sufferings of another at the time of foaling.

You are, doubtless, aware that efforts are sometimes made to procure abortion in the lower animals, more particularly mares, by grooms and waggoners; and various medicinal agents are employed for the purpose, some of which (though it appears with no great degree of certainty) have the effect o ; either causing the death of the fœtus or stimulating the uterus to action, in either case inducing the expulsion of the fœtus. Amongst these agents may be mentioned savine, hellebore, ergot of rye, &c. I will only allude to the latter. Ergot or spurred rye is occasionally used by the veterinary surgeon, but more frequenly by the human practitioner, in cases of protracted parturition, where from exhaustion the natural contractions of the womb have ceased or become much weakened, for the purpose of assisting delivery or the expulsion of the placental membranes. Its action is specially determined to the uterus, to which it acts as a powerful stimulant. Ergot is a diseased condition of the grain, and is very frequently found affecting the seeds of many of the grasses growing upon our pastures; and, reasoning from analogy, many are of opinion that the frequent occurrence of abortion in cows is due to the action of this agent, which may be taken from the pasture in summer, or with the dried food in the winter, so that the time of year of the abortion occurring could not justly be advanced as an argument against its sometimes being the cause. Some seasons are, doubtless, more favorable for the development of ergot than others, and it would be very satisfactory to know whether in such seasons abortion is of more frequent occurrence.

Unwholesome water, such as that in the neighbourhood of mines, if it be impregnated with some deleterious mineral substance, may in some special instances be the cause.

Abortion has also by many been attributed to a weakly condition of the fœtus, owing to the existence of disease in the male animal at the time of copulation, or to the same cause depending upon breeding from animals in which too close an affinity of blood exists.

I humby submit, Gentlemen, that these constitute the probable causes of abortion in cows; that it always depends upon one or other of them I am not vain enough to believe, and when occurring in each particular instance the cause in operation can only be determined by a strict investigation of the circumstances connected with it; and so far as my own experience has gone it will often be found a difficult matter to arrive at a satisfactory conclusion.

With regard to abortion in ewes I have little to add to the general remarks I have already made on the predisposing and accidental

causes of it. In this animal it is not of such frequent occurrence as in the cow, and never appears to spread to the same alarming extent. There does not seem to be the same peculiar susceptibility to the influence of the known exciting causes as in that animal. It is generally brought about in ewes from injuries received, fright from dogs, debility from innutritious food, exposure upon high grounds in inclement seasons, or when the animal is labouring under some acute disease. Youatt mentions cases of it arising from what is very good practice, if judiciously carried out, viz. the admixture of common salt with the food. In the ewe it is rarely attended with a fatal result, and the means of prevention may be very briefly stated. Avoid exciting causes, such as dogging, &c. The ewes should be kept in as good condition as possible, but not made too fat. The better condition they are in, the more likely they will be to pass through the lambing safely, and the less liable they will be to the diseases incidental to it. It is highly necessary that ewes should be left as quiet as possible during the time they are in lamb, as well in the early as in the latter months.

I recollect Professor Simonds used to state, in one of his lectures, that in a flock of ewes, which was much frightened by dogs, in the early part of the period of pregnancy, and caused to leap over some obstacle, although abortion was not produced, yet nearly all the lambs at the proper period were presented in some preternatural manner, and many were lost. The symptoms of abortion being about to take place in cows vary considerably. In those cases where in a few weeks, or perhaps days, the whole herd, or nearly so, are the subjects, there is seldom much constitutional disturbance, especially if it occurs in the early months of pregnancy; the fœtus is at that time generally expelled enveloped in its membranes, and the act is unattended with pain or difficulty, the cow gives no evidence of subsequent suffering, and speedily recovers; in fact, so little apparent deviation is there from health, that the occurrence of the abortion frequently escapes notice. The nearer it happens to the natural period of parturition, the greater difficulty and danger attend it.

When abortion occurs at an advanced period of pregnancy the calf is often found to have been retained in the uterus, perhaps for several days after it has ceased to live. In such a case the following symptoms are commonly observed:—The cow appears dull, refuses her food, the extremities are cold, pulse quickened and weak in character, the abdomen falls, losing its natural rotundity, cessation of the movement of the fœtus, and there is a fœtid discharge from the vulva. The greatest attention will in these cases be required, as delivery is often difficult. The presentation is almost sure to be a preternatural one, and there is an unnatural dryness of the parts which adds greatly to the difficulty. I cannot refrain from saying here that the inhuman and brutal means often used by cow-leeches and others to effect delivery are disgraceful to a civilized community. It frequently happens—indeed, almost invariably—that when abortion takes place at an advanced period of pregnancy that the

placental membranes are retained after the expulsion of the fœtus, but no impatience should be displayed by resorting too early to any mechanical means for the purpose of removing them. Careful nursing, with a little aperient medicine, combined with a stimulant, will seldom fail in bringing about the desired result.

The abortions which occur from accidental causes are generally more dangerous than those which depend upon some predisposing cause; and the more violent the accident the more danger attends the abortion which may be consequent upon it.

With regard to the treatment of abortion a few words will suffice. Before the symptoms of its approach are manifest the fœtus is generally dead; consequently, if it was then possible, it would not be desirable to prevent it. The cow should be removed from the others, and if there is not much constitutional disturbance a little aperient medicine will be all that will be required. The hinder parts should be washed with a disinfecting solution such as chloride of lime or carbolic acid, and the fœtus got rid of as soon as possible—all blood and other aborted matter being carefully removed. If the abortion has happened in the cowhouse, that place should be thoroughly cleansed and disinfected. It would be advisable to place the other portion of the herd under different circumstances as regards diet; and there is no objection to the administration to each of a dose of aperient medicine.

Various superstitious notions still prevail respecting the occurrence of abortion in cows, and many methods of treatment have been adopted, with a view to its prevention. There are, even at the present day, individuals who profess to be able to protect herds of cows from it by means of charms and other equally absurd remedies, such as burning the aborted matter within a short distance of the other cows, and causing them to inhale the vapour proceeding from it (I have known this to be done in my own neighbourhood within the last four or five years): others believe in the specific action of some particular "drench," which, of course, is equally ridiculous. I have known some intelligent agriculturists who have had all their in-calf cows bled at the end of the first three months of pregnancy, purgative medicine given, and stimulating applications rubbed on the loins.

Prevention is unfortunately difficult, and all means adopted for the purpose are often found to be useless. We can only, I think, trust to good treatment, feed upon nutritious food, especially after the first three months. When the fœtus becomes a greater drain upon its parent—and at this time the cow is probably yielding milk as well—protect the herd from inclement weather, let quietude be strictly enjoined, and the animals driven gently to and from the pasture; the less hilly that is the better, as they would not be so liable to injuries from slipping or falling. It is also necessary that they should have wholesome water. If the cows are in very high condition a change to poorer pasture (but not suddenly) is desirable. In this case an occasional dose of aperient medicine would not be out of place, and even bleeding may be resorted to. In-calf cows

are best in the fields; they are less liable to injuries, and exercise is beneficial.

After an abortion a cow should not be sent to breed again for some time; and when it is not absolutely desirable to preserve any particular blood, it would be the wisest policy to fatten and sell all cows that have once been the subjects of it.

The reading of the paper was followed by an animated discussion, in which most of the members took part.

Mr. Greaves proposed a vote of thanks to the essayist, and complimented him on the complete and able manner in which he had handled the subject.

The vote, seconded by *Mr. Stanley*, was put, and carried by acclamation.

The thanks of the meeting having been given to the President, the proceedings terminated. The members present afterwards dined together.

WILLIAM BARRY,
Hon. Secretary.

NORFOLK AND EASTERN COUNTIES VETERINARY MEDICAL ASSOCIATION.

THE first Annual Meeting of the above-named Society was held on the 6th ult. at the Norfolk Hotel, Norwich, under the presidency of Mr. W. Smith, M.R.C.V.S. There were also present Messrs. J. W. Riches and F. Lowe, Norwich; W. Shipley, Yarmouth; E. Barker, St. Faiths; D. G. Hunting, Loddon; — Harrison, Filby; and J. D. Overed, Blofield;—Thompson, Esq., M.R.C.S., also honoured the meeting with his presence. Letters of apology for non-attendance were read from Messrs. King, Waters, Emms, Scruby, Whincop, Coleman, Ratter, and Denny. The minutes of the previous meeting having been read and confirmed, a report of the Society's operations was then submitted to the meeting, from which it appears that twenty-six members, and three hon. associates, have been admitted into the Association since its foundation in August, 1868. Of this number twenty are residents in the County of Norfolk, three in Suffolk, three in Essex, two in Cambridgeshire, and one in Lancashire. The cash account, after discharging all liabilities, shows a balance in favour of the Association of £15 1*s.* 9*d.*, which is placed as a deposit with Messrs. Harvey's, Bankers, Norwich. The election of officers for the ensuing year gave the following results:—Mr. E. J. King, Diss, President; Messrs. W. Shipley, Yarmouth; F. Lowe, Norwich; and R. Cleveland, Wymondham, Vice-Presidents. Mr. J. W. Riches, Norwich, Treasurer, and Mr. J. D. Overed, Blofield, Hon. Secretary of the Association.

An excellent paper on "Pleuro-Pneumonia in Cattle" was then read by Mr. Lowe, which, from the fact that the disease now prevails to a serious extent in many parts of the kingdom, and also that the subject, in connection with other contagious diseases, has recently engaged the serious attention of our legislature, was invested with more than ordinary interest, and elicited a very animated and protracted discussion. The general opinion of the members (and which was fully confirmed by the experience of the largest and most important Cattle Insurance Company in the country during the last three years) was that the disease has made great progress in many parts of the kingdom since the restrictions on the importation and movement of cattle was withdrawn, and that legislative action, including an organised system of efficient inspection by duly qualified veterinary surgeons throughout the country, is imperatively demanded, in order to protect our herds from the ravages of pleuro-pneumonia. During the discussion Mr. Smith introduced to the notice of the members the thermometer as recommended by Professor Gamgee, and also by Mr. Armatage, as an aid to diagnosis in cases of pleuro-pneumonia. He spoke favorably of the instrument in veterinary practice, the construction and use of which he lucidly explained, and related the particulars of some interesting experiments lately conducted by him in a herd of twenty-five oxen, in which the disease had made its appearance.

Mr. Overed, in a few brief sentences, noticed the recent election of Thomas Greaves, Esq., of Manchester, to the exalted position of President of the Royal College of Veterinary Surgeons, and proposed that a congratulatory letter be forwarded from the Society to that gentleman; this was seconded by Mr. Smith, and carried *nem. con.* The following is a copy of the letter forwarded to Mr. Greaves:—"That the sincere congratulations of this Association be offered to Thos. Greaves, Esq., on the well-merited honour that has recently been conferred upon him by his election to the high and responsible office of President of the Royal College of Veterinary Surgeons of the United Kingdom, accompanied with the assurance of its entire satisfaction at the selection of him by the Council, and its belief that his efforts in the past, great as they have been for the advancement of the veterinary profession, will, if possible, be exceeded by those of the future, and that his new position will give him additional strength and zeal to improve the education of the veterinary surgeon, a desideratum so much needed, and for which he has long been an earnest and untiring advocate."

A vote of thanks was accorded with acclamation to Mr. Lowe for his able and instructive paper, to Mr. Thompson for his attendance as a member of the sister profession, to Mr. Smith, and other officers of the Association, for the ability with which the duties of their respective offices had been discharged, which having been severally acknowledged by those gentlemen, the meeting was brought to a close by the members dining together, and spending a very pleasant evening.

J. D. Overed, *Hon. Sec.*

CONTAGIOUS PLEURO-PNEUMONIA IN CATTLE.

By F. Lowe, M.R.C.V.S., Norwich.

So much has been said and written upon the subject of pleuro-pneumonia, that some may exclaim against my selection of it. I have not done so with the idea of bringing before your notice anything new, either in its cause, pathology, or treatment, but with a view to elicit an interchange of ideas, and a closer study of it, so that by a combination of our energies we may be enabled to devise some means by which to lessen the annual loss by this formidable disease. And I really think, when the matter of contagious diseases is being discussed by our legislature and by the country, as it is at the present day, it behoves us, as veterinary surgeons, to be up and doing, as I think it would be the means of considerably elevating the status of our profession, and raising ourselves in the estimation of the public. Let me ask, who should take a lead in the ventilation of these subjects if we do not. It is perfectly true, that up to the present time but little heed has been taken when we have endeavoured to benefit the country by our advice. Instance the late outbreak of cattle plague; it was early pointed out to the authorities the impropriety as well as danger of allowing the free traffic of cattle throughout the country, by which means the disease was spread. This might easily have been stopped or regulated, without much injury to any class of trade; yet the idea was ridiculed, and nothing done until the malady had made its appearance in almost every county in England. Then, as the only means of arresting its progress, came the slaughter or stamping out system, so well remembered by us all. Having learnt by experience that our knowledge is of some value, I think we have a chance in future of being more readily heard, if we will only take the trouble to raise our voices.

The term "pleuro-pneumonia" is, I think, particularly inappropriate to the disease, inasmuch as it implies an inflammatory affection of the pleura, extending to the structure of the lungs, whence it is not inflammatory in its nature, but a dropsical condition of lungs; consequently, I am of opinion that the term giving the best definition of its character is that of "exudative pleuro-pneumonia," used on the Continent.

It is generally believed that the disease made its first appearance in this country in 1841, although it did not become generally known until the following year, when our ports were thrown open to the introduction of foreign cattle. Upon the Continent it had been known for many years, and it is the opinion of some, founded upon the description of a disease given in a work by a Dr. Barker, and the analogy between it and the present pleuro-pneumonia, that it existed here in the year 1745. This, however, is of little importance to us to-night, as we shall do more good by discussing the best means of ridding ourselves of it or controlling its ravages, than

by entering into lengthy argument as to the year and manner of its introduction; suffice it to say, that from that time down to the present, it has continued to decimate our herds, sometimes ravaging with greater virulence than at others, now spreading rapidly over the country, and again being little heard of; but whether existing much or little, always proving fatal in a large majority of cases.

Pleuro-pneumonia is an epizootic disease, depending upon a peculiar animal morbific poison, which, entering the blood through the medium of the respiratory organ, is for a certain time incubated in the system, during which period it continues to increase more or less rapidly, thus varying the incubative stage, which may last from three to several weeks. The effect of the poison appears to be to cause an excess of water in the blood, and having grown, if I may so term it, and produced such changes that it cannot longer be contained by the blood-vessels (they being incapable from some cause of long containing blood in an impure state, or having any of the constituents of the fluid in excess) it localises itself in the lungs; although why the effect of one poison should spend its force upon one particular organ of the body, and another leave it free to attack some distant one, is at present a mystery, and is likely to remain so until we can arrive at some means of becoming better acquainted with these blood-poisons. That the morbific matter often exists in our atmosphere is, I think, beyond doubt, else how should we be able to explain the cause of severe outbreaks of the malady; for it is clear that although it is both contagious and infectious, it does not spread from animal to animal, as is the case with cattle plague. That at certain times the atmosphere is loaded with poisonous vapour or miasma, which may be caused by the decomposition of animal or vegetable matter, destructive or injurious to animal or vegetable life, is a fact admitted by all scientific men; but little further than this can be said; it is not always possible to tell when such a state of things exists, although it is often apparent; for who of us has failed to observe what is called commonly a blight spread over a certain tract of country, to find on the following day that vegetation in some form has been considerably injured; if in spring, by the cutting off of the blossom or newly set fruit of apple, pear, or other trees; if later in the year, by the withering up of foliage. The morbific matter then, or a part of it, having left the blood-vessels, or rather a part of it having done so (as I think, after the localisation of the disease, it continues to develop so as to keep up the supply), may attack the whole or a portion of the lungs; an exudation of fluid containing a quantity of impure fibrin takes place into the interlobular and interstitial cellular tissue, the amount and extent of lung affected depending upon the quantity of morbific matter in the system, which, becoming partially solidified and compressing the lobules, prevents the free passage of air, and also from compression the blood-vessels become surcharged with dark blood; secondly, the vessels become ruptured, some light spots being accounted for by the breaking up of the constituents of the blood, at the same time effusion goes on into the cavity of the chest, in

some cases preceding the exudation into the lungs of serous fluid containing lymph, by which means the lungs frequently become attached to the sides of the chest.

As I have previously mentioned the disease sometimes exists to a greater extent than at others. Occasionally we may go for a year or two without any very serious outbreak; we are never, however, entirely free from it, and at certain seasons of the year it is more prevalent than at others. This may depend upon atmospheric causes. Uncertain and unseasonable weather frequently tend to develop it, quality of food and water, impurities of sheds, &c.; also the confinement of animals on board ship, &c.; but whether the morbific matter is generated by each and every one of these conditions, or whether they merely act as exciting causes or bring the system into a fit state to receive the disease, is a question difficult to decide.

In this and other of the eastern counties I have found that it generally prevails in the autumn and early months of winter; and I think there are satisfactory reasons why this should be so, as it is at this season of the year that farmers commence to stock their yards for the consumption of the root crops. A very large number of beasts are yearly brought from Ireland, and during transit here are exposed to many of the exciting causes I have enumerated—confinement on board the vessel, detention at ports or railway stations, and exposure in the railway waggons, at which times they are often improperly and insufficiently fed; finally, the exposure at fairs and markets which, in all probability, they had already undergone before their departure from Ireland. Having experienced all these hardships they are purchased by some farmer (and taking the inferior class of beast among which the disease is certainly most common), and frequently turned upon the layers or meadows for a time and again exposed to the inclemency of the weather, they are then taken into yards, and the fattening process commences. Either before or soon after this some cases show themselves; one or two may die or be killed, according to their fitness for the butcher or the view their owners may have respecting treatment. Now, I shall have to speak of one of the most active causes of the propagation of the disease, and one which, in my opinion, we want particularly to endeavour to prevent, inasmuch as I believe it would reduce the number of cases more than any other thing.

A farmer having lost some few head of stock by pleuro-pneumonia immediately resolves that he will make what is, in his opinion, the best of a bad bargain, and starts the remainder of his animals off to a fair or market, to be sold at any sacrifice, all the time forgetting that he is doing himself as much harm as any one else, by facilitating the spread of the disease; for, in all probability, he is compelled to purchase fresh stock to consume the produce of his farm, and he runs great risk of the malady appearing among them, in which case he would be a heavier loser than if he retained his original lot and chanced what further loss he would sustain. But

to resume: the animals are brought into contact with healthy ones, there may or may not be one or two among them having the disease in a sufficiently advanced form to communicate it to others; they are sold, perhaps, in one or two lots, taken home, and probably by each individual purchaser are mixed with or put sufficiently close to other cattle to answer the purpose. The disease again makes its appearance, and frequently the same course is again adopted, and so on to an unlimited extent.

I think the comparative scarcity of cases during the restrictions put upon traffic when the eattle plague raged a good proof of this being a most fertile cause of its spread. It is, further, important to know how long a time should elapse after the removal of diseased animals from premises before they should be again occupied without the fear of infection. I have known many weeks elapse, disinfection thoroughly carried out, and yet the new comers to succumb to the disease; but it is impossible to say whether or not they would have become diseased had they been placed under other circumstances.

I shall now describe as briefly as possible the symptoms of the disease, and hurry on to a consideration of the best means to be adopted locally to stay its progress, the advisability of treatment, and, finally, the best steps to be carried out by our legislature to control the ravages of the disease with a view to its extirpation.

The most general premonitory symptom is a short husky cough, which may exist for a shorter or longer time previous to the disease showing itself; occasionally it is almost entirely absent. It is caused by a certain amount of irritation about the bronchial tubes; if at pasture or in a yard, a separation from the rest of the herd, with back slightly arched, staring coat, &c., frequently lying down; these symptoms become more apparent as the disease advances. Should the animal be a milch cow a diminution of the quantity of milk secreted will be observed, generally constipated bowels, although sometimes the opposite state of things will exist. As it progresses and gets into the first stage, the breathing, which hitherto, excepting on exertion, has been tranquil, becomes accelerated; also pulse quickened, cough more frequent, temperature of horns, &c., increased. Now, the appetite becomes more or less impaired, grating of teeth, bowels more constipated. Now comes the time for auscultation and percussion being carried out, to ascertain as near as possible what extent of lung is implicated, so as to be guided as to the advisability of treatment, or otherwise. One or both sides of the chest may be affected.

Our examinations should always be conducted in as quiet a manner as possible, so as not in any way to cause excitement. The right lung is thought to be most frequently the seat of disease. The respiratory murmur upon the healthy side is increased in force, the murmur in the opposite lung being most distinctly heard at the anterior part until the whole is implicated, when often no sounds whatever can be detected. As the disease advances crepitation can be heard, which increases; finally, puffing or blowing sounds become discernible, and sounds resembling the rubbing together of

two pieces of leather; percussion, which, in the early stages, yields no very satisfactory results, now gives a dull sound; of course, all their sounds being subject to variation depending upon the severity the case, &c. The disease is now rapidly nearing its termination; the whole surface of the body is found cold. Eyes sunken, anxious expression of countenance, nose projected—to facilitate as much as possible respiration—grunting, great uneasiness, often lying down and getting up; breathing rapid and difficult, staggering gait, diarrhœa, and death.

The advisability of treatment depends, firstly, upon the condition of the animal, whether lean, or in fair condition, or fat; secondly, upon the stage the disease has arrived at when we are called in. I will waste no time in enumerating the many and variable methods adopted. Should I be called upon to see an animal in the last stage, I invariably advise its destruction, as I am convinced that the treatment of such cases is of no avail, and only brings upon us discredit; for if we succeed in keeping them alive for a few days, with at last a fatal termination, we are only blamed for not having advised its destruction in the first instance. Cases arrived at the second stage are serious enough, but here sometimes (as when the animals are of no value to slaughter) we are justified in putting them under treatment. Here I adopt counter-irritation to the sides and chest, so as to produce a large amount of effusion into the areolar tissue beneath the skin, give a gentle saline aperient, combined with stimulants, as turpentine, ether, carbonate or aromatic spirit of ammonia; but even in this stage our percentage of recoveries are small. Should I be fortunate enough to be called in earlier, so as to see animals in the first stage, I have met with better success. Apply counter-irritation, give a saline aperient, combined with a large dose of spirits of turpentine, 10 oz., which I repeat without the aperient, at intervals of twelve hours, until three or four doses have been given, and follow with carbonate of alum and vegetable and mineral tonics. I have no faith in sedative treatment. I allow a liberal supply of oatmeal gruel, linseed tea, linseed cakes saturated in water, or indeed anything of a nutritious and not too indigestible nature that they incline to take, as I think their partaking of any kind of food is at all times a favorable sign.

Where our treatment is not very successful we are frequently called upon (and, indeed, I always advocate it) to endeavour to prevent the extension of the disease. Here, I think, our labour is rewarded with good success. I commence by carefully examining all the animals and removing to separate boxes all those showing any suspicious symptoms—such as a cough, separation from the rest of the herd, dulness, and staring coat, or impaired appetite, and place them under treatment as adopted in the first stage; to the remainder I then give a saline aperient, combined with potass. nit., insert setons in the dewlap, and follow with the administration of sulphite of soda or ferri sulph., and make some change in the diet; carry out careful inspection every morning, and separate any showing suspicious symptoms. It is frequently a difficult matter to

get farmers and stock owners to adopt this preventive treatment, but I am quite satisfied that it is so attended with good results. I have seldom seen many more cases after its being carried out, and very frequently I have had the satisfaction of seeing the whole do well.

Much has been said and written—more especially on the Continent—respecting the value of inoculation, with a view to a production of the disease in a mild and harmless form, and so giving protection against it in its severe or natural state. There has been, however, much diversity of opinion on the subject, and the reports of different veterinary surgeons are very conflicting; but it seems to have been finally determined that the operation does not give immunity against the disease, or in any way lessen its severity should it afterwards attack an animal. It is a question, however, if the matter has ever been sufficiently or satisfactorily investigated in this country. It is, even at the present day, carried into effect extensively by many of the London dairymen, and they assert, with very good results. They, however, frequently experienced very heavy losses from the irritation set up by the introduction of the morbific matter into the system, inflammation and mortification often running on to such an extent as to cause a fatal result; but some of this fatality may be caused by the unskilful manner in which the operation is conducted, and the want of care in selecting the virus, it being performed almost entirely by uneducated and unscientific men.

Much discussion is at the present time going on among the members of agricultural societies, &c., respecting legislation upon the subject of contagious diseases; and it appears to me that the greatest importance is placed upon small-pox to sheep. I am of opinion, however, that the disease is much more under control than the one of which I have been speaking, and that the subject of pleuro-pneumonia requires equally as much attention at the hands of Government.

It is highly necessary that some steps should be taken to prevent the movement of cattle from infected farms, and their exposure in fairs and markets. This can only be carried out by Government instituting certain laws and regulations, and enforcing heavy penalties upon persons in any way infringing them; and by a strict inspection, not only of fairs and markets, but of the grazing and rearing districts, by properly qualified persons. That some such measures as these would be of the utmost benefit to the cattle owners of this country, I think no one can deny; and although at first much dissatisfaction would doubtless be expressed by a certain class of men, this would quickly be forgotten in the resulting good, and, as I have before stated, I think it is our duty as veterinary surgeons to bring about the desired state of things.

THE LIVERPOOL VETERINARY MEDICAL ASSOCIATION.

The twenty-first quarterly meeting of the Liverpool Veterinary Medical Association was held at the Medical Institution, Hope Street, on the evening of August 14th.

Thomas Greaves, Esq. (President), of Manchester, in the chair.

Present: Messrs. Morgan, Wilson, Heyes, Ackroyd, Harwood (Liverpool); Greaves, Jun., and Anderson (Manchester); Whittle (Worsley); Lawson (Woolton); Storrar (Chester); Dobie (Birkenhead); Barnes (Tarporley); and the Secretary.

Letters were acknowledged from Messrs. Cartwright (Whitchurch), Naylor (Wakefield), W. Carless (Stafford); also a telegram from Mr. Tom Taylor, of Manchester.

The minutes of the previous meeting were read and confirmed.

The President announced that the subject for discussion—"Ophthalmia"—would be introduced by Mr. W. C. Lawson, who would read an essay thereon.

Mr. President and Gentlemen.—I have this evening, before commencing my few notes on ophthalmia, a pleasant duty to perform, and that is, to congratulate our worthy and deserving President on the honour recently conferred upon him in being unanimously elected President of the Royal College of Veterinary Surgeons. In these congratulations I am sure I am joined not only by the members of this association, but by the whole body of the profession. It is a position he has acquired by his industry, devotion, honesty, and singleness of purpose towards the advancement of our position in society, as well as the furtherance of veterinary science.

In these remarks I couple also the name of our respected friend, Mr. Morgan, on his acquisition to the Vice-Presidency, than whom there is no harder worker. Would that all were actuated and governed by the same motives, and we should attain very shortly the position we covet.

And lastly, Mr. President, we have to congratulate ourselves in having two such distinguished and hard working members to preside over our discussions, and if our Liverpool Veterinary Medical Society languishes by being so thinly attended, I can only say I am extremely sorry, but utterly unable to account for it, but hope that the example shown by yourself and Manchester friends may prove a lesson to them, and that the society under your presidency may grow strong in number and debate, add its quota towards the advancement of our science, and draw its members into one close bond of fellowship.

Being short of efficient members—I mean regular attendants—it is only natural we should fall short of essayists; therefore, at the request of our President, I come before you with very great diffidence, not to teach, but hoping to go away with more knowledge on the subject from the practical remarks I trust my humble efforts may call forth in the animated discussion I look forward to. I will therefore commence at once:

OPHTHALMIA AND SOME OF ITS CONSEQUENCES.

The parts generally known by the name of the eye are divided into those of vision, viz. the globe or eyeball, and the accessory organs or appendages, viz. the eyebrows, eyelids, eyelashes, the muscles of the eylids, the tarsal cartilages, the Meibomian glands, the conjunctiva, the membrana nictitans, the lachrymal gland, the caruncula lachrymalis, the puncta lachrymalia, the lachrymal sac, the ductus ad nasum, and the muscles of the eyeball. I think it would be hardly satisfactory to proceed to the consideration of ophthalmia without refreshing our memory with a very slight run over the anatomy and physiology of the parts most affected.

The eyeball is contained in the cavity of the orbit, and is composed of three tunics:

1st, Sclerotic and cornea;
2nd, Choroid, iris, and ciliary processes;
3rd, Retina;

And three refracting media, viz. aqueous humour, crystalline lens, and vitreous humour.

The sclerotic is that dense, hard structure, composed of white fibrous tissue, forming the posterior five-sixths of the globe; it is not very vascular, and the existence of nerves in it is doubtful. It is pierced behind by the optic nerve, the arteria centralic retina, and numerous small ciliary nerves and vessels. The cornea is the anterior sixth of the globe, is fibrous in structure, tough, and unyielding, is perfectly transparent, and consists of five layers, the central, fibrous, or cornea proper, the anterior and posterior elastic lamina, immediately before and behind the central, the conjunctiva in front, and the lining of the anterior chamber behind.

Neither blood nor lymphatic vessels have been discovered in the cornea, the capillaries terminating in loops at its edges. The nerves are very numerous, and form a delicate network.

The second is the vascular and pigmentary tunic of the eye; it consists of the choroid behind, proceeding forwards, and forming the iris ciliary processes, and at the junction of the cornea and sclerotic ciliary ligament and muscle, it is of a dark brown colour, and consists of three layers, external, middle, and internal.

The external layer consists principally of veins, venæ vorticosæ, the larger branches of the short ciliary arteries proceeding forwards between the veins before bending downwards, and star-shaped pigment-cells being joined together by a loose delicate network.

The middle layer, or tunica ruyschiana is formed by the short ciliary arteries into an exceedingly delicate plexus of capillary vessels. The internal is the pigmentary layer, and consists of a very fine single layer of hexagonal nucleated pigment-cells. In albinos these cells contain no pigment.

The iris consists of several layers, and is made up of a delicate interlacement of nerves, vessels, and pigment-cells behind, and muscular fibres running in two directions, from within outwards, acting as a dilatator and circular as a sphincter.

The blood is derived from the long and anterior ciliary, and from the vessels of the ciliary processes.

The retina is the internal coat of the eye, and consists in a membranous expansion of the peripheral extremity of the optic nerve, for the purpose of receiving or absorbing the rays of light from luminous bodies; it pro-

ceeds as forward as the ciliary ligament, where it terminates in a jagged margin, the ora serrata. It is made up of three layers, external or columnar, Jacob's membranæ, middle or granular, and internal or nervous layer. The blood is derived from the arteria centralis retinæ.

As the refracting media are more vascular, and therefore cannot suffer directly by inflammation, I will not take up your valuable time by their consideration.

The vessels of the globe are the short, long, and anterior ciliary arteries, and the anterior centralis retinæ, derived from the muscular and lachrymal branches of the ophthalmic. The veins are four in number, and perforate the sclerotic midway between the cornea and optic nerve, and terminate in the ophthalmic.

The nerves are the optic, the long ciliary from the nasal branch of the ophthalmic, and the short ciliary from the ciliary ganglion.

Inflammation of the conjunctiva or simple ophthalmia arises from many causes, some of which are catarrh, diseases of the brain, liver, or any of the digestive organs.

Traumatic from a blow from a whip, the admission of any extraneous body, such as a hay seed, spark, &c., and, in fact, from causes which produce inflammation in any other part of the body, such as variations of temperature, especially if accompanied by intense light or heat, and lastly from metastasis. When the cause is unknown it is called idiopathic.

The first symptoms are the overflow of tears down the cheeks, inability to bear light, and consequent closing of the lids; the globe assumes a small appearance from being drawn into the orbit, the protrusion of the haw. The four symptoms of inflammation are plainly discernible, heat, redness, pain, and swelling; the bright redness being remarkable, for in health this part is supplied with the colourless portion of the blood, but in inflammation the anastomosing branches of the vessels become injected with red blood, and present a remarkable but by no means uncommon appearance.

This inflammation exists in all degrees of intensity, for if any extraneous body be not speedily removed, the eye quickly assumes this symptom of redness, as we all well know this to be a daily occurrence in the forge. We have acute and chronic conjunctivitis, and it is necessary to attend particularly to symptoms by which they are distinguished, as the mode of treatment of the one is very different to that of the other. If the acute symptoms do not quickly subside, it passes into the chronic stage; by the term chronic, we mean when the symptoms have passed from the acute, and appear to be partially subsiding, and have left the parts in a flaccid debilitated condition.

The treatment of conjunctivitis is, generally speaking, very simple, and very successful; the acute symptoms having subsided, the chronic would not unfrequently subside, if left to itself; this, however, would be dangerous practice, to relax treatment until the eye is perfectly able to bear light, as inflammation of this membrane might lead on to inflammation of the deeper-seated parts, and suppuration, disorganization, and ultimate loss of sight be the consequence. Should the attack be very severe, we have a hot, dry skin, rough coat, and quick, hard pulse. The conjunctiva also becomes elevated at the transparent cornea, owing to the coat being here most adherent, and the swelling in consequence greatest; this appearance is called chemosis.

In the chronic stage the redness will be less apparent, the eye better able to bear light, the flow of tears not so profuse, and the chemosis

partially gone, and the irritative fever subsided—in fact, all the first symptoms much mitigated.

The terminations of conjunctivitis, if not as above, are effusions of serum under the conjunctiva covering the transparent cornea, causing a clouded appearance over the whole of the cornea, called nebula; when the deposit is greater the colour is increased to a pearly whiteness, producing opacity in a greater degree; this is termed albugo or leucoma.

Suppuration and ulceration occasionally take place; in the former case the pus forms in the shape of a pustule in the centre of the cornea, which bursts, and may produce ulceration, and lastly sloughing and mortification.

The treatment in the first or acute stage depends entirely on the cause; we must first examine carefully the eye, and if we find any foreign substance which the membrana nictitans has been unable to dislodge, we must remove it, and with warm fomentations the symptoms will probably subside; if they are severe, the treatment must be adopted I give below. Should the cause be catarrh, stimulants, diuretics, and diaphoretics may be administered, with warm fomentations, keeping the patient well clothed and bandaged, and in all cases in a dark box.

Should it proceed from any disease of the digestive organs, or idiopathically, we must use violent antiphlogistics, such as severe bloodletting, both local and general, accompanied by one or two doses of calomel and aloes. Some advise the scarification of the conjunctiva, but this I cannot agree with, as the wounds produced thereby are, in my opinion, calculated to be a perpetual source of irritation for some time, not to mention the clots of blood forming and pressing on the globe. Hot water and steam fomentations, with an infusion of opium, will be found very useful in more ways than one, as the steam producing a vapoury atmosphere will be conducive to a speedy cure; poultices I cannot agree with, not to speak of the difficulty of their application.

With respect to the difference of opinion with regard to hot and cold fomentations, I may say for myself at once, that in the acute and early stage of all inflammations (external), I have a decided preference for hot, and more especially in this case, by producing expansion of the vessels, decreasing considerably the pain. I need not add that light must be entirely excluded, and darkness be obtained, not by bandages over the eyes, which are very objectionable, but by darkening the box; flannel bandages on the extremities, and sufficient clothing, to prevent chill; the diet to consist in this stage of bran mashes and a very little hay, with a liberal allowance of water. After this treatment has been adopted, until the inflammation has passed from acute to chronic, we must adopt a very different course, using cold water plentifully, in place of hot, and gentle stirring and astringent washes, such as weak solutions of alum, copper, or zinc. A little opium may be used along with any of these lotions, care being taken to use them weak enough at first, and gradually increasing in strength according to the degree of pain and irritation the application is seen to produce. In giving the best remedies, I may as well warn you against what are said to be objectionable, and these are any solutions of lead, even Goulard's water, as being liable to decomposition, precipitating the insoluble chloride of lead, which attaches itself to any ulcerated spot, and heals into a chalk-white and opaque cicatrix. This would be very objectionable in a horse, making him dangerous to use for ordinary purposes. These lotions may be used twice or thrice daily after fomenting. It is said that if the wash be applied slightly epid, its action is not interfered with, and the pain caused thereby con-

siderably diminished. In this stage light also should be gradually admitted. Alterative medicine should be administered, such as one drachm aloes to three Nit. Potass. daily, or any other medicines of the class in your daily use. The diet to consist of green meat, if in season, or raw potatoes, &c., with bran, and a little hay.

Should any appearance of nebula, albugo, or leucoma remain, the pathology of which I have given, treat with cold water and applications of nitrate of silver daily, and an absorbent blister round the eye.

In the human subject we have mentioned of the conjunctiva, or sequels of ophthalmia which we are seldom called to treat, one of which I will simply call your attention to, as somewhat similar cases may be met with occasionally, but from a different cause, in dogs by scratches in the eyes by cats. The disease I speak of is purulent ophthalmia, or suppurative inflammation of the conjunctiva, and you will recognise that from one point of the symptoms of the latter, viz. the commencement of the cornea to slough, the symptoms are analogous, and require much the same treatment.

The symptoms which precede the discharge of pus are similar to those in the acute stage of simple ophthalmia; it is therefore useless to repeat them, the eye becomes dry, and the first symptom is a gradual exudation of mucus from the surface of the cornea, which speedily changes to pus; sloughing now takes place, and lamella after lamella comes away, or almost the whole of the cornea sloughs off at once; in the latter case, the eye is totally destroyed as the iris becomes protruded; aqueous, vitreous humour, and the crystalline lens, escape. If the opening is small, funnel-shaped, or piped, the aqueous humour escapes only, the iris becomes prolapsed into the opening, and although the appearance of the eye is altered, the vision in a degree is retained.

Before sloughing has commenced violent antiphlogistics with hot poultices to the eyes are used, afterwards tonics, stimulants, and astringents, and great cleanliness to the parts affected, is the best treatment recommended for this fearful disease. Oak bark being highly spoken of. Mercurial ointment, with a little creosote mixed, is very highly recommended in chronic albugo, purulent and scrofulous ophthalmia, in the ulcerated stage, but attention is more particularly directed to the action of the creosote.

Acute, specific, or periodic ophthalmia are the various names given to what may, and has justly been called, the "bane of good horse flesh," and what is known to farriers and grooms as moon-blindness. I will not dwell further on the appellations and their sources, for they are many, but proceed with the subject at once.

The symptoms in this case are at first with difficulty recognised, and come on very gradually, contrary to those of pimple; you may see the first recognisable symptom, which is a slight overflow of tears first thing in the morning. On closer examination, you will find the blood-vessels on the sclerotic coat much congested, and forming quite a zone of vessels surrounding the outer part of the cornea; the globe dull and sunk; the iris changed in colour, having a very red appearance from being congested with red blood, being also swelled and puckered. These symptoms become modified, and a large body or bodies which consist of exudations of lymph may be seen floating about in the anterior chamber, and some of which become attached to and resemble yellow tubercles on the iris, or, rather, yellowish white; the aqueous humour becomes turbid, the conjunctiva partaking also of the inflammation, the eye, of course, being unable to bear light. Added to this we have always at this time great constitutional derangement. Animal off his feed; pulse quick and

strong; kidneys and bowels irregular. This disease affects all the vascular coats of the eye, but the iris, choroid, and ciliary processes, are most affected. This finishes the first stage; and as generally we have only one eye affected at once, the symptoms appear gradually to subside, the flow of tears cease, and the deposit becomes in a measure absorbed, commencing superiorly. At this time and just in the same proportion as the disease abates in one does it attack the other with just the same symptoms. However, should it confine itself to one, we probably congratulate ourselves; yet having been previously deceived, with fear and trembling do we daily approach his box, expecting what we invariably get, the cup dashed from our lips as we are about to taste, and as all the old remedies have been found to fail, we have been probably trying some pet remedy of our own, which we anticipate announcing at the first meeting as a specific, but which, unfortunately, proves in most cases a hopeless failure, and in some few incalculable benefit; to which I may add, as far as my experience goes, the latest treatment of laminitis, as far as the exercise and throwing the weight on the heels is concerned. But to pursue, the iris has not that beautiful polish it had before the attack, and very often a line will be left round the margin of the pupil, but before this has time to clear away (the time varying) we have a return of the first symptoms, and we see with regret the eye as bad as ever; and after running the same course, will again clear if the inflammatory action has not been sufficiently destructive to have produced total blindness in the first attack, which is not often the case. The cornea continues dull, and with each attack increases the turbid state of the humours, the effusions of lymph and deposition on the edges of the iris and adhesions to the crystalline lens, vascularity and opacity of the latter and its capsule. The anterior chamber becomes so charged with lymph or matter producing in technical language hypopium, as almost and in some cases totally to obscure the pupil and iris; in short, the aim of this disease appears to be the entire destruction and disorganisation of the visual organ; for so long as there appears any distinct organisation do the attacks continue, each rapidly succeeding the other. The interval between the first and second attack is *generally* from nine to ten days or a fortnight, but no fixed time can be set; it may be longer or shorter, but after each fresh attack the intervals become of shorter duration, until only a day or two intervenes. Sometimes both eyes are attacked simultaneously, but this is rare.

This disease exists to a greater extent in Ireland than in England, or if here it is most frequently Irish horses that suffer; but spec-ophthalmia appears to be one of the diseases dying out, so seldom do we meet with it to what our predecessors did,—yet we all of us see quite as much of it as we care about.

I believe it to be hereditary to a degree, and account for its prevalence among Irish horses from the custom (not general, but in remote districts for cheapness) of breeding from anything that will breed,—from mares frequently quite blind and from sires either that or nearly so.

The treatment of this disease, I need not repeat, is very unsatisfactory; the first thing we must do is to bleed copiously and evacute the bowels freely, place the horse in a dark box, and foment with hot water. The only medicine that is said to have proved very efficacious is calomel, which must be given several times daily, and in quantities to produce salivation, along with Opii to prevent its action on the bowels being too great; the opium from the special action of contracting the pupil will tend to prevent adhesions taking place between the iris and crystalline lens. Belladonna (extract) is specially recommended to be rubbed on

the lids morning and night; also for its action on the pupil, causing dilatation of the iris, and, consequently, breaking up or assisting in the prevention of adhesions.

Depletive measures are the ones to which we are led to look for the greatest benefit; and to such an extent have they been carried that not only have the local arteries been stopped but even the carotid. What benefit would be expected from such a course I am at a loss to say; but as it has been proved a failure we need consider it no further. When the system has become affected by the above treatment, and the acute symptoms are gradually subsiding, and you see the cornea and iris brighten, the aqueous humour clear, and the lymph becoming absorbed. You may encourage them by the administration of tonics and absorbents internally and externally. For the former I recommend Cupri Sulphas, ʒj to ʒij, Iodine daily externally; silk setons through the lids as recommended by Mr. Percival, and seton through the cheeks, or the application of an absorbent blister round the lids, and the mercurial and creosote ointment to the ball itself. Solution of nitrate of silver, Cupri Sulphas, and sulphate of zinc, have all been used with less or more success; but had I a case to treat at this stage, I should be inclined to try the mercury and creosote, or a weak lotion of the tincture of iodine.

I have now finished what certainly is not one of the most interesting subjects of the day, but yet which when we are called on to treat, demands our most serious consideration and attention; for should we not succeed in restoring perfect and uninterrupted sight, we had better almost have left it alone; for who would risk his neck riding or driving a shying horse—the worst fault almost a horse can have, and a certain consequence of partial vision?

However, I hope that amid the discussion on laminitis, the education of future veterinary surgeons, and the various schemes afoot for the advancement of the veterinary science, my few remarks may not be altogether uninteresting or not sufficiently so to provoke a lively discussion. Finally, I thank you for your kind attention.

The President, alluding to the poor attendance, deplored the want of interest on professional subjects exhibited by the members, especially by those who practise in the town where the meetings are held. After eulogising the manner in which the essayist had introduced his subject, the President stated that in his experience specific ophthalmia was much more uncommon now than formerly, attributable, in some degree, to the improvement that had taken place in the breed of horses, but more especially to the greater care that is now bestowed upon the management of horses generally, and to the more efficient ventilation of their stables in particular. He had tried most kinds of treatment—bleeding setons, belladonna, calomel, &c.—but did not believe in any as a cure for constitutional ophthalmia. He intended to have brought, for the inspection of the members, a newly invented instrument—the ophthalmoscope—but unfortunately discovered when too late he had left it at home. This instrument enabled the practitioner to see more clearly into the interior of the eyeball. It was highly esteemed by Professor Williams, of Edinburgh, who extensively adopted its use in his examinations. He was glad to hear of the introduction of new instruments, the use of which would advance the cause of veterinary science, and doubted not that, if the ophthalmoscope was really an

efficient instrment, familiarity with its use would quickly dispel the ridicule with which it, in common with many other inventions, was burdened at the onset.

Mr. Morgan said he had seen an ophthalmoscope now so generally employed by human oculists, and thought such an instrument could be of no practical value to a veterinary surgeon, on account of the difficulty there would be in getting a horse to maintain so exact a position as would be required for the use of an instrument having such a complexity of reflectors. The one spoken of by the President must be an improved modification of that which he had seen.

Mr. Heyes thought that for all practical purposes the examination of a horse's eyes in a darkened stable, by the aid of a candle, was sufficient. He should not hesitate to give a certificate if the result of such an inspection was satisfactory.

The *Secretary* had, during the past two years, seen several cases of specific ophthalmia, which rapidly terminated in cataract ; these all occurred to horses transferred to newly built stables. He considered the emanations arising from damp walls was the cause.

Mr. Heyes thought plethora a chief cause of ophthalmia ; in his experience the greatest number of cases occurred in fat horses, from three to six years old ; and he had noticed, as a curious fact, that, in almost every instance, the colour of the affected animal was black.

Mr. Whittle had seen many cases in boat-horses, which certainly were not usually either young or kept in high condition. He did not think black horses were more frequently attacked than those of any other colour.

The last remark was corroborated by the essayist and secretary.

The President said he could not subscribe to the opinion that damp arising from the walls of newly built stables was instrumental in causing specific ophthalmia, although, in his practice, diseases of the lungs and pleura had resulted from such a cause. He regretted that the essayist had not treated at length upon cataract as a sequel to ophthalmia. In his opinion a cataract once formed always remained.

A discussion then arose upon the causes of shying ; some members were of opinion that the existence of cataract was a principal cause, others considered shying was more frequently due to a greater or less than normal convexity of the lenses, producing short- or long-sightedness.

Diversity of opinion was also expressed upon the benefit, or reverse, that resulted from the use of winkers for shying horses.

The Secretary read a case communicated by Mr. Cartwright. The subject, a foal, four months old, quite blind, no existing inflammation ; the irides fully dilated ; the situation of lenses and posterior chambers having a perfectly white appearance. No cause could be assigned for it. The animal was more than thirty miles from Mr. Cartwright's residence, and he did not know the termination of the case.

A similar case came under Mr. Storrar's notice more than a year ago, and he had been recently informed by the owner that no change had taken place since. Mr. Storrar considered these were cases of congenital amaurosis.

The Secretary alluded to a specific form of ophthalmia which attacked young stock, and occasionally sheep, in the summer and autumn months, especially after a continuance of hot, dry weather. He described the attack as very sudden, assuming in a herd an essentially epizootic character, the whole globe of the eye being intensely inflamed, accompanied by abundant deposits of lymph in the cornea and anterior chamber, and in many instances followed by ulceration in the centre of the cornea. Recovery under simple topical and constitutional treatment the rule. Rarely the globe becomes ruptured and vision lost. He was of opinion that entozoa had some influence on the production of these cases, the attacks being most frequently accompanied or followed by the presence of filaria bronchialis.

Mr. Storrar alluded to a frequent cause of traumatic ophthalmia in stock, a minute particle of oat-husk becoming closely attached to the eyeball, defying all attempts of the animal to remove it. The mode he adopted for giving relief is, after folding the corner of a silk handerchief round the index finger, to pass it round the globe of the eye, and the offending body is readily detached; the after-dressing being merely nitrate of silver in the caustic form. He had found no treatment for ophthalmia, even in its most acute form, so beneficial as the free application of lunar caustic. He considered bleeding and physic of no use. In reply to a question by Mr. Wilson, said he thought the action of the silver in these cases that of a counter-irritant.

Mr. Harwood had seen a collyrium, consisting of lunar caustic, in the proportion of ten grains to one ounce of water, very beneficial in cases of acute ophthalmia.

Mr. Heyes said the most successful practice he employed was scarifying the palpetral conjunctivæ and the administration of a bold cathartic.

Mr. Wilson wished to know if any one could inform him of the *rationale* of thorough-bred horses becoming blind after undergoing severe exertion.

Mr. Heyes could not explain the reason, but knew such instances to have occurred. He did not consider there could be any objection to breeding from horses rendered blind by such a cause, but, of course, no one could doubt that it would be most inexpedient to breed from animals with constitutionally diseased eyes, ophthalmia being especially hereditary. He saw the other day, in the neighbourhood of Hartford, the thorough-bred stallion Peppermint. This horse, he believed, became blind from over-exertion, and he knew him to be getting good sound stock.

Mr. Barnes said he had known Peppermint for several years. He was remarkable for the goodness of his progeny; some of them are now seven or eight years old. So far as he knew, the horse had

not in any one instance transmitted his blindness; the eyes are completely atrophied.

Mr. Dobie related an instance of sudden blindness occurring to a six-year old mare, after undergoing a distressing gallop.

Mr. Storrar thought there were instances on record in which patent defects, though the result of accident, had been transmitted from affected parent to offspring.

The President proposed, and *Mr. Wilson* seconded, a vote of thanks to the essayist, which was suitably acknowledged.

The following questions relating to the expediency of a preliminary examination were then put to the meeting, and to every one the reply was unanimous.

1. Is it the opinion of the members present that a preliminary examination of the veterinary student is desirable?—Yes.

2. Is it their opinion that such examination should be conducted by the teachers at the respective colleges?—No.

3. Is it their opinion that such examination should be conducted by an independent Board, composed of members of the College of Preceptors?—Yes.

4. Do they think such a Board should be appointed by the Council of the Royal College of Veterinary Surgeons?—Yes.

Mr. Wilson proposed, and *Mr. Heyes* seconded, a vote of thanks to the President, which was cordially accorded by the members and acknowledged by the President.

RICHARD S. REYNOLDS,
Hon. Secretary.

NORTH OF SCOTLAND VETERINARY MEDICAL ASSOCIATION.

THE North of Scotland Veterinary Medical Association met in the Mechanics' Hall Buildings, Aberdeen, on the 22nd ult.; Mr. Dewar, President, in the chair. There was a good attendance of members present.

The President, after disposing of some preliminary business, called on Mr. Hay, V.S., Ellon, to read his paper on "Quarter Ill." A keen discussion followed; but, from the importance of the subject, and the practical suggestions brought forward by the essayist, it was considered very desirable that the subject be discussed at our next meeting, which will be held in Huntly, during the month of October. We defer in the meantime publishing the essay, till after our next sederunt.

YORKSHIRE VETERINARY MEDICAL SOCIETY.

THE summer quarterly meeting was held in the Mechanics' Institute, Leeds, on Tuesday, the 27th July; the President, Mr. M. E. Naylor, in the chair. The following members were also present, viz., Messrs. Patterson, Jas. and Josh. Freeman, Cuthbert, Nicholson, Bale, Anderton, Fearnley, Dray, Fallding, G. Smith, Edmundson, Walker, and the Secretary. Mr. Percival Smith, V.S., was also present as a visitor.

Apologies for non-attendance were received from Messrs. Elam, Carter, Fryer, Pratt, Astin, John Freeman, and T. Greaves.

The minutes of the previous meeting were read and confirmed.

Messrs. Hain, of Thirsk; Thornton, of Easingwold; and Schofield, jun., of Pontefract, were duly elected members.

Mr. Percival Smith, of Winterton, near Brigg, Lincolnshire; and Mr. William Colbech, of Barnsley, were nominated as members.

The Treasurer brought forward the names of two members who had failed to pay their subscriptions. After a little discussion it was proposed, seconded, and carried, that Rule XII be carried into effect, and that the Secretary write to these gentlemen, and inform them that they are no longer members of the Society.

Mr. Dray had been requested by Mr. Greaves, the President of the Royal College of Veterinary Surgeons, who was unavoidably absent, to take the sense of the meeting upon the three following important subjects:

"1st. Whether a preliminary examination before a gentleman enters a veterinary school is desirable and requisite?"

"2nd. Whether the preliminary examination should be conducted by an independent board free from the control or influence of the teaching schools?"

"3rd. Is the certificate of the College of Preceptors a sufficient educational test?"

These questions having been submitted *seriatim* by *Mr. Dray*, were unanimously answered in the affirmative.

Mr. Fearnley gave notice, that at the next quarterly meeting, he should propose the following resolution, viz.:

"That it is the opinion of this Society that the Veterinary Medical Societies in the United Kingdom are of sufficient importance to be represented in Council; and further, this Society is of opinion, that if each Society in the United Kingdom would send one of its members to represent its views in Council, the profession would be more thoroughly represented, and thereby the Council so constituted, would be better able to bring about the desired changes which are so much needed, and which are so essential before our profession can claim that status in society which, as one of the liberal professions, it has a right to expect."

Mr. G. Smith gave notice, that at the next quarterly meeting, he should propose, "That the sum of twenty-five pounds be given to the Leeds Infirmary by this Society."

Mr. James Freeman then read a short but practical essay upon "Parturition." The various mal-presentations were exceedingly well shown by diagrams executed by the essayist, who also exhibited a good collection of instruments of practical utility in these cases. A considerable difference of opinion existed as to whether, in cases of inverted uterus, it is the best practice to commence returning the viscus at the neck or the fundus, both methods being advocated by an equal number of practical adherents. In the discussion which took place, Messrs. Anderton, Bale, Fearnley, Nicholson, Josh. Freeman, Edmundson, Cuthbert, and the President, took part.

Mr. Dray proposed, and *Mr. Nicholson* seconded, a vote of thanks to the essayist, which was carried with applause.

WILLIAM BROUGHTON,
Hon. Sec.

THE LANCASHIRE VETERINARY MEDICAL ASSOCIATION.

THE usual quarterly meeting of the above association was held at the Albion Hotel, Manchester, on Thursday evening, the 22nd July, 1869.

The President, A. L. Gibson, Esq., in the chair; there were also present the following gentlemen:

Messrs. J. Greaves, W. Whittle, S. L. Buckley; — Hill, Wolverhampton; J. W. Anderton, Skipton; J. Howell, Rochdale; J. Taylor, Manchester; J. Wilson, Isle of Man; J. Halfrey Southport; M. A. Naylor, President of the Yorkshire Veterinary Medical Association; — Elam, Liverpool; J. D. Barford, Southampton; J. Brooks, Pilkington; — Bromley, Altrincham; — Crawford, Manchester; J. Lawson, Manchester; and G. Darnell, Knutsford.

Letters of apology were read from the following:

Professors Spooner and Tuson; Messrs. W. A. Cartwright, Whitchurch; J. Carless, Stafford; D. Dudgeon, Sunderland; J. Cuthbert, Leeds; E. C. Dray, Leeds; and C. E. Bostock, Pendleton.

Mr. Taylor read a very interesting paper on "The Docking of Horses, and the Peculiar Formation of Abscesses after Docking."

THE operation of docking is so often performed, and in the generality of cases with perfect success, that any ill effects arising after the operation, are at once attributable by the client to some

mismanagement of the operator, and more especially so because we know full well how many scores of horses are docked by dealers, and men who know nothing about anatomy. The operation with these men is, like it generally is with us, attended with success. For my own part, since I was a boy, I have docked scores of horses, and never recollect a single instance of anything like an unsuccessful case, until the one I am about to introduce to your notice, which, I am glad to say, although a fearful looking case to commence with, and one in which I was threatened with damages to the extent of £75, proved in the end a success. The horse in question was a bay carriage-horse four years old. He came into my establishment on May 10th, 1869, with instructions that his tail was to be docked, the coachman remarking to me at the time that he had some seven days previously given him a dose of physic, and that he was nicely over it, and that after being docked he was to take him to the horse-breaker's. My assistant having tied up the tail in the usual manner, I being busily engaged at other cases, ordered him to dock it, and I seared it up myself in the same way I have always done. I distinctly told the coachman to acquaint the the horse-breaker that he must not put the horse in harness for some days for fear that the end of the tail might therefore become injured. I heard nothing of the case until May 30th, 1869, when the horse was again brought to me, presenting the appearance as shown in Diagrams 1 and 2. I have taken the trouble, Mr. President, for better illustration, to have the case sketched in its different stages, thinking that by so doing the members would be made better acquainted with the subject; and here I would remark that, perhaps some one present to-night, might have seen a similar case. I sincerely hope, and, I have no doubt, on looking round and seeing such a gathering of the profession, that some gentleman may be able to enlighten me on this subject by giving me some idea how the case was produced. The treatment I adopted when the case was first seen, as in diagrams 1 and 2, was continuous hot fomentation to the enlargements in the muscular tissue, by means of a horse rug kept constantly soaked with hot water, at the same time placing a large sponge saturated with hot water under the tail, so that the anus was kept fomented at the same time. I had the hair carefully plaited away from the abscesses, and a man was engaged to constantly pour over the whole surface a plentiful supply of hot water. The drawing in diagram No. 2, shows the enlargements seen when the tail was raised. The anus presented more the appearance of the vulva of a cow, the day after a difficult case of parturition, and on each side of it was a large abscess from which, upon lancing, flowed, I am sure not less than a pint of pus. With a dose of physic, nice mashes, and cooling lotions, the case did well rapidly, and in about four weeks was fit to be shown, and was sold for the money at which he was valued, and for which, had he not done well, I was expected to have paid, not that for a moment I intended to do so, knowing full well from the groom who delivered him to the horse breaker, that the horse had been put in harness by the

breaker an hour after I had docked him, the breaker remarking that he docked his own horses regularly, and put them in harness at once; and I am fully aware that such is the case, but consider myself that it is injudicious to do so, and feel confident that it was in this case the cause of all the mischief. The drawings I have presented to you will, I hope, convey a better idea of the case to you than I could have given, but any shortcomings on the point I shall be glad to explain.

Mr. Greaves and *Mr. Brooks* asking, "Why use the actual cautery?"

Mr. Naylor spoke at some length as regards the operation, and thought it must have been a case of irregular strangles.

Mr. Lawson thought the swelling was due to the absorption of pus, and expressed an opinion that the actual cautery is the best method to stop hæmorrhage.

Mr. Brooks thought the ligature was the best.

Mr. Taylor differed from Mr. Brooks in his opinion on the ligature.

Mr. Paton spoke at some length as regards the operation, and said he had been very successful by using the actual cautery.

Mr. Howell also took part in the discussion.

Mr. Paton next read a paper on "A Peculiar Disease of the Leg," which had occurred in his practice, about which an animated discussion took place.

I have the pleasure of laying before you a brief account of a peculiar disease which occurred in my practice during the last wet season that prevailed in and about Manchester, during the last three months of the past year, the peculiarity of which caused me to think it a fit subject to bring before the notice of this Society.

The disease in question presented itself in the following manner, the situation being generally the near hind leg:—The first symptom was heat of the leg from the hock downwards to the foot, with slight thickening; in the course of a day or two a nodule appeared on the pastern, about the articulation of the os coronæ and the os suffraginis, which ultimately suppurated and burst, leaving a nasty ulcerous-looking wound with ragged edges, which bled upon the slightest touch. Upon more minute examinatiou, the sore proved to be of greater extent than it appeared to be at first sight, for some distance around the opening there was an accumulation of pus beneath the skin, and, in some instances, a sinus ran a considerable distance round the coronet, communicating with another pustule; in some instances there were a number of these places which occurred in close proximity, and were more or less united by sinuses, which eventually suppurated into one large pustule, and a considerable slough was the consequence. Other cases, two of which I have cause to remember well, following the dependent course of pus, entered the tissues of the foot and formed a decided quiltor, which caused a great amount of trouble, but eventually got

well. At first I was inclined to think I had got to contend with farcy, having had to destroy one a week previous to being called to the above case, which was a decided case of farcy; but in the remainder of my cases I did not meet with any corded or inflamed absorbents, nor any affection of the Schneiderian membrane to lead me to decide upon them being farcy; on the other hand, the nodulous swellings appeared to me so much the swellings we meet with in erysipelas, combined with the inflammatory symptoms which presented themselves, at the time the pulse running from 54 to 60 beats per minute, and hard during the formation of pus in the swellings, I decided, in my own mind, that this belonged to the class of typhoid inflammation of the skin depending upon the presence of some morbid material in the blood. In all cases under treatment, two or three occurred in the fore legs, and many were accompanied with grease or cracked heels.

The treatment I adopted was as follows: When the fever ran high I administered oleaginous draught, Spt. Nit. Æth. Liq. Amm. Acet., and ordered cold mashes. In the first cases the legs affected were poulticed; but I discontinued this, because it caused a great amount of sloughing, and, instead, I probed the sinuses with mild caustics, and in cases where there was any likelihood of a large slough through the existence of sinuses, I inserted a probe-pointed bistoury, and opened them from end to end, cut off the ragged edges, and treated for open sore; and when the granulations became exuberant, I applied a dressing of tar made hot, and mixed a slight quantity of Acid. muriaticum upon tow and bound it tight, and upon the third day the place was quite hard. The eschar thus formed was removed, another dressing applied, and, generally speaking, they required nothing more than to be kept clean. Those cases that appeared as indolent in their formation of granulations, I dressed with calomel on cold tar and tow, which proved very effectual. I gave, after the fever had subsided, tonics twice a day, containing Cupri Sulph. ʒj. I preferred using this agent on account of its tendency to arrest, in cases of scrofula, farcy, and other diseases, abnormal secretions from the bowels, and so prevent them from being taken into the system. With these remarks I beg to leave the matter in your hands, and I hope we may arrive at something that will enlighten me upon a disease that I never saw before or since.

At the conclusion, a vote of thanks was accorded the Chairman for the able manner in which he had presided over the meeting.

A. L. Gibson, *President.*

Alfred Challinor, *Hon. Sec.*,
Nelson Square, Bolton.

WEST OF ENGLAND VETERINARY MEDICAL ASSOCIATION.

The annual meeting of this association was held at the Queen's Hotel, Exeter, on Thursday, the 19th of August last, in the week of the visit of the British Association to that city.

The following members were present:—T. D. Gregory, Esq., President (Bideford); Messrs. T. D. Broad (Bath), J. M. Broad (Bristol), J. J. Collings (Plymouth), C. Parsons (Launceston), E. Drake, Jas. Austen, and J. A. Collings (Hon. Sec.), of Exeter.

The business of the meeting commenced with the reading of the annual report, as follows:

ANNUAL REPORT.

Mr. President and Gentlemen,—During the past year three meetings of this association have taken place, instead of four as heretofore,—viz. Exeter, July 9th, 1868; Bristol, November 25th, 1868; and Dorchester, March 25th, 1869. The attendance of members at each of the two first named was very numerous; that at Dorchester being, on the other hand, somewhat small, probably on account of that town being out of the main line of railway.

The election of officers at Exeter, 1868, resulted in the renewal of the presidentship of T. D. Gregory, Esq.; the following gentlemen being chosen to fill the office of vice-president: Messrs. T. D. Broad, J. J. Collings, and J. E. Cornelius; Mr. J. A. Collings (hon. sec.), and Mr. E. Drake (hon. treas.).

At the Bristol meeting in November the vacancy caused by the death of Mr. J. E. Cornelius was filled up by the election of Mr. T. Aubrey as vice-president.

Mr. E. Drake afterwards expressed his objections to the office of hon. treasurer, consequently the funds in hand have been since held conjointly between the president and secretary.

The political affairs of the veterinary profession have not during the past year engrossed any portion of the time of this association. The subjects introduced by members for discussion have been novel and interesting; the laminitis question, so ably introduced by Mr. T. D. Broad, which has excited such a vast amount of discussion; the essay, "Principles of Breeding," by Dr. J. D. Barford, was exceedingly practical and instructive.

Four new members have been added to the association: Messrs. James Austen, of Exeter; James Rowe, of Dorchester; Samuel Newman, of Havant; and J. T. Handy, of Chipping Sodbury.

The finances of the association are in a favorable condition; the amounts in hand may be seen (as audited) in the balance-sheet. The annual subscriptions, payable in advance, are now due to the association, as also two other sums; and for the recovery of the latter the secretary is prepared to take such steps as may be deemed advisable.

Dr.	£	*s.*	*d.*	*Cr.*	£	*s.*	*d.*
By sundry Expenses on behalf of Association, from the year 1868 to the year 1869	9	14	10	By Bank Order from R. H. Dyer, November 3, 1868	16	15	3
Balance in hand . .	21	7	5	By Subscriptions, from the year 1868 to the year 1869	14	7	0
	£31	2	3		£31	2	3

The financial report having been adopted,

The election of officers for the ensuing year took place. T. D. Broad, Esq., of Bath, being unanimously installed as president; Messrs. T. Barrell, J. M. Broad, and E. Drake, as vice-presidents; Messrs. W. Raddell and J. M. Broad, as auditors; the ex-president as hon. treasurer; and Mr. J. A. Collings, as hon. secretary, as heretofore.

The Hon. Sec. then proceeded to read a short paper on the "Pathology of the Chronic Diseases of the Respiratory Tract of the Horse."

The purely chronic diseases of the respiratory tract I propose to name as four, viz. roaring, broken wind, thick wind, and chronic cough. There are, doubtless, many minor diseases which may be legitimately classed as such, but to extend our observations to all of them would occupy much more time than we can, on the present occasion, afford. The two first named of these (roaring and broken wind) are by far the most interesting, and are, in my opinion, intimately allied to one another, as regards the structure primarily affected; what I refer to is purely and solely alteration and consequent paralysis, or *vice versâ*, of nerve-tissue.

In pursuing the character of this disease of roaring and its various modifications (as whistling, &c. &c.), we must review the causes. It is undoubtedly brought about by many causes, but where it has a chance origin once it follows the routine to be presently described one-hundredfold. Glancing at these occasional causes we find them to include—

1. Disease of bones of nasal chambers.
2. Depression of nasal bones from external mechanical injury.
3. Congenital malformation of nasal chambers.
4. Tumours, either fibrinous or osseous, secreted accumulations, &c., within chambers.
5. Thickening of arytenoid cartilages.
6. Deformity of trachea.
7. Paralysis of portio-dura, the motor nerve of face.
8. Aneurism of adjacent vessels.
9. Enlarged bronchial lymphatic glands; and, lastly, in connection with the chief cause.
10. Pressure produced by tight reining.
11. Exertion and fright.

As such as these exist in extent or intensity so may the various morbid sounds constituting the modifications of roaring be apparent. But arriving at the main one, viz. atrophy of certain laryngeal muscles on the left side, and the consequent collapse of a portion of this cartilaginous box, the result of paralysis of its suppliant nerve,—this is the ultimate point; how it is produced now becomes our duty to discover. Prior to restoring the action of any piece of mechanism, it is absolutely essential that we be well versed in the relative positions and attachments of its different component parts, so it is here we must review the anatomy of these structures before entering upon the nature of the disease in question. The nerve which supplies these muscles we call the left

inferior laryngeal or left recurrent; it originates from the pneumogastric or fifth pair of cranial nerves. It may be well to remark here that, in almost all instances in the animal organism, we find that where there are two organs destined to perform the same function on either side of the body, they are precisely alike in form, arrangement, and distribution; but to this rule we have a remarkable exception in the inferior laryngeal nerves. Firstly, to trace the course of that on the right side. It leaves the parent trunk or pneumogastric just as the latter enters the thorax, that is between the two first ribs (here a large plexus is formed by the pneumogastric and sympathetic nerves). The right recurrent now turns upward and winds in an inward direction round the trunk common to the anterior dorsal and posterior cervical arteries; then it passes up the neck very near the carotid artery, the tenth, and sympathetic nerves, direct to the right side of the larynx, to supply the companion muscles to those on the other side.

Now, on the left side the recurrent or inferior laryngeal nerve leaves its parent pneumogastric opposite about the fourth dorsal vertebræ, then passes backward and turns round, the posterior aorta being very closely applied to it. In this part of its course it communicates with the cardiac and pulmonary plexi, and sends fibres to the heart itself, and these are the points to be particularly borne in mind. Having turned round the aorta, the nerve passes directly forward to get out of the thorax, and thence up the neck to the muscles on the left side of the larynx, corresponding to those supplied on the other by the right nerve. In its passage up the neck, the left recurrent has relatively the same position with the carotid artery as has that on the right side.

Now that we are posted in the anatomy of these parts, we ask ourselves how it is that the muscular atrophy is brought about, and the reason of the left side being always affected in preference to the right. The difference in the course of these two nerves must necessarily answer this latter question, but we should now be able to discover at what portion of its course this first cause produces its effect; it cannot take place at its peripheries, because, if so, the one side would be affected no oftener than the other; therefore, whatever it may be, it must exert its influence on some other portion of the nerve's course.

We are already aware that the nerve on the left side has its own peculiar communication with the inferior cervical ganglion, with the lungs through the pulmonic plexi, and with the heart by sending branches to it, at the same time winding close around the posterior aorta. Therefore we conclude, and probably rightly so too, that in consequence of one of these connections it is that the left nerve becomes diseased, and this we accept as an ultimate fact, leaving quite unexplained in what way or why this connection influences the tissue so as to produce the result we observe.

To the thinking pathologist this is very unsatisfactory; but we have to reflect for a moment only to discover that we have arrived as close to the pathology of "roaring" as we have to the knowledge of the primary cause of many other pathological conditions, as many of our so-called causes are but the effects of some primary action—for instance, the atrophied condition of the muscles of the larynx is the result of the paralysed nerve; this latter, again, but the effect of something else.

On reviewing the list already enumerated, we find fright and overexertion; and there are, doubtless, many well authenticated cases of its thus supervening. Now, such as these tend somewhat to confirm the theory held by many, that the production of the disease is primarily due to an injury of a mechanical nature; if so, our suspicions are immediately

set on the fact of the nerve being pretty closely applied to the posterior aorta, or, as some have it, its holding that vessel, as it were, in a sling, and consequently any inordinate traction on the nerve during violent pulsations puts it on the stretch, and by such means sufficient injury inflicted to render it unable any longer to perform its proper office. But some may say that if we accept this theory it is next akin to asserting that Nature is a bungler in so arranging structures that they are liable to become injured during exertion, &c.; but I, for one, do not consider such to be, if urged, a very weighty objection. The probabilities are, I think, that horses were not destined for such inordinate work as we often require of them, and that it is in consequence of this unnatural physical exertion which we compel them to undergo that disease is induced; and why should it not occur in this nerve as in other structures entering into the formation of the body? Thus much for mechanical injury brought about by extraordinary pulsations consequent on fright or over-exertion. Then, again, with regard to "roaring" following acute affections attended with general fever, as, for instance, influenza, pneumonia, pleurisy, laryngitis, &c. &c.

Now, in each one of these febrile disorders the increase of animal heat is very marked; next to this increase of heat is increase of involuntary motion, motion of respiration, motion of circulation. This increase of speed in these two grand sets of muscles, the prime movers of the whole body, immediately causes increased pulsations, both in tension and rapidity of stroke.

Is it feasible that the nerve becomes impaired by the unusual action of the heart under these circumstances, or is the injury consequent on its connection with the lungs through the pulmonary plexi already spoken of, which organs are equally excited with the heart? Whichever of these it may be I must be content to leave to you, asking for your individual decisions in due course. As regards the alteration in the nerve-structure itself, the characters it presents are very variable; at one time it has been found wasted, at another hypertrophied and indurated, and so on. Investigations on the subject have left off where they should have begun, and we are consequently in great need of numerous properly prepared dissections at variable periods after the occurrence of the disease, to ascertain which portion of the tissue becomes first affected. The microscope will, doubtless, reveal alterations in structure which cannot be discovered by the scalpel; and in some future prosecution of the pathology of the disease it will lend its certain and valuable aid, which latter, I hope, may not be at a very distant period.

Proceeding to our next head, "Broken Wind," speaking of the nature of this malady, I have to unhesitatingly assert that it is primarily and purely a nervous disorder, dependent on the condition of the digestive organs in which this pneumogastric nerve is also specially involved. It is produced by more than one cause; but the special one in this case undoubtedly is the continuance of ill-conditioned provender, and it is consequently a disease which, as a rule, takes some time to develop itself; but it does occasionally occur suddenly after severe exertion; when such is the case, it must, of course, originate in the lungs, causing, as we afterwards observe in our *post-mortem* examinations, an apparent rupture of air-cells. In its main cause, the pneumogastric nerve becomes slowly but gradually deprived of motory force in its digestive peripheries, and secondarily the respiratory portion sympathises, this being followed by a loss of respiratory power. To observe this peculiarity in its earlier stages, we must accustom ourselves to the normal appearance of respiration,

and in matching that of an healthy animal we can observe two distinct movements:

1st. Inspiration caused by the contraction of the inspiratory muscles.

2nd. Expiration brought about by two causes, viz. a mechanical force by the resiliency of the cartilaginous ends of the ribs, and ensuing on that a vital force by the contraction of the expiratory muscles. And I have yet to speak of a third and very essential motive expiratory power, which resides in the lung structure itself, and assists these two last named. I refer to the elastic fibres and non-striated muscular tissue which surround the thin cartilaginous plates of the smaller bronchial tubes; but, before proceeding, it may be as well to review for one moment the minute anatomy of these parts.

When the bronchial tubes become very small they lose their complete cartilaginous rings, and are merely formed of thin, irregularly placed plates of cartilage, united by fibrous membrane, and surrounded by layers of non-striated muscular fibres. In their more intimate ramifications these cartilaginous plates disappear altogether, the fibrous membrane is continued on into the air-cells with longitudinal elastic fasciculi, taking the place of these muscular fibres, and running between this fibrous membrane and the lining mucous membrane into their cæcal extremities. Now, it is these layers of non-striated muscular tissue which become atrophied in conjunction with those of the stomach, and being, as they are, continuous, or may be the self-same thing, but in greater quantity, as the elastic fasciculi spoken of, the whole resilient or contractile power of the lung structure itself becomes either partially or wholly lost.

Now to refer back to the two first-mentioned expiratory forces, viz. the resiliency of the ribs and the contraction of the expiratory muscles. In normal respiration the power of the one ensues so truly on the cessation of that of the other that the observer cannot detect when the one ceases and the other commences; but if we watch the broken-winded animal we can very readily detect these two distinct efforts; the vital action of the muscles appears to be tardy in taking up the resiliency of the ribs. We know full well that the elasticity of the cartilaginous ends of the ribs is not affected, and we are also aware that the expiratory muscles are as full of strength as ever; then the only respiratory power which is lost must be that resident in the lung structure itself, and such has already been demonstrated.

This delicate and peculiar muscular tissue has become paralysed from sympathy with the other peripheries of its parent trunk, and consequently the expiratory muscles have a double duty to perform, which they, being supplied with a certain amount of electricity only, must accomplish by the consumption of a larger space of time.

It is not that they do not immediately take up the resiliency of the ribs, but they complete their portion of the work much slower than do the ribs the first portion, and consequently the difference in the celerity of the two movements becomes very visible. A short, dry cough, increased when feeding on dry musty provender, by pressure from without on the peculiarly irritable larynx, or by exertion, is a chief concomitant symptom, the same being associated with flatulence.

As a result of the paralysed condition of the pneumogastric peripheries which are distributed on the stomach, the muscular coat of that viscus becomes flaccid and loses its tonicity, the organ becomes larger in calibre, and, as a result, the process of digestion becomes impaired. The ingesta are not acted upon as in the normal state; and, as a sequence, elimination of gas occurs, causing the flatulence always observed.

The cough, consequent on the irritable condition of the larynx, we

must refer to our old pneumogastric nerve, and its recurrent branches, but how it is that one portion of its peripheries is morbidly sensitive and the other either partially or wholly paralysed I will leave for you to determine. As this action of coughing is always regulated by the power of the expiratory muscles, so here, as we might expect, it is suppressed, dry, and short.

Then as to this disease supervening on severe exertion, such a fact no one will care to dispute; but that there must be a very strong hereditary tendency in an animal to thus take on the disease appears very probable. In such cases it is difficult to realise how these symptoms can be so readily produced, but, in corroboration of the fact, we have many well-authenticated cases of animals becoming so, and on *post-mortem* examinations, within a few days, a large amount of vesicular emphysema has been observed on the external surface of the lung-structure. In these direct rupture of air-cells would appear to be probable, but as regards the emphysema, seen after the usual occurrence of the disease, I am of opinion that it is due, not to rupture of air-cells, but merely to a dilated and flaccid condition of them. We are already aware that the smaller bronchocele tubes are increased in calibre on account of the atrophy of their investing muscular layer; they, therefore, in an act of violent inspiration, allow alarger volume of air to pass through them towards the air-cells than is normally intended. The tender membrane of which these latter are composed is unable to withstand the increased pressure, and consequently becomes stretched to a greater or less extent.

This augmented aerial force becomes more difficult for the cells to withstand, from the proportionately greater pressure produced on their walls, due to the expansion of their contents by increased temperature. The other *post-mortem* appearances usually spoken of are that the lungs are more pallid and buoyant, and that they become larger. They cannot become larger in the living animal because they can but fill the pleural cavities, which they at all times in health completely do, but the small amount of collapse in them after death causes the apparent difference in size, and the contained air necessarily makes them more buoyant, and accordingly lighter in colour.

Referring once more to the emphysema, or probable rupture of air-cells, after suddenly established cases; in conjunction with this, the other morbid changes must have occurred as well, because if this pulmonary emphysema constituted in itself broken-wind, how can we explain the remarkable influence exerted by some drugs in allaying this disease,—the sudden disappearance of all symptoms when shot, or tallow has been given, or the wonderful improvement following a judicious system of diet?

I have now exhausted my small stock of information as regards this malady of broken wind. Of the two remaining heads—of chronic cough and thick wind—I have not much to advance, beyond that the former results from irritability of the bronchial peripheries, and the latter from some portion of the lung structure being blocked up by previous disease, causing a quicker period of respiration, in order to carry on the aërification of the vital fluid.

Some discussion ensued; after which the members sat down to a bountiful dinner, and a pleasant evening was spent.

J. A. Collings,
Hon. Sec.

Veterinary Jurisprudence.

CONVICTION UNDER CONTAGIOUS DISEASE (ANIMALS) ACT.

At the Guildford County Bench, on Saturday, Sept. 11th, Mr. J. More-Molyneux in the chair, Mr. James Dilloway, farmer, of Wonersh, was summoned under the Contagious Disease (Animals) Act, for unlawfully keeping a heifer on Rushet Common, knowing it to be at the time suffering from an infectious and contagious disease, commonly called the foot and mouth disease. It was clearly proved the animal in question belonged to the defendant, and was turned out by him on the common while suffering from this disease.

Mr. Evershed, M.R.C.V.S., gave evidence as to the existence of the disease, and its infectious nature.

Mr. Dilloway's defence was, that there were plenty of beasts and sheep on the common worse than his.

The chairman, in announcing the decision of the Bench, said he could not imagine a greater wrong than farmers turning diseased animals out on the common to the danger of other animals in enclosed lands. Fortunately the new Act gave them power to deal with such an offence. They had power to inflict a penalty of £20 and costs, but as this was the first case brought before them, the fine would be mitigated to £4 and costs.

The Hon. W. Brodrick, M.P., who was on the Bench, remarked that the House of Commons had devoted a whole month to the consideration of the Act under which the present proceedings had been taken. The Privy Council had also issued orders in accordance with the provisions of the Act. There was thus no excuse for offenders.

CONVICTION UNDER THE CONTAGIOUS DISEASES ACT.

John Wardle, of Castle Hill, cattle dealer, was summoned for exhibiting in the bull ring, Cattle Market, on the 4th inst., three bulls which were infected with the foot and mouth disease. Mr. I. O. H. Taylor, on behalf of the town clerk, supported the information; and Mr. Chittock for the defendant. Mr. Taylor, in opening the case, said the Act of Parliament under which the information was laid was an entirely new one. It was known as the Contagious

Diseases (Animals) Act, and received the Royal assent on the 9th of August last, the object of the Act being the more stringent putting down of contagious diseases. The present information was laid under the 57th section. The foot and mouth disease being a contagious and infectious disease was included in that section. The onus was thrown on the defendant to show whether by reasonable diligence he did not know that these animals were infected with this disease. Under section 102 the defendant was liable to £5 penalty for each animal.

Police-constable Woollard said he was a cattle market constable, and was acting in that capacity on Saturday last. He knew the defendant well, and also his drover, Harris. Witness remembered some bulls being brought on the Hill on Saturday last, in charge of Harris. There were about 100 bulls, which were placed in the bull ring, and tied up for sale. He saw the defendant giving orders to Harris during the day, and he afterwards saw Mr. Smith, the cattle inspector, pick out five bulls, which witness believed were the same as were driven on to the Hill by Harris. In cross-examination by Mr. Chittock, witness said that the bulls came on to the Hill about eleven o'clock, and when Mr. Smith was picking them out it was about four o'clock in the afternoon. Witness saw five bulls picked out, and five sent away. Witness had never seen any diseased cattle on the Hill before. Mr. Smith had never shown witness any cattle with the mouth disease. Witness would not know that there was anything the matter with such a diseased animal if he were to see it. He was not aware that he had seen any animals on the Hill suffering from the foot and mouth disease. Police-constable Pike, another market constable, gave corroborative evidence. Mr. Wm. Smith said he was Inspector of Cattle in the Norwich Cattle Market. On Saturday last, about one o'clock, he was in the Cattle Market and saw the defendant there with about one hundred bulls tied up to the railings in the bull ring. Witness examined the mouths of some of the defendant's bulls, and in four or five of them he noticed unmistakeable signs of the disease known as the foot and mouth disease. Upon witness finding that these bulls were suffering from the disease, he asked the defendant to go with him and see the Town Clerk, but defendant refused to do so. Witness then left the Hill, and on his return about two hours after, found that about seventy of the bulls were gone, they having been sold. Witness examined four or five of the thirty which remained, and he found them also suffering from the foot and mouth disease. Previous to his leaving the Hill, he requested the defendant not to move the beasts off. Three of the bulls which had been removed were more diseased than those which witness examined of the remaining bulls. This was one of the most contagious and infectious diseases known. The whole of the hundred bulls would most probably be down with it within a week. The disease was now spreading in every direction. Three out of the five bulls which witness examined were in such a state that any man who was used to cattle must have known that they were suffering from it. The beasts lost flesh

and value from the effects of the disease. It was not incurable; animals recovered from it in about a fortnight.

In cross-examination by Mr. Chittock, witness said he examined about five bulls the first time. The first bulls which he examined were redder than the last ones. The symptoms of this disease were—salivating and a sucking about the mouth, and the beasts went lame. Some of the mouths of the bulls were chafed, which defendant said was caused by their rubbing against the irons to which they were tied.

The defence was, that the defendant did not know that these animals were diseased until Mr. Smith discovered it. Defendant admitted now that the animals were diseased, but that he (defendant) had taken every precaution with the bulls, knowing that the disease was so much about. About fifty of these bulls had been grazing for a fortnight upon Mr. Ladley's marshes, at Trowse. The bulls were seen to by Mr. Ladley during the fortnight, and also by two drovers, named Harris and Fowler, both of whom were in the defendant's employ. These two men, in the presence of the defendant, drove the bulls off the marshes, and neither they nor the defendant noticed that anything was the matter with the animals. None of them walked lame nor foamed from the mouth. The other fifty bulls came from Derby (where the defendant lived) on Saturday morning, and neither the defendant nor his men noticed that anything was wrong with them. Mr. Ladley and the two men, Harris and Fowler, were called as witnesses for the defendant, and they all said they knew the symptoms of the foot and mouth disease, and did not notice anything the matter with the bulls, and they had been amongst cattle for years.

The Chairman said that the magistrates had decided to convict the defendant. The evil he had done by sending his beasts off the Hill and selling them was almost beyond calculation. He had spread the disease, perhaps, over the whole of the district. The Bench would convict in the full penalty of £20 and the costs.—*The Norwich Mercury.*

ARMY APPOINTMENTS.

War Office, Pall-Mall, September 24th.

Cavalry Depôt.—Veterinary Surgeon of the First Class, George Longman, from 9th Lancers, to be Veterinary Surgeon, *vice* Lord, who exchanges; Sept. 25th.

OBITUARY.

We have to record the death of Mr. Thomas James Richardson, 16th Lancers; his diploma dated Dec. 21st, 1859. Also Mr. John Dixon, of Cadogan Place, Chelsea; his diploma dated May 19th, 1852. Also, recently, Mr. William Rowe, of Jedburgh; his diploma dated April 26th, 1865. Also Mr. Thomas B. Sharman, of Old Leake, Lincoln; his diploma dated May 29th, 1844.

MISCELLANEA.

EGYPTIAN MUMMIES.

It is said that in the tombs of the Necropolis of ancient Egypt two kinds of mummies have been found. One is incomplete—that is to say, all organs necessary to life have been separated from them; the other, on the contrary, is quite complete. Having observed this, a Swedish chemist, Dr. Grusselbach, who has the reputation of being both great and learned, Professor at the University of Upssal, has come to the conclusion that the Egyptian mummies are not all, as has been said and believed for some thousands of years, bodies embalmed by any process of preservation whatever, but that they are really the bodies of individuals whose life has been momentarily suspended, with the intention of restoring them at some future time, only the secret of preservation has been lost. Meanwhile, Professor Grusselbach adduces many proofs in support of his idea; among others, his experiments during the last ten years, which, he says, have always proved successful. He took a snake, and treated it in such a manner as to benumb it as though it had been carved in marble, and it was so brittle that had he allowed it to fall it would have broken into fragments. In this state he kept it for one or several years, and then restored it to life by sprinkling it with a stimulating fluid, the composition of which is his secret. For fifteen years the snake has been undergoing an existence composed of successive deaths and resurrections, apparently without sustaining any harm. The professor is reported to have sent a petition to his Government, requesting that a criminal who has been condemned to death may be given to him, to treat in the same manner as the snake, promising to restore him to life in two years. It is understood that the man who undergoes this experiment is to be pardoned. Whether the Swedish Government has accepted or rejected the learned chemist's proposal is not known.

ERRATUM.

In our record of the death of Dr. Dalzell, it was stated that he was not a member of the profession; we now learn from Professor Williams that Dr. Dalzell was entitled to be called a Veterinary Surgeon, having obtained his diploma from the Court of Examiners of the Royal College of Veterinary Surgeons on April 15th, 1867.

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Communications and Cases.

OPENING OF THE SESSION 1869-70 AT THE ROYAL VETERINARY COLLEGE. INTRODUCTORY ADDRESS BY ASSISTANT-PROFESSOR PRITCHARD.

Gentlemen,—I feel I am giving utterance to the sentiments of my colleagues as well as of myself, when I say that to us the opening day of the session is one which has, perhaps, more pleasure connected with it than any other; and this you will readily understand when I tell you that it gives us an opportunity of exchanging opinions with, and taking counsel of, so many of the well-tried members of our profession who, as on this occasion, honour and encourage us by their presence. We on this day meet a number of students who have returned apparently with renewed energy to the field of labour, and whom it has been our lot and pleasure to guide and instruct during the past session. It introduces us to new pupils, and so affords fresh opportunities of diffusing our knowledge; and more than this, the principal feature of the day, the delivery of the inaugural address, enables one of us to hold out to you all a helping hand by pointing out to you that course which we consider is the wisest to adopt in the pursuit of your studies, to warn you of the snares and pitfalls that may beset your paths, and to give you such friendly instruction and advice as to the best of our judgment is calculated to prove of good service in your subsequent professional career.

To you who have marked this day and "singled it out of

time," as doubtless all of you have; to you who have yet scarcely lost the sensation of the pressure of your friends' last embrace, or the echo of the last "good bye;" to you who this day may be said to have fairly stepped on to the threshold of manhood, with a fixed determination as to the position in society to which you will aspire; to you, I say, this opening day at your alma mater must impart feelings which savour somewhat too much of anxiety to allow of your viewing it as one of enjoyment or pleasure. The impression of slight inward misgivings that you will scarcely be able to grapple successfully with the difficulties which appear now to rise up between you and that state of efficiency which you are desirous of attaining, together with the new and unusual appearance which all around you has, are sensations which will barely admit of this day being a very delightful one to you; but take courage and be of good cheer, the difficulties which now seem insurmountable will gradually become less formidable as step by step you advance towards them, and be assured that from among surrounding persons and objects will spring up such associations as you will be able for years to come to look back upon and speak of with pleasure and delight. Fear not, but rather congratulate yourselves upon having enlisted under the banner of a liberal profession, the careful study and practice of which will develop those talents the Almighty has blessed you with, will ennoble your mind, and stamp you as a respectable member of the community.

In my address to you this morning, gentlemen, I am desirous of saying something to you first in reference to a matter which has for some considerable time past engaged the thoughts and attention of those members of our profession who may be said to take more than an ordinary interest in its rise and progress; I allude to the education of the pupil prior to his entrance at the college. I here use the word education, not in its general sense, but in a limited one—I mean the scholastic education of the pupil. Upon this subject much has been said and much has been written; opinions have been advanced by many which, though varying somewhat in detail, are unanimously agreed upon the one grand point, viz., that, prior to a pupil entering as a student at any of the veterinary schools, he should be called upon to give evidence of having received an education that will ensure his possessing such a command of the English language as to enable him to fairly understand his teachers, and, with facility, to commit to paper his own thoughts. Respecting the absolute necessity of this the feeling is unanimous, while against it it is impossible to

advance a theory worth the breath required to give the words utterance. Think for one moment, and ask yourselves how it can be possible for a mind to understand theories of physiology and pathology, or the laws that govern a science like chemistry, that has never been schooled to cope with the language of its nativity? Think you, is it feasible that the intellect of a person that has never been taxed, or only to a slight degree, with difficulties similar to the working of a rule of three sum, or the careful spelling of words, or the grammatical construction of sentences, will be capable of at once undertaking such labour as that of the study of the functions of nerves? of the decomposition which matter undergoes under peculiar circumstances? or of the morbid changes that disease brings about in the healthy structures? It would be just as reasonable to suppose that a muscle which has never been called into action would be at a moment's notice capable of performing similar powerful movements to those which can be produced by a muscle that had been performing such movements, a sufficient length of time to enable it to attain a healthy and robust tone. No, rely upon it, the mind requires careful preparation for its great feats as certainly as the body for great exertion. But take another view of this important matter, in this our day, when the subject of education has the consideration of every one; when the worth of a man is gauged to no slight extent by the scholastic education he has received; would it, I will ask, be consistent on the part of those who are fostering our profession if they did not make every effort, and bring to bear every available means to prevent persons entering its ranks who possessed not the capability of conversing in good English to their employers, or of inditing a respectable letter? What! certify to the world that a man has been taught and rendered efficient in an abstruse science, and that man incapable of conversing in or writing correctly his mother tongue? It is inconsistent. It was looking at the matter in this light that induced the governing body of this institution, five years ago, to establish a matriculation examination; every pupil prior to being allowed to enter his name on the college books was examined in reading, writing, and arithmetic. It was the unanimous opinion at the time of this new introduction that, notwithstanding the great desirability of subjecting the pupil to a somewhat severe matriculation examination, that he should not only be efficient in the English language, but be acquainted with the classics, the higher rules of arithmetic, and other branches of learning; however great, I say, the apparent benefits to be derived

from such an advanced position as this, it was felt that the only safe and reliable mode of approaching it was by cautious and gradual steps; hence it was that the first year the tests to which the candidate was submitted were not severe, and the proofs required were not exacting. From that session, however, the examination has been gradually added to and rendered more critical. And although some persons have thought to throw cold water, to use a common phrase, on what has been done, to sneer and hint that such examination is simply a farce, I can this morning with much pleasure assert that, so far as this institution is concerned, the matriculation movement has been the means of shutting out of the profession more than one ignoramus, and my colleagues and myself have noticed an unmistakable improvement in the members of our class generally. At present, it is the intention to advance still further, and ultimately to render the test sufficiently exacting to insure that the pupil has received such a scholastic preparation as will enable him to readily cope with his studies at the college, and to assume a creditable professional position afterwards. The next step which will be taken, and the time is nigh at hand, is a most important one, and, to my mind, a most necessary one; this examination hitherto has been conducted by the teachers of the college; now, for more reasons than one, this is objectionable, and it has been suggested, nay, I should say well nigh decided, that the examination should be hereafter conducted by an independent body, and that body the College of Preceptors. Advantages, as you will see, must accrue from such an arrangement as this; for instance, it will remove from the shoulders of the teachers a most unpleasant responsibility; it will insure a regular standard of proficiency for each pupil, and it will be a guarantee to the profession and the public that the benefits arising from scholastic training are not being overlooked by us. This, I repeat, is a very important and necessary step to take, and I have the utmost confidence in the results.

In bringing this matter before you this morning, I have mainly in view two objects: Firstly, I am desirous that by every possible source, even by my feeble voice, the world should know that we are up and doing, that we are endeavouring to remove one of the obstacles that stand in the way and retard the advance of our calling, a want of education (for the vainest of us, however painful it may be, must admit this), and to show to those whose intention it is hereafter t join our ranks that they must be up and doing too. An secondly, I have thought that by bringing before you wh

has been done and what it is contemplated to do, you may be encouraged to make an effort to work up for any little deficiencies which your inward feelings may excuse you of. I am bold, it may be termed rude, enough to think that there are among you some who are inclined to congratulate yourselves that you are students at the college before the more severe matriculation examination has been instituted. I hope not; but if this be so, I would say to such, depend upon it this should be a source of regret to you rather than a cause for congratulation; rest assured that stern necessity for a more highly educated class of pupils alone gave rise to this movement; and I would strongly counsel all of you who conscientiously feel that your present condition is scarcely sufficient, to lose no opportunity that may offer to make up for the deficiency. "Life is for the present and the future, and not for the past." Recollect that you will be followed from the school by men who will be such grammarians and scribes as a gentleman expects to meet in a professional man; and men who will sit down with you to canvass the favours of the public; and do not forget that you are living in times when a man's letter is looked upon as a sample, as it were, of the man, times when a well-indited epistle predisposes a person in favour of the author; while, on the other hand, a badly composed and incorrectly penned letter, to a similar or greater extent, prejudices and disgraces the person from whom it emanates.

I must now pass from this topic, and speak to you more particularly of the nature of your studies, and the facilities you will have for the careful prosecution of those studies. You are here, gentlemen, to be instructed in the art and science of veterinary surgery, to obtain a knowledge of which it is considered necessary for you to be inculcated in the principles of at least chemistry, materia medica, anatomy, physiology, surgery, and pathology. Chemistry, that you may know, not only the composition, nature, and qualities of the drugs used in the treatment of disease, but also that you may become acquainted with the change that the solids and fluids of the body are undergoing; the manner in which the constituents of the food supply the necessary nutriment to the whole system, and the manner also in which the waste material is got rid of. Materia medica, that you may know the action of the different medicines employed, the proper way of compounding these agents, and the doses of them which may be judiciously administered. Anatomy, to teach you the structure and arrangement of the various parts of the domesticated animals. Physiology, that you may be

acquainted with the functions or uses of the different structures and organs of the body. Surgery, to make you skilful in the treatment of disease by the application of the hand, the use of instruments, or by means of topical agents; and pathology, to school you in the doctrine of disease. On all these subjects, you will have opportunities of listening to lectures, which will, so far as may be, be illustrated by carefully preserved specimens, by diagrams, and (speaking more particularly, of those on the subject of chemistry) by numerous and beautiful experiments. In addition to the lectures, there are other sources by which you will have ample opportunities of gaining knowledge. On the subject of anatomy, for instance, the dissecting room (where you will have the assistance of the demonstrator to guide and instruct) affords all that can be desired to impart to you a good and practical knowledge of this branch of learning; the subjects for dissection are fresh and not expensive, and may be easily obtained. And although, perhaps, the English literature which treats of the anatomy of domestic animals is scarcely so good as we could wish, you have always at hand another source of reference to resort to which will make up for the deficiency, viz. the aid of one of your teachers. Never forget that the most elaborate book that it would be possible to compile would never teach you anatomy; the structures and the peculiar manner in which they are disposed must be seen; and the only good method of impressing upon the mind the necessary information respecting them is that of carefully dissecting them for yourselves; entertain no doubts upon this point, but believe me when I tell you that the pupil who is to become a good anatomist must be a frequenter of the dissecting room. On the subject of pathology, you will meet with sources of information of no mean character other than those to be regarded with care in this theatre. Besides the rich pathological museum of the college, great facilities for students to make themselves acquainted with the doctrine of disease are offered in the large infirmary which forms a part of the institution. It is much to be regretted that many of the members of the class do not so fully as they might seize upon this advantage; by these men the extent of the loss which they impose upon themselves is never fairly realised until they are practising the profession for themselves. It is when the case presents itself, and they have simply their own score of knowledge to fall back upon; then comes the recollection of a similar case seen but unheeded at the college, and with it but too late the inward conviction of a loss of a golden opportunity. Let me beg of you to shake

off and shun this apathy respecting this source of knowledge, and, mark you, it is a source which always presents itself for you to avail yourself of. A familiarity with the natural habits of the animal, the indications of health, and the symptoms of disease, is only to be attained in the stable, while to become acquainted with the normal action of horses' limbs, and to be expert in detecting defective action and the causes giving rise to it, require a good amount of careful and penetrating observation. Such, gentlemen, are the studies which we have to inculcate and you have to become familiar with; and such are the facilities, so far as the college is concerned, which you can and should to the utmost avail yourselves of. Make good use of all of them, and when in the pursuance of your studies the difficulties seem insurmountable, avail yourselves of the assistance of those who have trod the path before you—I mean your teachers. It is always a pleasure to them to help those who work for themselves; and if you will only make known to them the problem you cannot solve, rely on it you will meet with the assistance and encouragement you need. Let your attendance in this theatre be marked by regular punctuality, unimpeachable conduct, and strict attention to every effort of your teachers; any deviation from this interrupts and is an insult to the professor who is labouring for your advantage; diverts the attention of and so injures your fellow pupil; and, besides these evils, it is shamefully cutting to waste your own valuable time. In the infirmary, attending the clinical instruction; in the yard, witnessing the examination of horses; pursuing your investigations in the dissecting-room; indeed, at all times, and under all circumstances, endeavour to curb that hilarity of youth which, unchecked, leads on to practical joking. Be men, and so strive that your deportment may be exemplary and beyond suspicion. Think no portion of your curriculum of little worth, or make any branch of it a favorite to the neglect of another, but with equal avidity seek information respecting each division of the science.

> "Weigh well the end, deem nothing small or mean,
> For habits have a strange vitality,
> And many a pond'rous and massive gate
> Hangs on a little hinge."

Let me advise you all to keep strict watch over the hours you are not required to spend at college, your Sabbaths and your evenings. These are the times when students are waylaid with numerous and strong temptations to go astray;

these are the portions of the week when your besetting sins require the most supervision and the greatest amount of struggling against. Set aside in your evenings special hours for private study, and allow no ordinary circumstances to otherwise appropriate them; on these occasions review what has been acquired during the day, and study such books as your teachers have suggested to you. Lose no time or valuable opportunities; once lost they never can be recalled; therefore seek to fill every hour with such employment as you may review with satisfaction. As Partridge expresses it:—

> "Let duty make
> Of every day a pleasant yesterday,
> Unblushing, unaccusing."

Your Sabbath should be a day of rest. The student who properly employs the six days can well afford to enjoy the rest of the seventh. Duly reverence this day, and neglect not to observe its solemn obligations.

Some of you from the foregoing remarks may think that I would advise you to avoid pleasure during the time you are a student; not so; I contend that the mind to be in good tone must be subjected to variety of occupation. I ask you not to renounce your pleasure, rather to enjoy it, but let it be in safety. Love of pleasure, natural to every period of man's life, glows with ardour at your age; but beware of the results of intemperate indulgence in it; mark you, such misuse of pleasure degrades honour, and blasts the opening prospects of all human happiness. I can now vividly recall to mind the fates of more than one young man whose days broke brightly, and who were formed for running a fair course in life midst public esteem, but who in the beginning of their course sacrificed all at the shrine of irregular pleasure, and who have since died ignoble deaths, or have sunk to lowest depths of insignificance and contempt. By all means seek recreation, but let it be healthful, innocent, and instructive. In other words, avail yourselves of opportunities that may offer for amusement, but have a care that it be of such a character as will invigorate and refresh the intellect. Within these bounds pleasure is lawful, without them it becomes criminal because it is ruinous.

In the performance of your duties help each other; and this you may do, without trouble to yourselves, more than appears at first sight. If you see your fellow student pursuing a course fraught with danger, gently but not reprovingly warn him of his error, and endeavour to win him to a

better path. If you can impart information to each other never hesitate to do so; this will not only benefit those around you but yourself also, for you will find that nothing will to the same extent impress facts upon your mind as endeavouring to impart them to others. Encourage to renewed exertion those of your fellows who appear doubtful of success, and advise with them how to try again. Above all, afford that help the effect of which human calculation cannot limit—I mean the influence of good example. Avoid doing anything the copying of which may prove injurious to those who may be looking on, and strive to do all the imitating of which may be attended with benefit. The effects of example is one of the great realities of this life, as Mr. Charles Dickens, a few days since at a meeting in Birmingham, said, "Every man is one of the group of men impressible for good and impressible for evil, and it is in the external nature of things that he cannot really improve without in some degree improving other men; and observe," says Mr. Dickens, "this is especially the case when he has improved himself in the teeth of adverse circumstances, for then his fellows and companions have assurance that he can have known no favouring conditions, and that they can do what he has done."

One word more. In all your actions, aspire to everything that appertains to and bespeaks the gentleman. In your general appearance avoid all forms of extravagance, seek not to be what is vulgarly termed horsey, or attempt on the other hand to play the dandy; for, recollect, that you are not on parade, but in the field of action. Cultivate a good and courteous address; a possession of this, as a passport of success, is advantageous in every status of society, and to the veterinary surgeon, believe me, it is no mean helpmate. Let your life be one continuous line of unblemished honour, and endeavour to so run your career that your fame may be unsullied.

"Respect thyself:
Envy nor follow the base human worms
That wriggle up to fortune; rather them
Who keep the path of life where'er it lead,
And scorn ill-gotten gains. If thou art low
In earth's great social pyramid, thy part
Be an unnoticed one on life's strange stage,
Oft the mean character best actor needs;
For any fool can play the nobleman,
While few can play the man. 'Tis better far
To do the little greatly, than essay
A mighty labour with a pigmy hand.
Be patient and deserve, and thou shalt rise.
The reaper—he must be a sower first;

But, forget not, while thou sow'st thy seed,
The sickle soon must follow, therefore sow
Just only such as thou wouldst choose to reap.
Use well the present hour—that young to be,
For one to-day is worth a score to-morrows,
That so thou look not back on deedless days,
Nor mourn a wasted youth."

Gentlemen, such is my advice to you; and whether your future course is destined to be long or short, after this manner, so far as I can judge, it should commence. And if it continue to be thus conducted, its conclusion, at what time soever it arrives, will not be inglorious or unhappy.

INTRODUCTORY LECTURE, DELIVERED TUESDAY, OCTOBER 26TH, 1869, BY PROFESSOR R. C. MOFFAT, AT THE GLASGOW VETERINARY COLLEGE.

GENTLEMEN,—In accordance with the custom of former years, the opening of a new session is made the occasion of an introductory lecture, and I have the honour this day to bid you welcome to this college, to inaugurate the commencement of another winter session. This day is to break the quiet of a six months' vacation, and it is also to proclaim that your laborious studies are now to be resumed to fit you for your walk of life. To those gentlemen who have already attended the classes of this college, and who are now about to work their own advancement, and perhaps that of the profession generally, and whose well-known faces link the past with the present, allow me, in the name of your respected principal, the other professors, and myself, to bid you most heartily welcome back again to the field of action of your vocation. To the junior students who for the first time enter this institution to begin their professional labours, permit me, as sincerely and heartily, to give them an earnest reception. That both classes of our students should each, in their turn, have given to them a careful, well-grounded, and intelligent acquaintance of the entire veterinary profession, is the sincere wish of all your professors, and that a brilliant after-career in life may be the destiny of all of you, is the fervent desire of your teachers. In entering a profession such as yours, where much responsibility is often cast upon your shoulders, there is one thing to be attained before all others, and that is, *a good name.* It is ever to be kept in

mind that a good name is in all cases the fruit of personal exertion. It is not inherited from parents; it is not created by external advantages; it is no necessary appendage of birth, or wealth, or talents, or station; but the result of one's own endeavours. This is the more important to be remarked, because it shows that the attainment of a good name, whatever be your external circumstances, is entirely within your own power. No young man, however humble his birth or obscure his condition, is excluded from this invaluable boon. He has only to fix his eye upon the prize, and press towards it, in a course of virtuous and useful conduct, and it is his; and it is interesting to notice how many of our worthiest and best citizens have risen to honour and usefulness by dint of their own persevering exertions. They are to be found in great numbers in each of the learned professions, and in every department of business; and they stand forth bright and animating examples of what can be accomplished by resolution and effort. Nothing great or excellent can be acquired without it. A good name will not come without being sought. You should guard with peculiar vigilance this forming, fixing season of your existence; and let the precious days and hours that are now passing by you be diligently occupied in acquiring those habits of intelligence, of virtue and enterprise, which are so essential to the honour and success of future life.

Young men are in general but little aware how much their reputation is affected in the eyes of the public by the company they keep. The character of their associates is soon regarded as their own. If they seek the society of the worthy and respectable, it elevates them in the public estimation, as it is an evidence that they respect themselves, and are desirous to secure the respect of others. On the contrary, intimacy with persons of a bad character always sinks a young man in the eye of the public; while he, perhaps, in intercourse with such persons, thinks but little of the consequences, others are making their remarks; they learn what his taste is, what sort of company he prefers, and predict, on no doubtful ground, what will be the issue of his own principles and character. There are young men in the city, and those, too, who have no mean opinion of themselves, to be intimate with whom would be as much as one's reputation is worth; and let me add, that a young man, especially in this place, may choose his company. If he wishes for good society, he can find it; if he respects himself, he will be respected. Consider the importance of a good name to your success in the world. Your reputation is better to you than

the richest capital. It makes friends; it creates funds; it draws around you patronage and support; and opens for you a sure and easy way to health, to honour, and happiness. There are in this, and there are in every community, men of property and influence, who always stand ready to encourage and assist young men of enterprise and merit. The way is always open for such to establish themselves in business, and to rise in their calling, whatever it be.

To place before you an outline of your studies, it will be necessary to state the particular subjects that you are called upon with which to engage your attention during the session. We have the department of veterinary medicine and surgery, and the pathology of the horse, ox, dog, and other domesticated animals; secondly, we have veterinary anatomy and physiology; thirdly, veterinary materia medica; fourthly, chemistry; fifthly, practical anatomy and anatomical demonstrations; and, sixthly, there is practical pharmacy and clinical instruction. Now, gentlemen, a very complete and extensive knowledge of these subjects is required of you before you can hope to pass successfully your examinations. There is scarcely one subject more important than another. It will not do to master one or two subjects to the partial exclusion of those which you may fancy are subservient, and occupy a subordinate position. They are each and all important, and a thorough knowledge of them is essentially requisite to fit you for your profession. My advice to you is to endeavour to master them by honest, earnest, and straightforward labour, for labour in every sense of the term it is, and you will have the satisfaction of knowing that, whatever your success at your examinations and your after success in life may be, that you did to the utmost of your ability.

By your attendance at the classes of this college you have given you facilities for obtaining information which are in themselves of vast service and utility. We undertake to educate you, "scientifically and systematically, for the practice of veterinary surgery; to instruct agriculturists, stock-proprietors and their subordinates, in the elements of sanitary science, and in the treatment of simple diseases; to impart a knowledge of the principles which should regulate the housing and feeding of horses and cattle; to inculcate the principles of horse-shoeing; to afford opportunities, by clinical instruction, for recognising and distinguishing diseases in the living subject; and determining, with accuracy, the actions of medicines upon the lower animals." Many other facilities are given you for obtaining that insight into the subjects of your profession, which go to make the successful

veterinarian. There is also a veterinary medical association established in connection with the college, which holds weekly meetings, and at which papers on veterinary science are read by students, and discussions held thereon. A very valuable and extensive library is also in connection with the college, which forms a most important adjunct. The infirmary here for veterinary patients is most complete, and opportunities are afforded by the introduction of urinals into the stables for the collection of urine, so that students may chemically examine that fluid in all the stages of disease. There is also the principal's farm, to which convalescent animals are in many cases sent. Again, through the numerous official appointments held by Professor McCall, access to the steamers coming into the Clyde with cattle and sheep is obtained. The cattle-trains to Glasgow bring in many interesting cases, and they are at all times subject to inspection. The same remark applies to the markets and to all the dairies in town. You cannot but be struck, gentlemen, at the great change which the buildings of the college has undergone since last you left them. By the munificence of the head of this college a large and convenient lecture-hall, museum, and pharmacy has been added. This of itself is indeed a large sacrifice of capital; and when we know that it has been done without any assistance from government or otherwise, and simply from a desire on the principal's part to add to your comfort, and to give you still greater facilities for instruction, we cannot thank him sufficiently.

You are fully aware, gentlemen, that about two years ago a movement was instituted by the trustees of the Edinburgh Veterinary College and the Highland and Agricultural Society for the purpose of obtaining a Scotch Veterinary Charter, intending to develop a Veterinary Licensing College for Scotland; and knowing as I do the interest you take in all matters appertaining to this important subject, I shall place before you very briefly a few remarks on what has been the results of the proceeding.

All such negotiations are usually subjected to opposition, and this case forms no exception. It was intended to obtain a charter for the bestowing of veterinary "diplomas for Scotland." The Royal College of Veterinary Surgeons is the only chartered institution in Great Britain and Ireland which has the authority to grant diplomas. Though placed in London, and granting its diplomas to students attending recognised schools in England and Scotland, it cannot be said that it is strictly an English institute. It is a national institute. It is simply the head centre of veterinary examinations. Its examiners

are deputed to hold certain examinations in the capital towns of Great Britain. The results of these examinations, if considered satisfactory, are the granting of diplomas in the name of the Royal College of Veterinary Surgeons. Any student who has attended this college and obtained his diploma, by undergoing a satisfactory examination before the Board of Examiners referred to, is entitled to rank equal with any veterinary surgeon in the three kingdoms.

I mention this particularly, because it would seem to be an opinion in many parts of Scotland that it is the college at which a student is educated that grants the diploma, and not a distinct corporate body like the Royal College of Veterinary Surgeons.

There is so considerable an outlay by the Royal College of Veterinary Surgeons in holding these examinations, that it leaves but a small margin to the credit side in their books.

Now, when we come to consider the desirableness of having a similarly chartered college in this country, and bear in mind that all students rank equal in their profession by having the same diploma from the same college, and that if the Scottish Chartered Institution ever could maintain itself pecuniarily, which is very doubtful, a diploma granted by it would not be regarded in many parts of England and Ireland, at least for many years to come, as sufficiently recommendatory. This scheme was heartily opposed by many, including your principal, and I place before you some remarks of his at the time of the meditated charter two years ago.

"The Charter of the Royal College of Veterinary Surgeons is a Charter applicable to the United Kingdom of Great Britain and Ireland, was obtained on the application of the late Professor Dick, of Edinburgh, and others, and was granted to him and them together, with such others of our loving subjects as now hold certificates of qualification to practise as veterinary surgeons granted by the Royal College of London and by the Veterinary College of Edinburgh respectively, &c., so that in point of fact we have a charter for Scotland already.

"Then I have yet to learn that it is either inefficient in its workings or unjust to Scotland. On the contrary, all must admit that it has wrought here efficiently and well, and been most impartially administered. Further, I do not see the benefit to be obtained by having a diploma from the proposed Royal Veterinary College of Scotland, instead of one from the Royal College of Veterinary Surgeons. The diploma of the Royal College of Veterinary Surgeons is known

and recognised in the army, and throughout Great Britain and its dependencies, while it is doubtful if the diploma of the proposed Royal Veterinary College of Scotland would be recognised elsewhere than in Scotland.

"And I do not see the advantages to be derived by the possession of the proposed Charter. There is almost no provision of consequence to veterinary science and the profession which is not quite as well provided for in the Charter of the Royal College of Veterinary Surgeons as it is in the proposed new Charter. It is unnecessary for me to contrast the two, as most veterinary surgeons will do, or have done so already. Then, where are the funds to be got necessary for sustaining the new college? The Charter embraces only Scotland. Suppose the whole of the students attending our Scottish schools—a very unlikely thing to occur—were to take their licenses from the new college, there would not be from this source sufficient funds to sustain it; and I do not see any other source of income from which the staff of officials for the new college are to get payment of their salaries. Even the Royal College of Veterinary Surgeons, with its income from students coming from all parts of the world, does not, I believe, find that its income is any more than sufficient for its efficient management.

"If, therefore, a Charter be granted, it will have the effect of weakening the Royal College of Veterinary Surgeons without creating a strong college in Edinburgh, and we will then have two weak bodies instead of one strong one. This is to be avoided, because veterinary science and art can neither advance nor flourish under such circumstances.

"The Royal College of Veterinary Surgeons is quite as much a Scottish institution as an English one, but suppose it was English, we are more concerned with the fact of whether the Royal College deals rightly and justly by us than whether it is English or Scottish, and all know that it does. Its examinations are conducted by medical men practising in Edinburgh, and not a few of the examiners are Scotchmen, and were educated at the Edinburgh Veterinary College. I think this question of nationality should have no place in our discussions, and that the sooner we forget such questions the better will it be for the public and the profession."

The result of all this has been the rejection of the proposed Charter by the Government, on the ground that such an institution would, to a great extent, fail in its endeavours to extend the usefulness of veterinary science through the want of co-operation on the part of the profession.

It was considered that one great faculty having the power

to grant diplomas to students from all parts of Great Britain and Ireland, and so placing all veterinary surgeons on an equal footing, was enough to carry out in an efficient manner the education of the veterinarian.

There has very recently been passed an "Act to consolidate, amend, and make perpetual the Acts for preventing the introduction or spreading of contagious or infectious diseases among cattle and other animals in Great Britain."

This proceeding on the part of our Government will tend very considerably to benefit the public and the profession, and as it were raise the name and increase the duties and emoluments of veterinary surgeons. I shall place before you the substance of this Act, that you may thoroughly understand the duties and responsibilities of veterinary inspectors.

"The term contagious or infectious disease includes cattle-plague, pleuropneumonia, foot and mouth disease, sheep-pox, sheep-scab, and glanders, and any disease which the Privy Council from time to time by order declare to be a contagious or infectious disease for the purposes of this Act.

"Every local authority shall from time to time appoint so many inspectors and other officers as appear to the local authorities necessary for the execution of this Act, and shall assign them such duties, and award them such salaries or allowances as the local authorities think fit, and may at any time revoke any appointment so made, but so that every local authority shall at all times keep appointed at least one inspector.

"Every person having in his possession, or under his charge, an animal (including a horse) affected with a contagious disease, shall observe the following rules:

"(1) He shall, as far as practicable, keep such animal separate from animals not so affected.

"(2) He shall, with all practicable speed, give notice to a police constable of the fact of the animal being so affected; such police constable shall forthwith give notice thereof to the inspector of the local authority, who shall forthwith report the same to the local authority and to the Privy Council.

"Where an inspector finds any contagious or infectious disease to exist in his district, he shall forthwith make a return to the local authority and to the Privy Council of the number and description of all animals being on the farm or in the shed, or other place where the disease is found, which he considers liable to be affected with the disease, distinguishing those that are healthy from those that are actually affected with the disease, and shall continue to make a

similar return on the Saturday of every week, until the disease has disappeared"

It is particularly to be observed, that the advisability of the Act only now passed has repeatedly been urged upon the authorities by eminent veterinary surgeons, and in the introductory address delivered here in November, 1866, Professor McCall said, "The cattle plague has drained the pockets of farmers and dairymen of thousands sterling, but, thank Providence, we are now free of the disease in this country. Pleuropneumonia has drained our pockets of millions of pounds, and she is still in our midst, the great enemy of our stock. And why is it so? Can nothing be done for it? Yes, much. It is a specific disease, and a disease not natural to the British Isles. Kill all foreign fat cattle where they first touch our shores, or at the first market in which they are exhibited; quarantine all foreign store stock until they shall have proven themselves to be sound; inspect our markets, excluding all diseased animals; and have our fat and store markets apart; inspect our dairies, and only license such sheds or byres as are well ventilated and thoroughly drained; determine the number of animals to be kept by the cubic and superficial capacity of the byre; isolate all infected herds or dairies where pleuropneumonia exist, treating the diseased and burying the dead; inspect all public conveyances used in the transit of live stock; regulate the number of cattle, under any circumstances, carried by steamers, paying special attention to the ventilation and standing space. "Use the means I have indicated, and other means which the plague has taught us to be of benefit in controlling contagious diseases, and if the contagious pleuropneumonia of cattle now killing our stock wholesale is not thereby completely extinguished, 'stamped out,' its operations will be so curtailed that the losses resulting to stock-holders from the presence of the disease will sit lightly upon their shoulders.

The chief, nay, almost the sole enemy to the health and lives of cattle within byres, is epizootic pleuro-pneumonia. This so-called pleuropneumonia is a highly contagious febrile disease, and in my experience contagious to that extent, that the ventilation, the drainage, and other conditions of the byres have little influence in arresting the onward march of the disease. Like *rinderpest*, once allow pleuropneumonia to have a victim within the byre, and few, if any, will escape its grasp. Do not mistake me, I am alive to the benefits of ventilation, drainage, cleanliness, and other *hygienic* conditions, which we well know assist in maintaining the standard of health. But I repeat, drain, ventilate

and improve the condition of the byres, until they become models of perfection; and yet, notwithstanding, permit a cow labouring under pleuropneumonia to enter any one of these byres, and she will, in due course of time, transmit the disease, with few exceptions, to every cow in the byre which has not had a previous attack of this same disease.

"Knowing this to be the case, and that the opinion I now tender will be found an established fact, I again repeat, the bill,* in itself, is but a half-measure; and unless the local authorities throughout Scotland supply the element which it wants, viz. a rigid exclusion of all diseased animals from our markets and dairies, it might almost as well never have passed into law. The landlords and tenants of dairies in burghs and other populous places throughout Scotland are now called upon—compelled to lay out money in improving their condition, and will only be allowed to keep a certain number of cattle within them; and if the authorities do not bestir themselves immediately, and put down those individuals who traffic in every variety of diseased cattle, thereby spreading cattle plagues broadcast over the land, ruining cattle proprietors, and feeding the community upon diseased meat and milk, I do hope the public and the press will not delay in calling them to account."

In the interests of the veterinary profession, it is a most desirable thing that intending students should have received thorough knowledge of the usual branches of a general education. It has been the custom at the Royal Veterinary College, by order of the Governors of that Institution, for several years past, to apply to all students, before entering on their duties, preliminary tests in general education, so that they might with advantage to themselves and to their avocation pursue their studies without those difficulties which a deficient education engenders, and also that they might with credit to themselves keep a position in society.

The system has worked well, and evidence of its good is daily being accumulated. The same system was inaugurated in this college at the commencement of last session, and will henceforth be continued. It is to be hoped that the trustees of the Edinburgh Veterinary College will also soon institute these preliminary educational tests. They serve to indicate whether the student really possesses those acquirements which assist him not only in his profession, but in every department wherein he may be called to enter in life.

The veterinarian of the present time is called upon to learn

* Cattle Sheds and Dairies Bill, 1866.

the lesson that his duties demand—that he shall not only be well versed in the treatment of serious disorders, and the performance of formidable operations, but that he should know well the common-sense science of every-day life. I cannot too strongly impress upon you, gentlemen, the necessity of understanding the principles of ventilation, disinfection, the chemical examination of drugs, of air, of water, and of urine. Much evil might be obviated by attention to the quality of the air and water with which we provide our patients. A few simple tests are in many cases sufficient to inform you of the purity of both the air and the water. But as these points will be fully discussed in my lectures, I will not at this time advert further to them. The present state of science affords a brilliant contrast to its gloomy condition in bygone years, when but a scanty number of its great facts were known and its principles understood. The science of to-day has unfolded to us things never dreamt of a century ago; and things which, had they been known then, would have been ridiculed into oblivion by the followers of scientific research. Many of the sciences are ardently pursued and considered as proper objects of study, not only on account of the intellectual pleasure they afford, not only because they enlarge our views of nature, and enable us to think more correctly with respect to the beings and objects surrounding us, but because they lead us to facts and discoveries of the utmost practical value and importance.

As no man can know science thoroughly, it is necessary to divide it into departments, and constitute several sciences, in order that he may grasp, in a satisfactory manner, all the facts and principles contained in them. Chemical science is of vast usefulness. This science attends the mineralogist and the geologist into the bosom of the earth and on the summits of the mountains, to develop the nature, the composition, the changes, and often the origin, as well as the future fall, of the different beds of the globe and fossils of which they are formed. To the botanist and agriculturist it opens a treasure of discoveries and prospects adapted to explain the secret of vegetation. To the physiologist it holds out the only prospect which he has of ever discovering the sources of animal life. To the meteorologist it has thrown a new light on all the great changes which take place in the atmosphere. Chemistry has now become the science most adapted to the sublime speculations of philosophy, and the most useful in all the operations of the arts. Exact in its processes, sure in its results, varied in its operations, abounding with resources from its instruments, its apparatus and its manipulations;

without limit in its application and its views, severe and geometrical in its reasoning, there is scarcely any human occupation which it does not enlighten and improve. Many other advantages arising from the cultivation of chemistry might be mentioned, and even many of the arts enumerated which depend entirely on this science for their successful application and improvement; but enough has already been said to show the great utility of chemical knowledge to all classes of the community, in every situation in life. We glory in the conquests of science; but we look upon science as merely an agent. Science may be a botanist; but *who* started the vital fluid in the veins of the herb and flower? Science may be a geologist; but *who* wrote the rock-covered page, whose hieroglyphics she would translate? Science may be an astronomer; but *who* built the worlds? *who* projected the comets, whose mysterious paths she traces? Science may be an agriculturist, she may open the earth's breast and cast in most precious seed, but if the fountain of dew be stayed, science herself will die of thirst. Be it observed, then, that science is *an agent*, not *a cause*, and that while we rejoice in its agency, we are bound to acknowledge the goodness and mercy of our Creator.

PRACTICAL HINTS FOR THE SHIPPING OF HORSES AND OTHER ANIMALS.

By George Fleming, M.R.C.V.S., &c., Royal Engineers.

I seize the first leisure moments to tell you all I can about our mode of conveying horses on shipboard. My experience, commencing with the Crimean war, was continued in North China, and lately carried on in connection with the expedition to Abyssinia. In North China I had more or less to do with the ship-fitting for the conveyance of some 3000 head of oxen, as well as about the same number of horses.

Very much relating to the safety and comfort of animals on shipboard will depend upon the fittings. These should be so arranged that the animals stand with their heads inwards, a passage between each row of stalls being left for the attendants to feed and water the horses or cattle whose heads are towards the passage.

The rows of stalls ought to extend from stem to stern of the ship. Ordinary vessels may have four of these rows on the main deck; one row on each side, the animals' tails to

the sides of the ship, and their heads inwards; then two middle rows, the animals standing tail to tail, thus having their heads facing those whose backs are towards the sides of the vessel, but, of course, with a passage between them. On the upper deck there is usually less room, and in ordinary circumstances only one row on each side can be accommodated, as space must be left to work the ship. The same arrangement of the stalls can be carried out here as on the main deck.

Four rows of stalls disposed in this fashion only require two passages, and the width of these need not be considerable—five or six feet would be sufficient.

The fittings should be very strong and securely fixed, so as not to be displaced in stormy weather. Round, perfectly smooth posts should be used, as square rough timbers are apt to cut and chafe the animals, especially in a heavy sea. Every animal should have a separate stall or compartment, little more than the width and length of its body, formed of upright posts, and horizontal front, rear, and side bars, but with no planking. The side and end bars support the animal; whereas if the stall be too wide or long the creature is likely to be thrown down in a rolling or pitching sea. The side bales or spars should be so placed as to prevent an animal falling into the neighbouring stall. There should, in fact, be two spars on each side, one about a foot and a half from the floor, the other about the height of the middle of the animal's shoulder. There should also be one or two front and rear bars—I prefer two. All these should be movable, and perfectly round and smooth. In China we found the bamboo much the best for fittings. A little wooden water-tight manger should be made to fix temporarily on the front of the breast bar of each stall. Into this, water, mash, or sloppy food can be placed when required; and it may even hold hay, though this could be more economically used by putting it in a net suspended between every two stalls to the stall-post. The attendants can supply the mangers and nets on each side of the passages without disturbing the animals, or themselves running any risk of injury. Each animal should have a strong web head-collar with two ropes fastened pretty high to the stall-post on both sides. These not only support the animal in a rough sea, but they also prevent it injuring its companions, and allow the attendants to handle it more easily if need be. Slings would not be necessary for short voyages. Stalls of this kind are excellent, and save a vast amount of room, reduce inconvenience to a minimum, and tend to obviate danger to man and beast.

It is also advisable to have a spare stall here and there to be used in case of need, although if the side, front, and rear bars are properly made and placed, it is almost impossible for an animal to get injured. Tubular iron of sufficient diameter would make good fittings, from its strength, lightness, the ease with which it can be cleaned and disinfected, and from its incombustible nature. The mangers also might be made of malleable iron, enamelled inside.

To prevent slipping we used to employ wooden battens on the decks, but these were very objectionable and almost useless. In China I recommended that the decks of the sailing ships should be well covered with sea-sand, and on board steamers that the ashes from the engines should be used. These answer admirably in many ways, but particularly in preventing slipping, and absorbing the urine, &c. Lime should not be used, as it injures the horn of the animals' feet.

The mangers or troughs, when they are attached to the front bar, can be rapidly supplied with water by a hose-pipe. This saves much time and trouble.

All fittings should be as simple as possible, and yet strong. The side bars of the stalls should be made easy of removal when required, so that the animals can be moved up to the stalls, and packed in one after another, or moved out in the same fashion without interfering with the front or rear bars. By having the front bars also movable any animal can be transferred from one compartment to another, should occasion require, without disturbing its neighbours.

The amount of cubic space to be allowed each animal (be it horse or ox) on the main or lower deck is not easily defined; and even if it were the exigencies of ship transport and its expense cannot always be made subordinate to those sanitary rules observed in well-managed stables or cow-sheds. The duration of the voyage, the season, heat of the weather, means of ventilation, &c., should be taken into account. It would be well if the space for each animal was never reduced to less than 300 cubic feet.

Besides the ordinary means of ventilation, it is very desirable that some accessory method should be introduced to be brought into operation when these fail or are diminished; as in stormy weather when the hatches are battened down, or in sultry weather, or when the ship is not in motion. Fanners driven by the engines of the ship, if it be a steamer, would answer, I think, for this purpose.

I always found the damp generated on the main and lower decks very injurious to the animals, especially when the tem-

perature was high and the ventilation defective. This can be remedied by having perforated trays filled with chloride of calcium, or some other substance having an affinity for water, placed here and there on the deck.

Water ought to be supplied to the animals twice or even thrice a day in summer. Care should likewise be taken to have the manger suspended or attached to *upper front bar*.

Odourless disinfectants should be used.

These things are what I should propose for a horse-transport service, but they are not usually furnished. In war time everything is so hurried, ships of every conceivable build are chartered, and men frequently fit them up who have not the remotest idea of what is needed.

When ships are particularly employed in regularly carrying animals, everything ought to be simple, effective, humane, and profitable.

Sheep should be carried in pens containing only a limited number. Racks and water-troughs should be fixed around these, near to, but not on the deck.

With sheep, and no doubt also with cattle and horses, I think it would be an excellent plan to make them stand on wooden gratings raised an inch or two from the deck. Through this the urine and fæces would pass, the feet would be kept clean, the animals would not slip so readily, and the ship could be more easily purified and the decks flushed with water. It would, I am certain, be a great improvement, particularly if gutters to receive the fluid manure were made in the deck and led to the scupper-holes, where fluid could be discharged into the sea.

The embarking and disembarking of cattle and sheep is, I suppose, already as perfect as it can be. With horses these are sometimes most important operations, and are not always well conducted.

ANCIENT VETERINARY PRACTICE.

By R. H. Dyer, M.R.C.V.S.

The work from which these extracts are taken was published about two centuries ago, which would warrant the supposition that it is not in the hands of many members of the profession. Although 'Markham's Masterpiece' was commented upon by me some time since (in what has been deemed sarcastic criticism, when speaking of laminitis), it was not

my intention to condemn *in toto* everything recommended by its author. To confess the truth, the author must have been a man of no ordinary capacity to have produced such a work. Further, I do not hesitate to assert that much of what he has written proves him to have been a man of deep thought, and that his experience must have been ample and varied. Moreover, many of his instructions might with advantage be attended to in the present day. With all the respect, however, I hold towards the memory of such a man as Markham—for it cannot be denied he was a great man in his day—I cannot avoid finding fault with some of his theories and practices. When declaiming against his method of treating acute founder, I did so in all sincerity, because I believed there was much unnecessary cruelty practised. With a view to put myself in a proper position, in regard to my "sarcasm," I will, with your permission, make a few extracts from the work, that the readers of your Journal may judge for themselves.

Acute founder.—"The horse goeth crouching, and drawing all his four feet within the compass of a peck almost, and will stand so fearfully as though he stood upon needles.

Cure.—When a charge for which a prescription has been given has been placed upon the loins, the author directs that another charge should be employed as follows:—"You shall take two long linen rags dipped in the same charge, with which, so dipped, you shall garter the horse above the knees of his fore legs somewhat hard; and likewise with two other rags, so dipped, you shall garter him hard above both his hinder hoofs also; that done, cause him to be walked upon the hardest ground you can for the space of two or three hours. If he be loath to go, as commonly he will be, let one follow him, and beat him with a stick, or wand to force him to go; then, after his walking, let him be set up and tied to the rack, that he lie not down, and there let him rest two or three hours, which done, let him be walked again two or three hours more as aforesaid; then set him up and let him feed, and when you give him drink, which you may do within two or three hours after his feeding, let it be a warm mash of malt and water; then let him feed a little after it; then ride him a little; and if you let him stand an hour or two in a pool or standing water up to the belly, and one upon his back, it is good also, and after that ride him again a little; then let him be set up, well dressed and covered, so by little and little ride him a day or two, and then you may boldly journey him; for *it is riding* that brings the horse to the

perfectness of his feet, and you shall find your horse as sound as ever he was."

Again, "if you take the horse in hand (the shoes are *not* to be removed) to cure within twenty-four hours after he is foundered, he will be sound again within twenty-four hours after; so if he go longer, the cure will be longer in doing."

It will be seen, on reading the above extract, that "riding" is the chief cure of acute founder.

Wrench of the Shoulder.—"Make him (the horse) draw a plow every day, two or three hours at the least, to settle his joints, for the space of three weeks or a month, and if anything will help, these two last remedies will set him sound."

Of the Shoulder-pight (*Dislocation*).—Having directed the horse to be cast, he says, "Loose the pastern of the sound leg and with a cord, before you let him rise, *tie the same leg* to the foot of the manger, so short as in his rising he shall be forced to hold his leg before him, for fear of putting his shoulder out of joint, and then let him stand so tied for the space of three days; and presently, when he is up, burn all the point of the shoulder with a hot iron, drawing it checquer-wise a full *foot* square at the least."

Swelling of the fore legs after great labour.—"Take up the great vein above the knee on the inside . . . . . and it will take away the swelling."

To preserve hoofs.—"If a horse stand upon his own dung (being very well watred), so he do not lie upon it, it is most soveraign for the preservation of hoofs."

How to make a horse that tires or is restiff to go forwards.—"Make a running snickle of a good stout cord, and put it about his cods and stones, in such sort that it may not slip; then you shall draw the rest of the cord between the horse's fore-legs, be sure to hold the end of the cord in your hand as you sit in the saddle, then ride the horse forward, and when he beginneth to grow restiff or to stand still, then pluck the cord and cramp him by the stones, and you shall see immediately he will go forward."

There is but one more extract I will trouble your readers with upon this occasion.

How to prevent a Horse from stumbling.—"With a lancet or a sharp penknife slit the skin from his nose to the upper lip, that is, downright, just between his nostrils, about two inches, which when you have done, part it as wide as you can, and under it you will find a *red film*, or second skin; that likewise cut and part, beneath which you may discern a flat, smooth, white sinew, the which take up with your

cornet horn point, and twist it round about; after a little space twist it again round, so another time; then have regard to his legs, and you shall see him draw by degrees his hinder legs almost to his forelegs, the which, as soon as he has done, with your lancet divide the sinew at the part which grows to the lip, the which as soon as you have effected, untwist it and it will shrink up into the head, and then his legs will withdraw back again; for note, that this sinew is the cause of his stumbling, and that it goes quite through his body, and spreads itself into his two hinder legs; after which you must close up the slit, and put into it fresh butter, and a little salt beat fine; then take a cere-cloth made of burgundy pitch, or stock pitch, and lay upon it, and afterwards you may trust your horse for stumbling. This is a rarer secret, known by few, but worthy to be observed in any the like occasions."

Many other such absurdities could be transcribed if it were required. The few chosen will, I think, exonerate me from any censure I may have passed upon the remarks which have reference to acute founder.

Without attempting to enter into a discussion upon the merits of Mr. Broad's heavy shoe in chronic laminitis, I may observe that it has for many years been my aim to place as large a shoe upon such feet as they could conveniently carry. Small and light shoes are not only objectionable, but prejudicial in most cases. I have always believed there is more concussion upon the foot when guarded by a light narrow shoe than when a large heavy one is employed.

In concluding this paper I feel that I am intruding on your kindness in asking you to give it place in your pages, to the exclusion, it may be, of much more valuable matter. As before stated, my object is to free myself from unjust censure.

THE PRINCIPLES OF BOTANY.

By Professor James Buckman, F.G.S., F.L.S., &c. &c.

(*Continued from p.* 721.)

In pursuing the history of the algal alliance in relation to disease, we would now direct attention to some specimens of Confervæ, which have been examined in connection with diphtheria, in connection with forms obtained from a healthy mouth.

Alga, from the mouth and pharynx.
A. *Leptothix buccalis*, from the tongue.
B. Specimen in diphtheritic exudation,—$\frac{200}{1}$.

The above figures are from Harley and Brown's 'Microscopic Anatomy' before cited, and they are valuable as showing how common these are in different secretions, both in healthy and diseased subjects, and how much they appear to be alike under both conditions; at the same time it must be recollected that these inquiries are as yet quite in their infancy; with greater knowledge of these appearances as they arise in man and the inferior animals, it is just possible that minute specific details may be present, so as ultimately to enable us to detect differences in health and disease.

We are informed that plants of these lower tribes were constantly found in the mucus of the intestines and stomach of cattle in the time of the cattle plague; but then it may also be stated that, as yet, little can be gathered in the way of evidence of diseased action, when either the same forms or

those too closely allied to be as yet distinguished are often met with where disease is not present.

It will be right in this place to glance at some of the confervoid plants which occur in different chemical solutions; thus, if mucilage of the quince-seed be set aside for a time, it becomes the home of a plant, so solutions of tartar emetic, solutions of mixed polychrome and sulphate of copper, of phosphoric acid, and others, on being exposed, soon become filled with what, to the naked eye, appear like masses of jelly or agglomerated fibres of cotton. These, on being placed under the microscope, present us with evident signs of vegetable structure; but whether such minute plants are to be regarded as the spawn or mycelium of different moulds, or as true algæ, it is at present difficult to determine.

We may here notice that several species of marine algæ are used as food, such as the

Porphyra laciniata—Laver.

Ulva latissima—Broad green laver.

Laminaria digitata—Sea-girdler.

Alaria esculenta—Honey-ware.

Of these the two former are Confervæ, but the latter are Fucoids, and only here placed because they are sometimes referred to under the same designation. The similarity in structure to that of the Sarcina will be gathered from the following description:—Under the microscope the whole form appears to be divided into squares in the manner of a tesselated pavement, and within each square are four purple granules or spores, which constitute the fructification and the whole colouring matter of the frond. Abundant on all our shores, this plant is pickled with salt, and sold in London as laver. The London shops are said to be supplied with it from the coast of Devonshire. When stewed it is brought to the table, and eaten with pepper, butter, or oil, and lemon-juice or vinegar. Some persons stew with leeks and onions. It is generally taken as a luxury; but it might be employed with advantage by scrofulous subjects, as an alterative article of diet. In the absence of other vegetables, it might be valuable as an anti-scorbutic to the crews of our whaling vessels cruising in high latitudes, where every marine rock at half tide abundantly produces it.*

The *Fucaceæ*, or sea-weeds, form a large and very important class of plants, which are distributed in the marine waters of all parts of the world they are described as cellular or tubular algals, propagated by spores (endogenous cells), contained in superficial, often bladdery (*utricles*) cells, produced singly

* See Pereira's 'Materia Medica.'

out of endochrome, consisting of a simple nucleus clothed by its proper cellular membrane (*epispore*), and discharged by the opening of a transparent mother-cell (*perispore*).

The fructification of the Fuci will be found to be variously situated on differently formed fronds, and though some of the species are many yards long and rounded like a whip-handle, and divided into thong-like processes, and called sea-whips; while others are so small and delicate, both in form and colour, as to invite the attention of the most indifferent visitor at the sea-side; yet the nature of a "sea-weed" is so well understood, that a farther description would here be useless.

Turn we, then, to an account of the general properties of the tribe. Some species, especially of Chondrus, have been used as medicine, and even as food, for both of which purposes it is collected in large quantities, particularly on the west coast of Ireland; it has hence obtained the name of carrageen, Irish, or pearl-moss, though it is found more or less on most sea-coasts, both of Ireland and England. Hooker describes four species, while Mr. D. Turner enumerates no less than nine varieties of the common and more generally used species *Chondrus crispus*, or curled Chondrus.

In order that the nature of its properties may be the better understood we quote the following analysis of its composition:

1st. By Herbenger.

Vegetable Jelly (Carrageenin)	79·1
Mucus	9·5
Two Resins	0·7
Fatty Matter and Free Acids	traces.
Chlorides of Sodium and Magnesium	2·0
Fibre, Water, and loss	8·7
	100·0

No traces of iodine or bromine could be recognised, in which matters this analysis differs from the following:

2nd. By Feuchtwanger.

Jelly { Pectin (Carrageenin), a large portion.
Starch.
Oxalate of Lime.
Compounds of Sulphur, Chlorine, and Bromine.
No Fungic, Boletic, or Lichenic Acids.

These variations in the chemical composition of carrageen moss are highly interesting; and as they prevail in other species of sea-weeds to a like extent, we quote the following ash analysis of *Fucus vesiculosus* in illustration of what is to follow:

TABLE *of the Composition and Proportion of Ash of Fucus Vesiculosus of different localities.*

	Mouth of the Clyde.	Mouth of the Mersey.	North Sea.	Den-mark.	Green-land.	Mean.
Potash . . .	15·23	—	17·68	9·03	17·86	11·96
Soda . . .	11·16	15·10	5·78	7·78	21·43	12·25
Lime . . .	8·15	16·77	4·71	21·65	3·31	10·92
Magnesia . . .	7·16	15·19	6·89	10·96	7·44	9·53
Chloride of Sodium . .	25·10	9·89	35·38	3·53	25·93	19·82
Iodide of Sodium . .	0·37	—	0·13	—	—	0·25
Phosphate of Iron and Phosphate of Lime .	2·99	—	5·44	9·67	10·09	5·64
Oxide of Iron . .	0·33	4·42	—	—	—	0·95
Sulphuric Acid . .	28·16	30·94	23·71	26·34	13·94	24·62
Silica . . .	1·35	7·69	0·28	11·04	—	4·06
	100·	100·	100·	100·	100·	
Percentage of Ash (calculated dry) .	16·39	13·22	20·56	—	16·22	16·60

These tables show us distinctly how some sea-weeds have come to be used as dietetic medicines, while others are employed for the production of some of our most important remedial agents and highly interesting chemical principles.

Returning to the carrageen moss, it has been much employed as food, especially in periods of famine; but it will at once be seen that it is altogether deficient in muscle-making matter. Pereira says of it—

"Carrageen moss is nutritive; its mucilaginous matter acts as an element of respiration, while its inorganic constituents (phosphate of lime, potash, salts, &c.) may also serve some useful purpose in the animal economy. It is generally regarded as being readily digestible. Medicinally it is emollient and demulcent."*

It has been employed in the form of mucilage decoction in milk called *lac analepticum*, and in jellies, in all of which it may be flavoured with lemon, orange, or spices; it has been recommended in pectoral diseases.

A decoction of carrageen moss has been recommended in the feeding of calves, and it may be as useful as linseed in supplying to skim-milk, where butter is an object, the respiratory elements reemoved in the fat of milk.

The Ceylon moss, *Plocaria candida*, imported from the

* The Chinese birds' nest, a great delicacy, is constructed by swallows from sea-weed, probably, among others, from a species of Chondrus.

islands of the Indian Archipelago, have much the same properties as the carrageen.

Mr. Crauford says, "It is exported to China by the islands of the Indian Archipelago, and forms a portion of the cargoes of all the junks, the price on the spot where it is collected seldom exceeding from 5*s*. 8*d*. to 7*s*. 6¾*d*. per cwt. The Chinese use it in the form of jelly with sugar, as a sweetmeat, and apply it in the arts as an excellent paste. The gummy matter which they employ for covering lanterns, varnishing paper, &c., is made chiefly, if not entirely, from it."

As a rule the fuci contain important chemical matters, and hence burnt sea-weeds are employed for the production of both potash, soda, and the highly valuable element iodine.

"Vegetable ethiops," prepared by incinerating *Fucus vesiculosus* in a covered crucible, was at one time used in the same manner as burnt sponge. According to Professor Lindley, whatever medical value they possess seems to be owing to the presence of iodine, which may be obtained either from the plants themselves or from kelp. French kelp, according to Sir Humphrey Davy, yields more iodine than British; and, from some experiments made at the Cape of Good Hope, *Ecklonia buccinalis* is found to contain more than any European sea-weed. Iodine is known to be a powerful remedy in cases of goître. The burnt sponge, formerly administered in similar cases, probably owed its efficacy to the iodine it contained; and it is also a very curious fact that the stems of a sea-weed are sold in shops, and chewed by the inhabitants in South America, wherever goître is prevalent, for the same purpose. The remedy is termed by them "palo coto" (literally goître-stick), and consists of fragments of the *Sargassum bacciferum* and *Laminarias*. Iodine is principally obtained in Europe from the ashes of the *Fuci vesiculosus*, *nodosus*, *ceranoides*, and *serratus*.*

Iodine is much employed in veterinary treatment, especially in the forms of biniodide of mercury and iodide of potassium; and its effects in glandular tumours are said to be very marked.

In Sweden and Norway many sea-weeds are used as food for stock, for which it is probable that they may be employed to profit in this respect at home, to which end, as their quantity is so large, they deserve a more extended study and examination than they have yet received.

As manure sea-weeds will always be of value, if only for their contained alkalies, for which our table may be consulted, and in so employing them it will be seen that their

* See the 'Vegetable Kingdom.'

relative value varies considerably, and hence, when they have to be paid for, an analysis would appear to be advisable.

From these remarks it will be seen that we have here an abundant source of dietetic and medicinal matters, so much that it seems more than probable that both the human and veterinary schools of medicine might profit by a more extended examination of these curious, interesting, and ever present marine plants.

(*To be continued.*)

PRACTICAL VETERINARY SCIENCE.

By a "Working Practitioner."

(*Continued from p.* 723.)

Meditating upon the efficiency of the individuals who at present represent the veterinary profession, I may imagine that I am standing upon a watchtower, looking down upon a large number of persons engaged in a particular employment. Some of them, I perceive, perform their work with dexterity and ease; while the work itself, both in its substantiality and high degree of finish, bears evidence of a practical and skilled workman. Others, I perceive, perform their work awkwardly and inaptly, while their work is defective, imperfect, and mutilated, denoting inexperience and lack of skill. Is it not self-evident that it is a matter of great and weighty importance that every individual should be so trained as to belong only to the first class? It is to effect such a consummation that this inquiry has been instituted, and these pages written.

We are brought, therefore, to consider in the next place the benefits to be derived from the teaching; as well as the importance of the knowledge acquired at the veterinary colleges, and also the period of attendance which is required of the students. A youth enters college for the purpose of gaining a special kind of knowledge which is intended to render him a more useful member of society, and to make him better fitted to satisfactorily discharge the great duties and responsibilities of a veterinary surgeon. He does not go there expressly to be taught to be a gentleman, or to be taught accomplishment, or to have his education finished. Nothing of the kind. He enters college for the precise and definite purpose of gaining a knowledge of the science of his profession—the theory of the veterinary art. This may be said to consist in his being taught anatomy, physiology, pathology,

chemistry, and materia medica. If these subjects are honestly and thoroughly inculcated into the mind of the student who possesses good common sense and a fair English education, presuming also that he has worked practically at his profession, the country will have in him the most competent and efficient man it can get for a veterinary surgeon. Depend upon it that men of this kind, they and no others, will beat the empiric entirely out of the field. They give society "money's worth for money." They know the worth of science, and how to apply it, and how also to adapt themselves to the requirement not only of their patients, but to the district in which they practise, as well as to the individuals who employ them. In short, they possess tact as well as knowledge.

Admitting most unreservedly as I do that the scientific instruction imparted at the college is essentially necessary to complete the education of the veterinary surgeon; also that the soundness of the principle that no man should be allowed to practise, or undertake the grave and important duties of a veterinary surgeon, unless he has been thoroughly instructed in the branches of knowledge alluded to, and is in possession of a diploma testifying to the fact, still I deem it not out of place to inquire into the system of education for the purpose of determining, if possible, whether there is too much or too little of mere theoretical knowledge inculcated. I know as a fact that attendance for two sessions at college is all that is required. I know also that some sharp, well-educated, and intellectual young men—and there are many such—can acquire all the knowledge necessary to pass their examination in two sessions; and that if such youths have seen practice, or served an apprenticeship so as to become familiar with the business part of the profession, two sessions at college is ample time, and that to compel them to stay longer would be a great injustice. But if a pupil has not seen practice, perhaps never seen a sick or lame horse in his life before entering college, I would make it imperative, however intelligent or educated he may be, that he should stay a third session, and that this extra time should be entirely devoted to the obtaining of practical knowledge. I hold it to be an impossibility for any man to become a successful veterinary surgeon without practical knowledge. He must gain this either before, or else after he obtains his diploma. If he has to gain it afterwards I say it is placing him in a false position; it is tantamount to a fraud upon society to represent him as a man competent to practice, when in reality he is only gaining experience at the expense of his employers.

On the other hand, those who do not happen to be blessed with a bright intellect, or to possess the advantages of a good education, who cannot so readily understand the lectures, or the technical terms used (and there are many such), two sessions is not sufficient to enable them to acquire a full knowledge of the principles of veterinary science, although they may have seen practice, or served an apprenticeship.

Although I most emphatically maintain that it is quite right that a student should be made to know everything that is taught at college, still every experienced practitioner will bear me out when I say that, as he becomes fully engaged in general practice, much of what is taught is not brought into requisition, consequently it soon falls into disuse, and is forgotten. I question very much whether any one in private or general practice could get a living by his profession, much less accumulate a sufficiency for old age, if he conducted his business and adopted rigidly the system or method of treatment adopted at our colleges. He may be a skilful anatomist, even a good physiologist and chemist, and still not be able to earn his living by his profession. To these acquirements may be added industry and sobriety, and a high classical education, and still he may be far short of being a good and successful practitioner.

It will now be seen that I propose that the student shall possess—

1st. A good substantial English education.

2ndly. A practical education, such as is acquired by an apprentice.

3rdly. A scientific or theoretical education.

These are the three essentials to make a useful veterinary surgeon. They are three distinct branches of education. The first must be acquired at school. It cannot be acquired at veterinary establishments, nor at college.

The second must be acquired at the practitioner's establishment, and by working amongst patients for several years. It cannot be acquired either at school or at college.

The third must be acquired at the college. It cannot be acquired at school, nor at the practitioner's establishment. All these are essentials, and must, of course, be insisted upon.

If the Governors of our colleges and those in authority will only come to an understanding upon these points, and carry them out with fidelity, they will inaugurate a new era and confer a benefit upon Society, which posterity will bless them for. Our profession may then expect to occupy a higher station, and be more highly appreciated, because it

will have been rendered more useful. I repeat that society, true to itself and to its own interests, would then give the cold shoulder to the unqualified man, and show for the profession an honest preference, not by the arbitrary force of law, but through its intrinsic worth. By these means we should attain our purposes far more effectively than by any Act of Parliament, for we should secure a greater and firmer hold upon society than any act of legislation could impart. But let us in the mean time keep our eyes open, and attend to our own interests on every possible occasion. This year, through the care and attention of a Simonds and a Wilkinson (who are often anxiously watching the interests of our profession whilst the great body of us are in an apathetic state), we got ourselves acknowledged in an Act of Parliament, by being included amongst the enlightened and privileged class to dispense poisons. I allude to the Pharmacy Amendment Act (April 29th, 1869), the Bill for which was prepared and brought in by Lord Robert Montague and Sir Graham Montgomery. Next year we hope to be equally fortunate in getting our title and profession recognised in the Juries Bill, by which we shall be exempt from attending upon juries. By thus carefully watching and taking advantage of every opportunity as it presents itself, we may, piecemeal, gain much, if not all, we require from Parliament.

The question of a preliminary or initiatory examination is now in a fair way of being satisfactorily settled. The practical examination for a diploma I trust will soon follow. The Court of Examiners to be exclusively composed of veterinary surgeons, and these appointed for five or ten years, instead of for life, will in due time follow. Each and all of these matters, along with many others, will, I hope, be attained as soon as our profession is sufficiently advanced to be deemed worthy of them. Then, but not until then.

SCROFULOUS DEPOSIT INVOLVING THE GENERATIVE ORGANS OF A YOUNG SHORT-HORN COW.

By John Gofton, M.R.C.V.S., North Shields.

On 25th of August last, I was requested to see a young short-horn cow, reported to be suffering from strangury and bloody micturition. She had calved six weeks previously, and had afterwards done well, with the exception of the morbid con-

dition referred to. The owner expected these symptoms would "wear away," and only got anxious about the case when he found, on the contrary, that they gradually increased in severity, and that the animal's appetite began to fail, and the secretion of milk to considerably diminish. On visiting the case, I contented myself in the first instance by using palliatives, consisting chiefly of aperients, followed by opiates, and the application of a sheep skin to the loins. On the 1st of September I again saw my patient, and found little or no improvement. She had been repeatedly trying to urinate without success, and consequently I passed the catheter, which gave exit to a quantity of thick, bloody urine. Its expulsion was succeeded by much straining. On making an examination *per vaginam* I found a large mass, apparently involving the bladder. Suspecting the existence of a malignant tumour, I gave an unfavorable prognosis. Notwithstanding this, the owner requested me to do what I could for the relief of the animal. Trial was given to tincture of aconite, with opiates and hot fomentations, externally applied. At the end of a few days the animal experienced so much relief as to be enabled to urinate without pain. The urine, also, was free from blood, or sanguineous deposit. The appetite was much improved, and the milk increased. On rising, also, the animal would stretch herself as in health. I ordered a continuance of the fomentations, and gave tonics, with Liq. Ferri. The owner, however, thinking that she had got better, and being busy with his harvest, neglected to continue the treatment, and on the 15th of September I was again summoned to the case. All the former symptoms were much increased in severity. Similar treatment was adopted, but to no avail, as the animal steadily got worse, up to the 26th, when she died. The *post-mortem*, which had to be made in the knacker's yard on the following day, showed that the bladder, uterus, and contiguous parts were much thickened and embedded in a hard and yellowish fatty-like mass. The lining membrane both of the uterus and bladder was also much congested; and, in addition, that of the latter was ulcerated. The intestines were spotted with dark patches, and the kidneys considerably enlarged, and pale in colour. The peritoneal cavity contained nearly two gallons of serous fluid. I send you per rail the parts more immediately involved, as roughly taken out by the knacker, and shall be glad to have your remarks on them. Should you deem the case of sufficient interest, perhaps a place may be assigned it in the *Veterinarian*.

[An examination of the parts sent, which consisted chiefly of the vagina, showed that an extensive deposit of scrofulous matter had taken place on the outer wall of this canal. Its lining membrane was also much thickened, and remarkably corrugated. The contiguous lymphatic glands were involved in the morbid deposit. Beyond this little was to be observed, in consequence of the decomposed condition of the specimen when it came to hand.—Eds.]

Pathological Contributions.

CATTLE PLAGUE.

According to the latest intelligence the cattle plague was still prevailing in several parts of Galicia, Buckowina, and Roumania. In Hungary the disease had not yielded to the means employed for its eradication in the district of Pesth, nor did it appear likely to do so for some time to come. The plague had also broken out in some villages on the Bosphorus and assumed alarming proportions.

It is officially reported that the disease has been stamped out both in East and West Prussia; but down to the time of our last information the Netherlands government had not relaxed their precautionary measures against its introduction.

From Asia Minor the intelligence is distressing. Two diseases of cattle—one of which is doubtless the plague—are said to be raging over an extent of country fully 200 miles in length, and destroying the animals by hundreds. Fully a fourth part of the cattle had already been swept away by these pests. It is reported that every animal affected with one of them dies, but that several survive the attack of the other. The latter named malady would appear to be allied to diphtheria, as the animals are said to die from suffocation produced by fibrinous effusions into the fauces and larynx.

PLEURO-PNEUMONIA.

Both in Great Britain and Ireland pleuro-pneumonia appears to be on the increase, and to have assumed a very virulent form. In one week in October no less than 146 fresh outbreaks were reported by the inspectors to have occurred in Great Britain. Much energy is required on the part of the local authorities to subdue the disease.

ECZEMA EPIZOOTICA.—FOOT AND MOUTH DISEASE.

The present outbreak of this disease bids fair to prove the most extensive, if not the most fatal, which the country has experienced since the original appearance of the malady in 1839. In the third week of October sixty-eight counties were affected in Great Britain; the centres of disease numbering upwards of 3000, the new ones, or places reported for the first time, being about 850. The malady has also shown itself in Ireland, having been conveyed into Antrim County, and to Newry, Co. Down, *via* Southampton, by some Channel Island cattle. It has likewise been introduced into the Isle of Wight.

The accounts which reach us from the Continent, show also a most serious state of things. Schleswig-Holstein, Hanover, Mecklenburg, Prussia, Holland, Belgium, and France, are seats of the disease, and more recent reports speak of its spread to Bavaria and other German States. Sheep and pigs are affected to a great extent, and during the past month few cargoes have arrived at the port of London in a perfectly healthy condition.

In this country, sheep and pigs, and also ordinary farmyard poultry—fowls and turkeys—in many places, have suffered considerably. In this we have a repetition of the state of things which accompanied the outbreaks of 1839-40, '45, '50, and '61-62.

Rumours have been current of the malady having shown itself in the human subject. Among other cases of the kind, mention may be made of a farmer's family, residing in Surrey, consisting of himself, wife, and daughter, having suffered from the disease. In these cases, vesicles existed on the lips and tongue, and were associated with considerable fever, and acute pain of the head and back, lasting ten days before recovery was complete.

SHEEP DISEASE IN SOUTH AMERICA.

From Monte Video information has been received that the sheep farmers are sustaining ruinous losses from the prevalence of a disease which is destroying thirty per cent. and upwards of their flocks. The malady is supposed to owe its origin to the long continued rains of last summer and autumn, and the cold of the winter. It would appear from this that

the disease is probably the one which is here known as "*the rot.*" These losses fall the more heavily on the farmers in consequence of the diminished price of wool. It is said that wool is nearly fifty per cent. cheaper than it was four years since.

SCAB IN SHEEP.

During the past month several seizures have been made in country markets of sheep affected with scab, which would seem to show that this disease is very widely spread. Convictions for exposure of the sheep for sale have followed in these cases. In one instance a farmer in Lancashire has been fined for not giving notice of the existence of the disease in his flock. On the Continent the disease continues to prevail in many cases, and particularly in the district around Stettin.

TYPHUS IN PIGS.

This disease has manifested itself in three or four counties during the last month. We have received reports of its appearance in Middlesex, Berkshire, Huntingdonshire, and Norfolk, in a form so virulent as to destroy the animals attacked in the course of twenty-four to thirty-six hours. In most of these cases the remaining animals of the herd have been slaughtered; the healthy being sent into the dead meat market.

Facts and Observations.

Cohesion of the Blood-Corpuscles.—As to this singular phenomenon, Professor Norris, of Birmingham, gives the following account in a paper quite recently communicated to the Royal Society. "My idea of the blood-corpuscle is that its contents are something essentially different, so far as cohesive attraction is concerned, from the liquor sanguinis, that is to say, not readily miscible with liquor sanguinis. This is, of course, self-evident, if, according to some modern views, we regard the corpuscles 'as tiny lumps of a uniformly viscous matter,' inasmuch as such matter must be insoluble in, and immiscible with, the liquor sanguinis. The explanation is equally easy, if we accept the old and, I believe, the true view of the vesicular character of these bodies, as we have only to assume that the envelope is so saturated with the corpuscular contents as practically to

act as such contents would themselves act, *i. e.* to exhibit a greater cohesive attraction for their own particles than for those of the contiguous liquid. The cohesive power of the blood-corpuscles varies with varying conditions of the liquor sanguinis, and this is doubtless due to the law of osmosis; for we can readily imagine that when the oxosmotic tendency was in excess the corpuscles would become more adhesive, and, on the contrary, when the endosmotic current prevailed, less so. In any case the increased cohesiveness will be due to the increased extrusion upon the surface of the corpuscular contents. All, then, that is required in the case of the blood-corpuscles is a difference between their liquid contents and the plasma in which they are submerged. That this difference is not so great as between the liquids used in these experiments is probable, but it must also be remembered that the attraction is not so powerful. The power required to attach the blood-corpuscles together is, on account of their exceeding minuteness, extremely small, as they are thus so much more removed from the influence of gravitation, and brought under that of molecular attraction."—*Popular Science Review.*

Origin of the second Cervical Vertebra.—We learn from the *American Naturalist* (June) that a very important memoir on this subject has been published in a recent number of the *Proceedings of the Swedish Academy*, by Professor Kinberg. This origin he refers to the fusion of two vertebræ together. In mammalia, generally, says Dr. Lutken, who reports upon it, the odontoid process is separated, during a longer or shorter period, from the true *corpus epistrophæi* by two intervertebral epiphyses in the same manner as in all other ordinary distinct vertebræ; the odontoid process has parts answering to the arms, which are, however, not developed into true arches, but analogous to that of certain caudal vertebræ; the epistrophæus has, of course, two corpora fused together like the sacral vertebræ, and, consequently, draws its origin from the connection of two primordial vertebræ.—*Ibid.*

Horse-flesh.—The consumption of this variety of food appears to be daily increasing in France. In 1867, the quantity consumed in Paris was 816,000lb., and in 1868, 968,400lb., being an increase of 152,400lb. in the year. In the provincial towns in the provinces, at Rouen, Marseilles, Toulon, Bordeaux, Rheims, Troyes, Charleville, and Sedan, butchers' shops for the sale of meat are doing a good business.

THE VETERINARIAN, NOVEMBER 1, 1869.

Ne quid falsi dicere audeat, ne quid veri non audeat.—CICERO.

IRELAND AND ITS CATTLE EXPORTS.

GREAT BRITAIN being to a considerable extent a manufacturing country, agricultural live stock cannot be said to be produced in sufficient quantity to supply the amount of animal food required by its meat-consuming population. Recourse has, therefore, to be had to Ireland, as well as to most of the European continental states, to make up the deficiency. Ireland is not, as yet,—probably from being deficient in coal—in the ordinary sense of the term, a manufacturing country. Its manufacturing industry is on a very limited scale compared with the number of its population, and, as such, one of its principal trades consists in the export of live stock, chiefly cattle, to Great Britain. Until recently, indeed up to the time of swine having become so scarce in Ireland from the ravages of infectious and contagious diseases, pigs also formed a staple commodity of its export trade. Pigs were the live stock by which the Irish cottier-tenant principally paid his rent, and it is to be feared that many an eviction has taken place within the last two years in consequence of inability to pay rent, arising from the mortality among swine—a mortality which probably would have been prevented had proper means been taken to arrest the spread of infectious and contagious diseases among animals in general. Such inaction, however, on the part of the authorities would appear not to be easily converted into a political grievance, and hence it is silently passed over by professional agitators.

No deficiency, however, of legislation relative to contagious and infectious diseases among animals can be said to exist in Ireland. By the Contagious Diseases Animals Act of 1866, and the several Council Orders which have been issued under it, ample provision has been made, if carried into effect, for accomplishing the desired end, but these

regulations are rarely or never acted upon. The local authorities can hardly be said to be the cause of this inaction, as the police in Ireland are not, as in England, under the control and at the disposal of the local authority of each separate county or borough. In Ireland, with the exception of the metropolis and its environs, the police throughout the entire country constitute one body with but one central controlling head, which is the Government, acting through the medium of the Inspector General of Constabulary. The carrying out of council orders here, for the prevention of infectious and contagious diseases among animals, may be said to be, to a great extent, a magisterial duty, and as such it became necessary in this country to vest the power of action in local authorities. In Ireland the case is different; the executive government there has all power of action, as well as the entire control of the machinery —the police—in its own hands, but it would seem that it hesitates to act. The English plan might be thought to be ineffective, being incompatible with unity of action throughout separately administered localities; yet, as matters have turned out, it is one which, with all its acknowledged and insuperable objections, has been more practically useful in its results than the more perfect system applicable to Ireland. The want of prompt action in Ireland is in clearly proving detrimental to the live stock property, not only of that country, but also of Great Britain, by facilitating the almost daily exportation of animals from infectiously diseased herds into England and Scotland. Even animals coming from healthy herds are likely to prove a source of mischief, travelling as they do in the holds of vessels and on railways with infected cattle.

Irish stock exporters are loud in their protests that there is at present, and has been for the last two years, an unprecedented rareness in the occurrence of infectious or contagious diseases among cattle in Ireland. On the contrary, it is well known that pleuro-pneumonia continues to extend, and that even in the best managed herds it has assumed a malignity unknown for many years, the animals affected often dying in from two to four days from the first appear-

ance of illness. Milch cows especially fall early victims to the malady, and in many cases the serous membrane of the chest is found to be scarcely affected, the force of the disease having been directed principally upon the pulmonary tissues, which, after death, present appearances closely allied to hepatization from acute inflammatory action. There seems to be less disposition to effusion of lymph than in the ordinary form of pleuro-pneumonia; the symptoms also bear a very close resemblance to, if not an absolute identity with, epizootic typhoid pneumonia. This disease is particularly prevalent in the vicinity of Dublin, and many animals in the early stages of it are to be met with in the Dublin old Smithfield Cattle Market. In this market store stock is purchased each Thursday for exportation to Great Britain, and, as we are informed, no sanitary supervision whatever is exercised over the sales.

This disease of the lungs is now supplemented by an outbreak of the foot and mouth disease in Ireland, which, singularly enough, was introduced two days before the passing of the Order of Council forbidding importations, except from Spain and other uninfected countries. A state of things, therefore, exists which makes it absolutely necessary that means be at once taken by the executive to prevent further injury being done the British farmer through the Irish cattle exports. He has a right to demand that at least a strict supervision over the Dublin market shall be instituted, and that Portal examination, which proved so beneficial during the cattle plague, shall be forthwith re-established.

Extracts from British and Foreign Journals.

THE PHYSIOLOGICAL EFFECTS OF LIGHTNING.

Professor Pepper's great induction coil at the Polytechnic has afforded Dr. Richardson an opportunity of carrying out a number of extremely interesting experiments on the effects of powerful electric shocks on the animal body. In a lecture delivered at the Polytechnic, Dr. Richardson summarised the

results of some of his researches, and of his summary of the effects of lightning shock the following is an abstract. 1. Absence of evidence of action of the heart: though it must be remembered that the heart-beat might continue, although it could not be heard. 2. Absence of reflex action; in batrachia, however, this did not always indicate death. 3. Diminution of the animal temperature in the cavities of the body. 4. Absence of colour in the semitransparent structures: this was not a reliable test. 5. *General* muscular rigidity was sufficient evidence of death: but not local or partial rigidity, unless it affected the muscles essential to life, as the respiratory. 6. Coagulation of blood in the veins was a sure sign of death. If, on opening the largest vein that could be reached, the blood were found coagulated, there was no hope of restoring respiration. 7. Decomposition was the final proof of actual death.—*Marks* of various kinds had been described as being left on bodies struck by lightning; and the accounts of some of these had been regarded as chimerical or exaggerated. These marks were: 1, burns; 2, impressions of metallic substances; 3, ecchymoses; 4, supposed impressions of such objects as trees or fences; 5, loss of hair.—1. *Burns* were more likely to be severe when life was not destroyed than when the shock was fatal; they varied in extent, from mere singeing to extensive cauterization. Pins and other metallic articles of dress often led to severe local injuries—the parts injured being those lying between the metallic points.—2. *Impressions of Metallic Substances.*. The occurrence of these had been doubted by Faraday and others; but Dr. Richardson had found, by experiment, that the impressions of ornaments, &c., might be faintly struck on the surface of the body. The mark was a pure ecchymosis; and for its production, resistance on the opposite side was necessary. It was not a burn from heated metal; as, under favorable conditions, a simple electric spark would produce it.—3. *Ecchymoses* were sometimes found; as was observed in the case of Professor Reichmann of St. Petersburg, who was killed by an electric discharge in 1753, while performing experiments.—4. *Arborescent marks,* wrongly supposed to be impressions of trees, &c., were sometimes found. They were in reality, as was pointed out a hundred and ten years ago by Beccaria, the outlines of the superficial veins of the body. Dr. Richardson had succeeded in bringing out the outline of the veins in the ear of a rabbit, by means of the discharge from a Leyden jar.—5. *Loss of hair* was observed in some cases where the nervous system was affected.—*Popular Science Review.*

EXPERIMENTS ON TRANSFUSION.

At a recent meeting of the Vienna Academy of Sciences, Herr Mittler read a paper detailing his numerous experiments on this important problem. He finds that transfusion is a much less dangerous operation than has been supposed by medical men generally. He repeated the old experiment of introducing birds' blood into the vessels of mammals, and found, as did previous physiologists, that the oval corpuscles may be distinguished for several days, but that ultimately they disappear. His results may be summed up as follows: 1. Blood directly transfused from one vessel to another does not provoke coagulation in the circulation of the animal submitted to the operation, whether it be allied or not to the one from which it receives the blood. 2. Blood directly transfused continues its functions within the vascular system of a kindred animal much more completely than blood injected after having been deprived of its fibrin. 3. Blood directly transfused from an animal not allied to it is generally borne by an animal better and in markedly larger quantity than blood defibrinated previous to injection. 4. The blood-globules of mammifers can be seen for two or three days after in the blood of birds submitted to injection. 5. The narrowest capillaries of mammalian animals present no obstacle to the passage of the large elliptical corpuscles of birds. 6. Suppositions still strongly believed in as to the toxic action of foreign blood are either inexact or erroneous: the coagulation of this blood, and the existence of the carbonic acid which it contains have no influence on the symptoms caused by it. 7. Blood injected or transfused is some time after the operation secreted in many cases by the kidneys. Sometimes effusions of blood are observed in the parenchyma of the wounds caused by the operation. 8. It may safely be admitted that blood-corpuscles thus secreted first lose their colouring matter and then perish like those placed without the vascular system. 9. The experiments in question have not definitively cleared up whether the transfused blood loses its physiological powers immediately on being received into a foreign vascular system, or whether these powers continue to exist for a certain period.—*L'Institut.*

ROYAL COLLEGE OF VETERINARY SURGEONS.

QUARTERLY MEETING OF THE COUNCIL, HELD OCT. 6TH, 1869.

PRESENT:—The President, Professors Spooner, Simonds, Gamgee, and Assistant-Professor Pritchard; Messrs. Broad, J. C. Broad, Cartledge, Cartwright, Ernes, Field, Fleming, Gowing, Hunt, Hunting, Lawson, Moon, Morgan, Pritchard, Wilkinson, Withers, and the Secretary.

The President in the Chair.

A letter was read from Professor Brown, regretting his inability to attend the meeting.

The minutes of the preceding meeting were read and confirmed.

Mr. Wilkinson inquired if the letter which the Council had directed to be written to the distinguished gentleman in America had been sent.

The Secretary replied in the affirmative, and that the letter was entered in the letter book and duly numbered.

The Secretary laid on the table a copy of a new work entitled 'Horse-shoes and Horse-shoeing' by G. Fleming, Esq., F.R.G.S., of the Royal Engineers, Chatham, which he desired to present to the library of the College. Also a graduated periplanter drawing-knife for the museum by the same gentleman.

It was moved by *Mr. Wilkinson*, and seconded by *Mr. Lawson*—

"That a vote of thanks be given to Mr. Fleming for his valuable contributions to the library and museum."—Carried.

A letter was read from Professor Tuson, of the Royal Veterinary College, desiring to present to the library of the College a copy of his new work, 'A Pharmacopœia and Outlines of Materia Medica.'

It was moved by *Mr. Wilkinson*, and seconded by *Mr. Field*—

"That a vote of thanks be given to Professor Tuson for his kind presentation."—Carried.

Letters, together with the replies which had been sent to them, were read from—

Mr. T. Francis, of Carmarthen, requesting information regarding the rules and regulations of the Royal College of

Veterinary Surgeons, with reference to the admission of old veterinary surgeons not connected with any college, or having attended a course of instruction in order to be admitted members.

He was informed that candidates previous to their examination were required to produce the usual certificate, &c., which is the only legitimate qualification for enabling them to become candidates for examination.

From Mr. James Dunlop, M.R.C.V.S., of Downpatrick, who addressed his letter to Professor Spooner, stating that a Mr. W. D. Bray of that town (Downpatrick) was issuing circulars representing himself to be a Member of the Royal College of Veterinary Surgeons, and as having studied in London.

The Secretary informed him that there was no person of the name of W. D. Bray on the register, consequently he was not a Member of the Royal College of Veterinary Surgeons.

A communication had also been received from Mr. Jas. F. Hall, M.R.C.V.S., of Twickenham, enclosing a letter from a Mr. William Cucksey, of London, signing himself M.R.C.V.S., desiring to know whether this is a misrepresentation.

In reply to the letter and enclosure, he was informed that there was no person of the name of Wm. Cucksey on the register.

A letter from Mr. R. A. Stock, M.R.C.V.S., of Sherborne, was read—enclosing a paragraph from the *Bristol Mercury*, which stated that a Mr. Wm. Baker, styling himself a veterinary surgeon, had been convicted at the Police Court, Cheltenham, on "extraordinary charges" unfit for publication—requesting that it should be officially mentioned in the newspapers, that Mr. Baker was not a Member of the Royal College of Veterinary Surgeons.

The Secretary informed the Council that he had written to the editors of the *Bristol Mercury*, and the *Cheltenham Examiner*, to that effect, and that his letters had been published in those papers.

Mr. J. C. Dixon, M.R.C.V.S., of Berwick-on-Tweed, desired to be informed how to proceed in order to become an army veterinary surgeon.

He was informed that all applications should be made to J. Wilkinson, Esq., Principal V.S. to the Army, Woolwich.

A letter from Mr. Wm. Lyon, M.R.C.V.S., of Forfar, was read, enclosing a long list of corrections and obituary notices for the new Register.

The Secretary had acknowledged his letter with thanks.

The Registrar then proceeded to read over the list of

deaths—twenty in number—which had been reported since the last meeting of the Council. Among them was that of Mr. W. J. Goodwin, M.R.C.S., of Hampton Court, whose uniform liberality towards the College, the many kind and valuable presentations made on various occasions both to its museum and library, will be long remembered and valued by the Council. Also that of another member of the profession, namely Dr. Dalzell, of Edinburgh, who occupied the chair of Chemistry at the Edinburgh Veterinary College.

On the motion of *Professor Spooner*, seconded by *Mr. Wilkinson*, a letter of condolence was ordered to be written to the widow of the late Mr. W. J. Goodwin, of Hampton Court.

A similar motion with regard to Dr. Dalzell of Edinburgh, was proposed by *Mr. Lawson*, and seconded by *Professor Gamgee*, and unanimously agreed to.

The Registrar laid before the Council a proof copy of the new Register up to the present date, and requested to know how many copies should be printed.

Mr. Wilkinson proposed that 250 copies should be ordered, *Mr. J. C. Broad* seconded the motion, which was carried.

The Secretary read and laid on the table a copy of the 'Pharmacy Amendment Act.'

A letter was then read from Professor Simonds, enclosing a copy of the 'Special and Common Juries' Bill,' received from Mr. Burrell, M.R.C.V.S., with a request that, as a member of the Parliamentary Committee, he would take steps to have the exemptions in the Bill extended to members of the veterinary profession.

The letter was referred to the Parliamentary Committee.

The Secretary then read the following notice, dated July 31st, which he received from Professor Simonds, to the effect that, at the next meeting, he should move that a sum of £500 be invested in Government securities, in accordance with "Bye-law No. 42."

The Finance Committee reported that they had examined the vouchers and receipts for payments during the preceding quarter, and found them correct. The quarterly balance-sheet of the Treasurer's account was then read. The current expenses amounted to £83 10*s.* 5*d.*, which the Committee recommended should be discharged.

The report was received and adopted.

Cheques were ordered to be drawn for the current expenses.

Professor Simonds in bringing forward the motion of which he had given notice, said his object was that the Council

should act in accordance with the bye-laws. So far as the finances were concerned, they had for many a year acted contrary both to the spirit of the charter and the bye-laws. It was true they had been struggling against difficulties, but he could now congratulate the Council and the profession upon the position they had attained. Their pecuniary position was at present better than it had ever before been, and the demands which were likely to be made upon their funds for the next few years would probably not be very serious. Bye-law 40 stated, "That three members of the body corporate shall be Trustees of the College." He did not think that had ever been acted upon, and it would, therefore, be a part of his motion to propose that three trustees should be elected. Bye-law 42 was to the effect that "All moneys belonging to the Royal College of Veterinary Surgeons, except such sum as the Council shall from time to time deem necessary for current expenses, shall be vested in the 3 per cent. consolidated annuities of Great Britain, or other Government securities, in the names of the Trustees of the College." That bye-law had never been carried out. Of course, his object was not to fetter the hands of the Council by leaving the Treasurer with only a small sum of money in hand; but as they had now about £800 in the bank, they could well afford to invest £500 in Government securities. This would leave a floating capital of £300, and the Council at one time had had to struggle on with even less than £100. At any time when money was required they would, of course, sell out a certain sum, but he could hardly understand that such a necessity would arise. He concluded by moving the resolution of which he had given notice.

Mr. Withers seconded the motion.

Mr. Ernes thought even more than £500 might be invested. They did not need so much as £300 in hand. It would be far better to put it out at interest till it was required.

Mr. Withers said they were already getting interest on their money from the bank.

Mr. Wilkinson considered it would be better to invest £700.

Professor Simonds said in that case the hands of the Council would be tied to a great extent, as only £100 would be left as a floating account.

Mr. Gowing thought £500 quite sufficient to be invested at present.

The motion was agreed to.

Professor Simonds said, in proposing the names of three trustees, it was important that they should select gentlemen

residing in London, and young men. The fewer changes made in such cases the better; and it was fair to suppose that this would be best secured by naming young members of the Council in preference to older ones. He proposed Mr. Wm. Field, junr., Professor Brown, and Mr. Clement Lowe.

Mr. Ernes seconded the motion.

Mr. Field inquired if those gentlemen were all willing to act as Trustees.

Professor Simonds said they were.

Professor Spooner proposed to substitute the name of Assistant-Professor Pritchard for that of Professor Brown.

Mr. Morgan could not see that living in the country at all unfitted a man to act as trustee in such a case. He proposed that Mr. Wm. Field, Mr. John Lawson, and Mr. John Wilkinson, should be chosen in place of those named by Professor Simonds.

Professor Gamgee also thought it was not necessary to select gentlemen exclusively residing in London. He could see no force in the argument for electing young men in preference to older men, and he therefore seconded Mr. Morgan's proposal.

Mr. Wilkinson said he would prefer not to be nominated. He thought it would be better to have members of the profession not officially connected with the Council.

Mr. Ernes thought it mattered little who the gentlemen were. They would have no power to do anything by themselves.

Mr. Hunt wished to have Mr. Lawson's name substituted for that of Professor Brown.

Professor Simonds had no objection to such a course.

It was then agreed that Mr. Wm. Field, junr., Mr. Lawson, and Mr. Clement Lowe, should be the Trustees.

The subject of the Christmas examinations having been brought forward—

It was resolved that the examination of candidates for the diploma of the Royal College of Veterinary Surgeons should be held on Tuesday, December 21st, and Wednesday, 22nd, in Christmas week.

Cheques were ordered to be drawn for the examiners' fees and for insurances.

The Secretary then read the report of the deputation that had waited upon the Governors of the Royal Veterinary College, Camden Town.

In compliance with the letter received from the Principal of the Royal Veterinary College, appointing the time when it would be convenient for a deputation to be received, the

following gentlemen, viz., the President, Professor Brown, Messrs. Broad, Harrison, Thacker, and the Secretary, waited upon the Governors of the Royal Veterinary College, on Tuesday, July 13th, 1869.

The deputation having been introduced by Professor Spooner, Professor Brown proceeded to explain the object they had in view in waiting upon the Governors, viz. to suggest the advisability of more stringent measures being adopted in the matriculation examination of students, with a view to the elevation of the standard of education, and the ultimate improvement of the social status of the profession.

The deputation did not desire to dictate what that higher educational standard should be, but they suggested that the preliminary examination should be conducted by an independent educational body as the College of Preceptors.

The deputation was aware that a preliminary examination had been instituted at the College, but it might be deemed invidious for a professor to examine his own pupils. Their object was to advise the adoption of a system which could be extended to the other colleges, viz. Edinburgh and Glasgow; the authorities of which would be asked to institute a similar examination.

The Chairman (J. W. Bosanquet, Esq.) replied; he inferred from what had been said that the Council wished for a better class of men in order that they might be brought before the board of examiners more fully prepared. The Governors of the College quite concurred in the views of the deputation in this respect.

The President said a better education was what was required, and a better class of men would then enter the profession. It was desirable that a uniform examination, or test of the qualifications of a student should be adopted previous to his admission into either of the colleges, which would prevent those who were grossly deficient from entering into the profession. That they were much indebted to the Governors of the College for having instituted a preliminary examination every one would admit.

The deputation would respectfully suggest the propriety of adopting an independent board here, and another in Edinburgh and Glasgow, and to permit the Principals of each college to arrange the standard of education.

The Chairman observed that we should all act together, and a representation should be made in writing to the other colleges.

Mr. Wilkinson said that a matriculation examination by the College of Preceptors, if it could be carried out, would be

of the greatest advantage. The College of Preceptors had been asked and was fully prepared to entertain the subject. Mr. Wilkinson also observed that, speaking as a member of the Council he did not understand the suggestion of the President "that the Council should appoint the Board," but he thought that this College, being the alma mater, should take the initiative, and appoint an independent board to examine the student presenting himself for admission, and that the other colleges should be solicited to adopt the same course.

After a few remarks from the Chairman, expressive of the desire of the Governors to do all in their power to aid the progress of education, the deputation withdrew.

Acting upon the suggestions of the Chairman, a letter dated July 15th was addressed by the President of the Royal College of Veterinary Surgeons to the Principals of the Edinburgh and Glasgow Colleges, inviting them to use their influence with the authorities in order to move them to take the necessary steps to apply such similar independent educational test as may be convenient to all candidates for admission to the Edinburgh and Glasgow Veterinary Colleges.

A letter was read in reply from Professor Williams of the Edinburgh Veterinary College, acknowledging the receipt of the President's letter referring to the preliminary examinations, and that it would be laid before the trustees of the College.

The Secretary reported that he had afterwards written to the Principals of the Edinburgh and Glasgow Colleges, stating that a deputation had been appointed by the Council to wait upon the authorities of each school, and requesting to know when it would be convenient to receive them. In reply, a letter dated August 5th was received from Professor Williams, informing the Council that it would be impossible for the deputation to be received during August or September.

A letter from Professor M'Call of the Glasgow College was read, in which he stated that he would be prepared to receive the deputation any time after August 14th.

In consequence of the communication from Edinburgh, another letter was written to Professor M'Call, informing him that the deputation was postponed.

A letter dated the 28th of September, from Mr. Macgregor of Edinburgh, agent to the trustees of the Edinburgh Veterinary College, was read, stating that Monday, November 1st, had been fixed as the day on which the deputation could be received.

The receipt of the letter had been acknowledged by the Secretary.

Professor Spooner asked if Professor M'Call had been apprised of the tenor of Mr. Macgregor's letter.

The *Secretary* said he had not.

Professor Spooner said it would be advisable, if possible, for the deputation to make but one journey to Scotland.

The President said it was inferred from Professor McCall's letter that he would be prepared to receive the deputation at any time after the 14th of August.

Mr. Wilkinson thought the deputation had been appointed for the express purpose of waiting upon the Governors of the College at Camden Town.

Professor Simonds said that when he proposed the appointment of a deputation he meant that it should wait upon the authorities of the three Colleges.

On referring to the short-hand writer's notes of the last meeting, it was found that the deputation was appointed to wait upon the several Colleges.

Mr. Wilkinson considered it highly important that gentlemen who had graduated in Scotland should form the majority of the deputation to the Scotch Colleges.

Mr. Field thought little good would result if a different deputation attended each College.

Professor Spooner said it was not at all likely that all the gentlemen who attended at Camden Town would also join in the deputation to Scotland. It was quite competent for them to add to the number of the deputation by the appointment of gentlemen who had graduated in Scotland. If Mr. Morgan, Mr. Fleming, and Mr. Lawson joined the deputation, the profession would be fairly represented. He therefore proposed to add Mr. Lawson's name to the deputation.

The President said the mover of the motion for the appointment of a deputation had used the word "College," while the seconder spoke of "Colleges." He was quite of opinion that as many graduates of Scotland should attend as possible, and he had urged Mr. Lawson, although he had not been appointed by the Council, to accompany them to Edinburgh. He also wished Mr. Wilkinson, Mr. Fleming, and Mr. Morgan to go with them.

Mr. Hunting seconded Professor Spooner's motion for adding Mr. Lawson's name to the deputation.

Mr. Ernes said the Council had no power to enforce the preliminary examination, and it was evident the Camden Town College would not, for in the curriculum of that College it was said that it was "advisable" that the students should

present themselves at such an examination, not that it was a *sine quâ non.*

Professor Spooner said it was a *sine quâ non.* If the students did not present themselves at that examination they were not admitted.

Mr. Field wished to ask at whose expense the deputation was to go.

The motion for adding Mr. Lawson's name to the deputation was agreed to.

The deputation would now consist of the President, Professor Brown, Messrs. T. D. Broad, W. Field, jun., Fleming, Harrison, Thacker, Morgan, and Lawson.

Mr. Wilkinson protested against the selection.

Mr. Lawson said if it was competent for a non-member of the Council to act upon the deputation, he would desire to add the name of Mr. W. Robertson, of Kelso.

Mr. Cartledge seconded the motion.

On referring to the short-hand writer's notes of the last meeting it was found that the deputation was not necessarily and exclusively to consist of members of the Council. The motion was agreed to.

Mr. Field repeated his question with regard to the expenses. If the College was to pay, the deputation should be as small in number as possible; but if each gentleman was expected to pay his own expenses, the more who went the better.

Mr. Cartledge thought the Council were bound to pay the expenses. He quite agreed with Mr. Wilkinson in his recommendation that the deputation should consist mainly of gentlemen who had graduated in the North. It was already felt in Scotland that there was too much of the English element in the Council.

Professor Simonds proposed—

"That a sum not exceeding £50 be placed at the disposal of the President towards defraying the expenses of the deputation to the Scotch Colleges."

Mr. Gowing seconded the proposal, which was agreed to.

The Secretary read a letter from Professor Spooner, Principal of the Royal Veterinary College, Camden Town, which was sent at the request of the Governors of that institution, forwarding a copy of the report of the Professors on the matriculation examination, and also a copy of the resolution passed by the Governors. The receipt of the letter was acknowledged by the Secretary.

The following is a copy of the report:

To the Governors of the Royal Veterinary College.

Royal Veterinary College; *August 23rd,* 1869.

My Lords and Gentlemen,

We, the undersigned Professors of the Royal Veterinary College, beg to report that, after having consulted together on the nature and extent of the Matriculation Examination, are of opinion—

1. That the examination hitherto conducted by us has been of considerable benefit, both to this institution and to the profession.

2. That it would be more satisfactory to the profession and to ourselves if the Matriculation Examination, without at present increasing its stringency, were to be conducted by "The College of Preceptors."

3. That it should be at once announced by advertisement, and in the Prospectus of the College, that persons presenting themselves for the Matriculation Examination in September, 1870, will have to pass in—

1. Writing from dictation.
2. Parsing a simple sentence.
3. Reading aloud.
4. The first four rules of arithmetic, and simple rule of three.

(Signed) Charles Spooner.
Jas. B. Simonds.
Richd. V. Tuson.
William Pritchard.

At a meeting of the Governors of the Royal Veterinary College, held on Tuesday, the 24th of August, 1869, it was resolved—

"1. That the report of the Professors be entered on the minutes.

"2. That the Committee approve of the suggestion that the examination of candidates should hereafter be conducted by the College of Preceptors.

"3. That it is not expedient at present to determine upon, or advertise the course which may be adopted by the Governors in the year 1870.

"4. That a copy of the report of the Professors, together with the foregoing resolutions, be communicated to the Council of the Royal College of Veterinary Surgeons, with a view to bring about a simultaneous and harmonious movement

between the several schools for veterinary instruction, with regard to the matriculation examination."

Professor Simonds said he had agreed in principle with the report of the Professors, but he had signed the report as a dissentient to Clause 3, as he thought it unadvisable to restrict the examination to such subjects.

Mr. Ernes said there was still an absence of any rule that no one should be admitted unless they underwent that examination.

Professor Spooner said such a rule was on the minutes.

Professor Simonds also said no pupil had entered the College for the past five years without passing an examination. The Governors thought it better to postpone increasing the stringency, and handing the examination over to the College of Preceptors, in order that united action might be taken by all the Colleges.

Mr. Field asked if the College of Preceptors had any jurisdiction in Scotland and Ireland?

Mr. Lawson said there was a College of Preceptors both in Ireland and Scotland.

Professor Spooner thought it would be sufficient to have the matriculation examination in Edinburgh, and not one in each of the two Scotch Colleges.

Mr. Lawson thought the distance would be too great for some of the pupils under such an arrangement.

Professor Gamgee agreed with Mr. Lawson.

The President said Professor Williams had informed him that there was a College of Preceptors both in Glasgow and Edinburgh.

Mr. Field said Professor Williams had told him he knew nothing about it.

The Quarterly Meeting having terminated, the Council formed themselves into a SPECIAL MEETING, to consider the alterations in the bye-laws of which Mr. Ernes had given notice of motion.

Mr. Ernes said he hoped that the proposal with regard to the preliminary examination was not a side wind to get rid of his proposals with respect to the final examination. He wished now simply to propose—"First. That the examination shall be limited to once a year. Secondly. That they shall be practical on the living as well as on the dead subject. Thirdly. That they shall be by writing. Fourthly. That they shall be oral. Fifthly. That botany and microscopics be added to the subjects of the examination." All this had been accepted, not only by a Committee, but also by the Council.

Professor Gamgee said he was quite of opinion that if the

College was to advance in this country as an examining body, there must be a modification in the examinations. There must be, sooner or later, a system of testing the students in practical matters, and he believed the addition of written examinations to oral would be of the greatest value. He was quite sure the principle of Mr. Ernes' propositions was good. He thought students might be first examined on theoretical subjects, anatomy, physiology, chemistry, physics, botany, and then afterwards examined in medicine and surgery, and other practical matters. They should by all means learn how to handle a scalpel.

Professor Spooner asked at what periods Professor Gamgee would hold the two separate examinations?

Professor Gamgee said that would be a matter of detail. They might have the theoretical examination at the end of the second winter session, and the practical one at the end of the third winter session.

Professor Spooner said the Council had no power to carry out such a scheme.

Professor Gamgee said they had authority to examine first upon a certain class of subjects, and then in a subsequent year on other subjects.

Professor Spooner said they had no such power. They could only examine pupils who had received the College certificate of being properly educated.

Mr. Pritchard asked what was meant by "microscopics."

Mr. Ernes said he understood it to mean the use of the microscope.

Mr. Pritchard asked how that was to be taught.

Mr. Ernes said the students might teach themselves. In the same way they might teach themselves botany. The English schools were the only ones in which botany was not taught.

Mr. Pritchard did not think it necessary to introduce it into the examination.

Professor Gamgee thought Professor Sharpey did examine on microscopical anatomy to a certain extent at present.

Mr. Lawson said he had heard that there was an examination in microscopical anatomy in Edinburgh.

Mr. Wilkinson wished to know if the propositions suspended by Mr. Ernes at the last quarterly meeting were rescinded in favour of a fresh set of propositions.

Mr. Ernes said the propositions he now made were among the others which he had suspended. He considered he had been very ill-used by the Council, because from time to time they had postponed inquiry into the subject. He fully ex-

pected after the last quarterly meeting that a meeting would have been called on the subject. It was a year and a half since he had been requested to make certain suggestions.

Mr. Hunt said the difficulties attending the question had been the cause of its postponement from time to time. He thought every member of the Council had taken the matter into deep consideration, but the question that arose in their minds was whether it did not require a great deal of caution before they took such a step. They must also consider whether or not the colleges could be expected to educate up to the point proposed.

Professor Spooner: Don't forget the examiners who have to examine.

Mr. Hunt considered there would be no difficulty with regard to that. He considered the second proposal the most important of the whole. Most of the failures of young veterinary surgeons was caused by their want of practical knowledge. So long as this state of things continued, farriers would be employed. He regarded with favour the proposal to have the examination in writing. Many a young pupil was staggered by being placed before the examiners for oral examination, who would feel more at home with written questions. They would, by such an arrangement, not only search the student's knowledge more thoroughly, but do greater justice to those who felt unnerved when orally questioned. Botany was almost more intimately connected with the veterinary than with any other profession. All should have some knowledge of the grasses and vegetables which herbivora and graminivora eat. Microscopics was at present slightly touched upon, but it might advantageously be enlarged. He regarded the propositions of Mr. Ernes as essential to the turning out of a practical veterinary surgeon.

Professor Spooner asked Mr. Hunt if he thought it was possible to impart such knowledge to any pupil who had had no prior education.

Mr. Hunt thought more practical knowledge would be acquired by the pupils if they were inducted into the duties of dressing, and not allowed to let the groom do it.

Professor Gamgee suggested that a committee should be appointed to consider the subject. An examiner's task in discriminating between the good and the bad would be much easier if there was a practical test.

Mr. Wilkinson said a committee had been sitting for a year and a half, and this was the result.

Mr. Fleming said the committee had held special meetings,

but the whole thing was thrown over at the last meeting of the Council. Mr. Ernes knocked the whole thing on the head.

Mr. Ernes said he was compelled to do so, because the committee would not take any steps in the matter.

Mr. Fleming thought Mr. Ernes was entirely wrong when he imputed to members of the Council any ill-will towards him. When he first brought his suggestions before them they were very earnestly received, and the Council was anxious to forward them in every way. Nearly everything proposed by Mr. Ernes that night, had been discussed and passed by the Special Committee which was appointed.

Mr. Ernes acknowledged that at first his suggestions were received with great favour by the Council, and the Committee which was appointed went through its work well. There was one Council meeting at which its suggestions were passed, but after that there was a standstill, and nothing further was done. Even if his propositions were passed, he did not intend them to come into operation till 1871.

Mr. Wilkinson said the only delay was caused by the necessity of suspending the notice of proposed alterations in the bye-laws.

Professor Spooner said, whoever had any proposition to make, must determine what bye-law it was proposed to alter, and suspend it for three months.

Mr. Morgan contended that "notice of intention" had been given in accordance with the Charter.

The President said, as the meeting was rather larger than usual, he hoped they would not adjourn without arriving at some definite conclusion. He should be glad if Professor Spooner or Professor Simonds would kindly state their views on the question of an examination being held once a year, as well as on the question of practical examinations.

Professor Spooner thought the movement altogether premature. They should first get fully carried out their views with regard to preliminary education, and should endeavour to obtain the privilege of calling themselves veterinary surgeons to the exclusion of others, and then would be the time to move in this matter.

Mr. Hunt asked if it was Professor Spooner's opinion that the College should go on turning out young men who were perfectly incompetent.

Professor Spooner wished to know if Mr. Hunt thought it was possible for the schools to impart the practical information which he considered necessary.

Mr. Hunt said if the schools could not do so, they were not justified in giving the pupils a diploma, stating that they were capable of practising the veterinary art. He was perfectly willing to have the question postponed, but he did not wish to see it entirely dropped. By their Charter they already had the right to call themselves veterinary surgeons exclusively, but they had allowed the power to fall into disuse. There was no fine named, and therefore the only means of supporting their power would be by their obtaining an injunction.

The President said it was in the power of the Council to get an Act of Parliament first, and then they could press forward Mr. Ernes' motion afterwards. They were very much pleased with what Professor Spooner had done with respect to preliminary examinations, and he trusted the Scotch Colleges would be willing to go on in the same direction.

Mr. Ernes said he was quite taken aback by the way in which the question was being dealt with. In 1864, when he had the honour of occupying the presidential chair, he drew up an Act of Parliament, and the notice was given in the House. The consequence was he was called over the coals for doing so, and was deserted by the Council. Since that time nothing had been done. He believed, if it had not been for his suggestions, the question of a preliminary examination would not have been raised, but he had yet to learn that a classical scholar would make the best veterinary surgeon. By their efforts in the direction of preliminary education to the neglect of practical professional education, they were catching at a shadow while letting the substance slip.

Mr. Hunting quite allowed that it was infinitely more important to veterinary surgeons to have a practical education than to have a classical one, if the two were to be separated; but a classical man with a practical knowledge would, no doubt, be a better man in his profession than another who had not received a classical education; but probably he would not be very much inclined to go about the pig-styes and sheep-folds. He reminded Professor Spooner that the College had always refused to agree to the apprentice clause; and that every person had hitherto been allowed to enter, even though he came direct from the counter, from the lawyer's desk, or any similar occupation. The consequence was that the majority of those who received ther diploma were kid-gloved muffs. In the North of England, if a man was known to be what is called a College man, it was ten to one against him, rather than in favour of him. He could not understand the argument of those who said their first duty should be to get

an Act of Parliament; rather let them thoroughly teach a man his profession, and let the country see that the men they turned out were good men, and then they might go and ask for favours.

Mr. Wilkinson said it was quite competent for a man to be well educated, and at the same time to have a thorough practical knowledge of his profession. They did not desire that a man should be able to read Greek and Hebrew, but that he should have a good English education. Many veterinary surgeons had not received such an education, and that was the reason they did not rise above the common farriers of the country. The men who were at the top of the tree in their profession were, in every case, men of good education, and that education had qualified them to become better veterinary surgeons than they otherwise would have been.

Mr. Lawson said his experience convinced him that an educated man succeeded better as a veterinary surgeon than one who had not received a good education. He was very desirous of seeing the examinations increased in severity, but, at the same time, he could not sit still and hear the present class of men spoken so lightly of. He believed the bulk of their men turned out fairly, though of course young men could not be expected to do things with that facility which older men would show. During the last twenty years veterinary surgeons as a class had improved, not only in general education, but in practical knowledge of their profession. Of course there were exceptions to the general improvement, but the large majority were vastly superior to what they were some years back.

Professor Gamgee was quite willing to second Mr. Ernes' motion to the extent of recommending that the alteration in the bye-laws should be again taken into consideration, and that a Committee should be appointed to consider the best means of carrying out such alterations, and the time when it should take effect. He trusted by the next quarterly meeting the suggestions would acquire a little more shape.

Mr. Wilkinson said the propositions had been accepted in principle, and a Committee was required to elaborate them.

The resolution proposed by *Mr. Ernes*, and seconded by *Professor Gamgee*, was then put to the Council in the following form, and carried—

"Resolved that the subjoined propositions relating to the bye-laws on the examinations be taken into consideration:

"First. That the examinations be limited to once a year.

"Secondly. That they be practical on the living as well as the dead subject.

"Thirdly. That they be in writing.

"Fourthly. That they be oral.

"Fifthly. That botany and the use of the microscope be added to the subject of the examinations."

Mr. Wilkinson proposed the reappointment of the last committee on the same subject, consisting of the President, Messrs. J. C. Broad, Ernes, Field, Fleming, Harrison, Hunt, Thacker, and Wilkinson.

Mr. Morgan seconded the motion, which was agreed to.

It was moved by *Mr. Ernes*, and seconded by *Mr. Morgan*—

"That Professor Gamgee's name be added."—Carried.

Mr. Lawson then proposed to add Mr. Wilkinson's name to the list of gentlemen appointed to form the Scotch deputation.

Mr. Broad seconded it.

Professor Gamgee said Mr. Wilkinson had more influence in that quarter than any other gentleman.

The motion was agreed to, and the proceedings of the meeting terminated.

By order of the Council,

WILLIAM HENRY COATES,

Secretary.

EASTERN COUNTIES VETERINARY MEDICAL ASSOCIATION.

THE quarterly meeting of the Norfolk and Eastern Counties Veterinary Medical Association was held at the Norfolk Hotel, Norwich, on Tuesday, Oct. 5th. The discussion chiefly turned on the foot and mouth disease—matter of no little interest to agriculturists at present.

Mr. King, who had been nominated as president for the ensuing year, having objected to take the office, *Mr. Shipley* was selected in his stead, who, after the transaction of the ordinary business of the Association, read a brief inaugural address, in which he reviewed the proceedings of the Association during the past twelve months.

The Association, he said, had now been in existence a year, and had a balance in hand of £15 1*s.* 9*d.*; it was hoped, however, that its numbers would be much increased by other veterinary surgeons enrolling themselves as members, so that the quarterly meetings

might be made even more useful than they had been by the free discussion of questions relating to the profession. Speaking of the foot and mouth disease, as it is popularly called, he remarked that after having been dormant for some three or four years, it again showed itself in June last. It was generally believed in Norfolk to have been introduced by foreign cattle landed at Blackwall, whence it had extended so that it now raged all over the country. The disease was a species of fever, causing eruption in the feet and mouth. It was generally believed to be propagated by infection from one animal to another, all domestic ruminants taking it readily. Its period of incubation was very short, from twelve hours to four or five days; the period of its duration varied, but was not really more than from seven to fourteen days, as far as the acute stages were concerned. Mr. Shipley remarked that the disease was most fatal to young calves and pigs. It was the most contagious of all known diseases, and in consequence of the great loss of flesh by animals affected, the loss to the country was probably greater than that caused by the rinderpest. Various opinions were held as to animals being liable to attack a second time.

He put the question to the members—Is it safe to drink the milk or to eat the flesh of animals affected with the disease? He recommended careful nursing of the animals under treatment, as their best means, in conjunction with proper medicine, of meeting the disease. Much might be done by keeping the animals strictly isolated, and he held that much also by the profession adopting preventive measures.

Mr. Shipley then referred at some length to the Contagious Diseases (Animals) Act, and the powers given to Inspectors by that Act. It was necessary, he remarked, that they should understand the whole routine of the Act. It would evidently give the Inspectors plenty to do, and the only question which was left in abeyance was how they were to be remunerated. Veterinary surgeons should, he contended, stand up for their rights; they would find it difficult at times to please both the owners and the local authority, and in fact any party but themselves. Still they must not shrink from their duty. As to the question of remuneration, he thought a fixed salary to each Inspector was preferable to payment by fees as removing all cause for disputes. They should remember that pretty well the whole responsibility of the working of the Act would rest upon their shoulders, and if they formed an erroneous judgment they would hereafter hear of it; and it, therefore, became their duty to exercise great care in all they did under the Act.

Mr. Shipley, having concluded his address, called attention to a series of resolutions which had been agreed to by the magistrates at Chester, by which they appointed the police as Inspectors under the Contagious Diseases Act, providing for veterinary surgeons to be called in by the Inspectors, and paid at the usual terms of their practice. The police, as Inspectors, were also to issue licences under the Act. He put to the meeting whether it was intended by

the Act that the police, as such, should give to themselves as Inspectors, and whether the Act was not contravened by such appointments.

Mr. Seaman (Saffron Walden) said the subject required their most serious consideration. It would be remembered that in June, 1865, the cattle plague invaded our shores, and spread rapidly. As soon as it was known, various quacks brought out their nostrums, and veterinary surgeons were continually blamed for not being able to cure an incurable disease. The profession said at the very first that the only way to check the disease was to stamp it out, but this course was not at first adopted. The result in Cheshire of adopting a similar course to that to be now pursued was that 60,000 cattle died of plague, while in the whole kingdom, where attempts were made to cure the disease before stamping out was resorted to, the loss was of the value of three millions sterling. Yet with this dearly bought experience the same plan had been again adopted in Cheshire, and it was not unlikely that, as in the case of the cattle plague, the farmers of that county would hereafter come to the Government and ask that the country should make good the losses incurred by their neglecting to take sufficient precautions to preserve their own herds.

Mr. W. Smith considered the question as one of vital interest to the country as affecting the food of the people. When they took into consideration that the cost of the cattle plague amounted to something like three millions, and that this was a small proportion to the loss which would be sustained by the advance of the foot and mouth disease, should three fourths of the herds be attacked, it would be seen how important the question was. In Norfolk the proportion attacked or suffering at this moment was three fourths. It might be said that many of the animals so attacked were not fit for food, as not being fat beasts, but it must be remembered that the cows were afflicted with the disease not only in this county, but elsewhere, and that milk was food. He had never heard such complaints of the quality of milk as now. The milk of these cows, if given warm to pigs or young stock, was often fatal to them within a few hours, and under these circumstances he questioned whether, where the fever was high, the milk was not deleterious, and ought to be thrown away. He certainly would not recommend that it should be given to any animal whatever, unless it were previously boiled. The country might be certain that very little of the meat would be sent to market while the distemper was raging, and that would to increase the price to the consumer, by diminishing the supply. He was sure that the flesh of animals affected with pleuro-pneumonia was often sent to the London markets from the neighbourhood of this city, and from every other part of the kingdom. He would, however, make this remark relative to such meat:—he did not think the public need be so apprehensive of the consequences of eating the meat of animals affected with pleuro-pneumonia, if the meat were thoroughly exposed to a high temperature by roasting or boiling before it was eaten, in short if it were well

cooked. Much had been said of the proportion of carbuncular disease in man being largely increased by the partaking of such meat, but he did not think the ground was tenable. As to the question of actual loss to the country by depreciation of the beasts, he believed that the average loss would be equivalent to 30*s*. meat value, and of course with many animals the depreciation would be much more. But taking the figure at 20*s*., supposing three-fourths of the herds to be attacked, the actual loss to the country would be no less than seven millions sterling, and would put on an additional penny or twopence a pound on all meat consumed for some time to come—a much greater national loss than was sustained from the cattle plague. Remarking on the action of the Cheshire magistrates, he pointed out that while Norfolk, with its immense herds, lost only 6·876 per cent., Cheshire lost something like 52 per cent. This was a sufficient illustration of the value of the two systems which had been pursued by the respective magistrates.

He remembered the first two outbreaks of mouth and foot disease in this country in 1839, at Mr. Burton's farm, at Langley, and at Mr. Waters's, Scratby Hall Farm. Under the new Act he thought the profession would have a great deal to do in combating this disease, now that it had spread in all directions in the country. The great difficulty would be to attend to the restrictions of the law, and Veterinary Surgeons, if appointed Inspectors, would find this out; but they would have to do so in order to prevent the spreading of the disease. He presumed, however they would have very little work left to do by the time the local authorities had appointed them. As yet he only knew of Norwich and Suffolk having taken action under the new Act, and there appeared to be grounds for believing that, as in the case of the cattle plague, the local authorities would have got all into working order when the worst had passed. He had heard of no precautions in this district under the Act, with the exception of those in this city.

Mr. Smith then briefly alluded to the contagious character—though in a less virulent degree than foot and mouth disease—of pleuro-pneumonia, and held that the proper course of action with all those contagious diseases was to stamp them out where first discovered. This had been successfully done in several outbreaks of sheep pox, and he believed if that course were adopted there was no danger of cattle plague again spreading over the length and breadth of the land. He also held the opinion that if the new Act was properly put into force pleuro-pneumonia might be reduced in the number of its attacks and virulence to such a degree that its influence would hardly be perceptible on the meat supply of the country. He hoped the veterinary profession would stand on the defensive, and would act together for the maintenance of their rights as educated men and men of science, for they only successfully could grapple with these contagious diseases.

He doubted not but that in the eastern counties they would meet with every assistance from the respective local associations when

appointed, and have their just claim recognised, and fair and reasonable remuneration for their services.

Mr. Cleveland said that his experience of the foot and mouth disease led him to the opinion that if it were neglected in the earlier stages of the disease it might result in dysentery. He cited cases which had recently occurred in his practice, some of which had terminated fatally. The disease had been reported to be very fatal at one farm in Surrey, and several fatalities had taken place in Suffolk. This danger showed the necessity there was of the owner of cattle employing a professional man, as he might find it more economical than allowing his beasts to get into a typhoid condition.

Mr. Smith said that a half per cent. was as a rule sufficient to allow for the deaths, if animals had the disease under ordinary circumstances, and provided due regard were taken for the condition of the beasts suffering from the disease.

Mr. Overed said the disease was more fatal to weanling calves than to adult animals.

Mr. Seaman and the *Chairman* mentioned cases of calves which had died from the first shock to the system, caused by taking the warm milk from the cow.

A general conversation then ensued as to the best modes of treatment, one gentleman thinking it would be advisable to nurse the affected animals for a time in a cow-house, while another preferred turning them into a clean dry pasture; but all concurred in the necessity of careful nursing, and keeping the animals in dry situations.

COLEMAN PRIZE.

At the close of the introductory lecture at the Royal Veterinary College, Mr. J. Wilkinson, who occupied the chair as the representative Governor of the Institution, presented the medals and certificates to the successful competitors for "the Coleman Prize," addressing to each some suitable and well-timed remarks. The award was as follows :—

Silver Medal.—Mr. Thos. Powell, Newton Longville, Bletchley.

Prize Medal.—Mr. Jas. Henry Bennett, Havering-Atte-Bower, Essex.

Certificate of Merit.—Mr. William Jackson, Sheffield.

CONTAGIOUS DISEASES (ANIMALS).

"Return of the number of foreign animals brought by sea to ports in Great Britain, which on inspection on landing, within the month of September, 1869, have been found to

be affected with a contagious or infectious disease, specifying the disease, and the ports from which, and to which, such animals were brought, and the mode in which such animals have been disposed of.

Foreign ports from which brought.	Ports in Great Britain to which brought.	Disease.	Number of Animals affected.					Disposal.
			Cattle.	Sheep.	Goats.	Swine.	Total.	Slaughtered by Order of Customs.
Antwerp...	London ...	Foot-and-Mouth .	...	...	...	70	70	70
Hamburg .	London ...	,,	181	46	...	39	266	266
,, ...	Hartlepool	,,	90	1	...	...	91	91
,, ...	Hull	,,	13	...	...	...	13	13
Harlingen.	London ...	,,	3	...	...	52	55	55
Rotterdam	London ...	,,	1	1032	...	...	1033	1033
Tonning...	London ...	,,	74	...	...	...	74	74
Total ...	... ...	... ...	362	1079	...	161	1602	1602

"ALEXANDER WILLIAMS,
"Privy Council Office, Secretary.
"Veterinary Department, 14th October, 1869."

Veterinary Jurisprudence.

CRUELTY TO SHEEP.—OVERCROWDING RAILWAY TRUCKS.

At Gloucester on Friday, Oct. 8th, John Jones, a Welsh drover, was charged before the mayor and magistrates with cruelty to a flock of sheep. The prosecution was instructed by the Society for the Prevention of Cruelty to Animals. It appears that on the 27th of August last the defendant sent 240 sheep in six railway trucks from Hereford to Gloucester, by the Hereford, Ross, and Gloucester branch of the Great Western Railway. In one truck measuring eleven feet by seven feet, there were no less than seventy-four sheep packed, and some were trampled under foot by the others. All were in an exhausted state; one was dead, and several appeared to be dying, but were revived by having water thrown on them. The dead sheep was a mass of bruises, and died from suffocation. The owner was fined £5 and £9 expenses, and the drover was fined 2s. 6d.

ARMY APPOINTMENTS.

War Office.

6th Dragoon Guards.—Veterinary Surgeon First Class F. F. Collins, from 1st Dragoons, to be Veterinary Surgeon, vice W. Hall, who exchanges.

1st Dragoons.—Veterinary Surgeon, W. Hall, from 6th Dragoon Guards, to be Veterinary Surgeon, vice Veterinary Surgeon First Class F. F. Collins, who exchanges.—*London Gazette*, Oct. 19th.

MISCELLANEA.

AMERICAN CHEESE.

The manufacture of cheese is carried on very extensively in New York, Ohio, Vermont, Massachusetts, Illinois, Wisconsin, and Michigan, and the returns from 224 factories in those States show that their aggregate product in 1869, ending August 1st, was 179,014 boxes, each weighing on an average 6434 pounds. The daily make of these 224 factories is 4758 boxes, or an average of 21 boxes each. It is estimated that there are, in the United States and Canada, 1000 cheese factories, which produce 117,250 boxes a week in the busiest times, but as the season advances the yield gradually falls off about 2000 boxes weekly.

OBITUARY.

We have to record the death of Mr. Josiah Nice, late of London. Diploma dated July 16, 1825.

Also of Mr. Thomas M. Leech, of Bakewell, Derbyshire; diploma dated May 15, 1844.

We have likewise been informed of the death of Mr. James Tennant Crossford, Lanak, and Mr. William Nicholson, late of Liverpool, which took place a short time since. The diploma of the former bears date July 19, 1825, and that of the latter, April 25, 1865.

ERRATA.

Page 728, line 26, *for* "Barb. Aloes ʒiij," *read* "ʒvj."
" " " 33, *for* "fluor.," *read* "Fleming's."
" 729 " 17, *for* "twisting," *read* "bursting."
" " " 21, *for* "Zinzib. ℥ij," *read* "ʒij."

THE

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Communications and Cases.

ECZEMA EPIZOOTICA.

By George Fleming, M.R.C.V.S., Royal Engineers.

The present wide-spread and, to the agricultural community, somewhat harassing malady, commonly known as the "foot and mouth disease," is apparently so simple in its nature and, when properly controlled, so comparatively harmless in its effects, that it does not appear to have excited so much public attention as it perhaps deserves. Neither, so far as the pages of the *Veterinarian* bear witness, does it seem to have offered anything novel in this invasion beyond the ordinary features it has presented in its previous visits to this country. In this respect, and so far as public interest or professional excitement is concerned, as well as in the history of its commencement and progress, it offers a marked contrast to its first inroad in 1839. The *Veterinarian* for that and the two subsequent years literally teems with most interesting and valuable descriptions of the then mysterious malady, from veterinary surgeons in various parts of the three kingdoms, who were particularly careful to note the first appearance of the epizooty in their districts, with its varying symptoms and the species of animals attacked, and other information which is now of particular value to the veterinary medical historian.

But not only in this country were the veterinarians of those days anxious to record their observations and experience of this particular malady; on the Continent, in every direction in which the contagion spread, veterinary surgeons were attentively

marking its progress and general and special characteristics. Perhaps no epizooty was ever so closely followed, or so carefully observed as that of "eczema epizootica" in 1838-42. From its first appearance in the plains of Southern Russia and Poland, in the spring of 1838, during its progress through nearly every country on the Continent by well-defined and successive steps, until it finally reached Britanny in 1842, after having traversed our own islands, this panzootic disease was watched and described by members of the veterinary profession, who seem, unwittingly, to have vied with each other in noting every point worthy of observation. The consequence was that we have a complete history of the malady as it affected one class or all of the domestic animals, or man himself, as well as the fact prominently brought before us that the disease invariably followed the tracks of cattle traffic, and that it was eminently contagious and capable of extending itself to all animals. In subsequent invasions, as I have had occasion to regret, there has not been this laudable desire to register the first appearance, progress, and varying features of aphthous fever, at least in this country. It would appear as if the somewhat sudden extension of railway communication here and on the Continent, as well as the increased facilities offered by the multiplication of steamships for transporting cattle from regions wide apart in a very brief space of time, tended not only to spread the contagion so rapidly and generally as to give it the semblance of spontaneous and simultaneous origin, but so accustomed veterinarians to look upon the occurrence of such like diseases as a matter of everyday business and unworthy of special inquiry.

Such is the only plea one would like to advance for the paucity of communications relative to this and other epizootics in our professional journal, and I would not now have ventured to break the seal of silence but for one circumstance. In the November number of the *Veterinarian*, I observed that at a meeting of the Eastern Counties Veterinary Medical Association, held at Norwich in October last, during a conversation on eczema epizootica, Mr. Cleveland stated that his experience of the disease led him to the opinion that, if it were neglected in the earlier stages, it might result in dysentery; and he cited cases which had recently occurred in his practice, some of which had terminated fatally.

This remark of our colleague reminded me of a complication of what was termed a catarrhal nature, noticed by M. Zundel, an able and a zealous veterinary surgeon, of Mulhouse, France, during the winters of 1862-63 and 1863-64,

periods when aphthous fever prevailed with extreme intensity, not only in his neighbourhood, but in the whole department of the Haut-Rhin and the adjacent departments, as well as in Switzerland and Germany. As the description of this complication (published in the Lyons *Journal de Médecine Vétérinaire* for 1865) appeared very interesting to me, and as it may have some bearing on the cases mentioned by Mr. Cleveland, I have taken the liberty of quoting from M. Zundel's communication, in the interest of those who may be disposed to learn more of a complication that has, perhaps, not been very common in this country, and who may not have had access to the journal in which the description appeared.

It is to be remembered that, since the invasion of 1832 (for this malady had been known on the Continent for at least a century before it was imported to us), Alsace may be said never to have been quite free from aphthous fever, and at various times suffered from a recrudescence; yet the epizooty of 1863 and 1864, the years in which this special complication was observed, it appeared in a more severe form than it had done since its first irruption.

Though some other observers (who will be alluded to hereafter) had noticed this novel feature of the disease, none had described it so carefully as was desirable, and this induced M. Zundel to devote much attention to its nature and progress, with a view to making some clear and definite comments upon it.

The designation of "catarrhal" he gave to it because, on the one hand, it had some analogy to the catarrhal complication accompanying the contagious head disease or gangrenous coryza of cattle, and, on the other, in consequence of its being characterized by a severe catarrh of the digestive, and sometimes even of the respiratory, organs. He was inclined to term it "internal aphthous fever," because it essentially consisted of an eruption of aphthæ on the mucous membranes.

The presence of aphthæ on the gastro-intestinal mucous membrane was first observed, in October, 1862, in a calf that had died from the disease. In November the malady broke out on a large farm, and here the complication was witnessed in nearly adult animals. Three of these perished with the novel symptoms, and were carefully examined, as well as several calves; afterwards many cases of this kind afforded opportunities for cadaveric inspection by M. Zundel and other veterinarians in his neighbourhood.

As causes, besides those unknown or traceable to contagion, M. Zundel ascribed this complication to the influence of

youth, substantial alimentation, and more particularly agglomeration. Sucking calves, from eight to fifteen days old, were more especially liable—though cattle twelve months old and, but rarely, six to eight years of age, were not exempt. The complication was frequent in well-conditioned, highly fed animals; indeed, it might be said that it was only observed in good stables where milk was plentiful. The more closely packed the animals were, the more severe did the malady appear; and it was owing to this agglomeration, and the fact that the atmosphere was saturated with the virus, that this complication appeared to be due, as well as to the calves ingesting the morbigenous element along with their milk, which they derived from teats covered with vesicles and erosions.

It was not until the third period of simple aphthous fever —towards the fourth or fifth day, or even later, when the aphthæ in the mouth were in a forward state of cicatrization, —that there suddenly supervened a fresh access of general fever, more severe than in the first period. The animal became dull; standing was more difficult; the skin was very hot and the hair erect; shiverings, and trembling of the muscles were observed; the muffle was dry and burning; the ears sometimes cold, at other times hot; the eyes highly injected and brilliant, and the conjunctivæ violet-tinted; salivation became more abundant and very fœtid; and rumination, until now regular enough, although difficult, was completely arrested. Soon afterwards appeared on the muffle and in the nostrils a new eruption of aphthæ, passing quickly into a state of ulceration, and giving rise to perfectly round, but shallow, erosions, of an intensely red colour and easily made to bleed, which were covered by a dry, yellow, scaly crust, readily reduced to powder. The nostrils were clogged by dried mucus and an irritant ichorous discharge that excoriated the skin.

These aphthæ were accompanied by coryza, heaviness of the head, and sometimes a greater sensibility of the horns, which even became a little movable. The embarrassment in the upper air-passages occasionally induced dyspnœa; but no signs of implication were observed in the other parts of the respiratory apparatus, in either the larynx or the lungs. A slight degree of meteorization generally increased the dyspnœa; the abdominal walls were painful on pressure, the loins inflexible, and the back arched. The animal frequently grunted, as in indigestion of the third compartment of the stomach. Notwithstanding this, however, there were frequent and loud borborygmi, as well as diarrhœa. The fæces, at first very fluid, contained food scarcely altered, and much fetid sour-smelling

mucus. They were passed with difficulty; soon they became rare, less abundant, and almost exclusively composed of dried mucus, but never containing any pseudo-membranes, as had been remarked by German veterinarians. This diarrhœic, or rather dysenteric, condition only lasted about three days; emaciation was rapid; the fever remained, though it gradually assumed an asthenic character; and if treatment did not succeed, the animal grew weaker on its limbs, staggered, and died unexpectedly.

Often, in consequence of the recrudescence of the malady, the sores on the feet became ulcerous, and shedding the hoofs was imminent, if not inevitable; though the latter complication was somewhat rare, as well as the mammary affection. Some very grave cases of mammitis, however, were noted, which were extremely painful and did not yield to the ordinary method of treatment; they were often accompanied by a new eruption, followed by crusts, which obstructed the teats in a very troublesome fashion. In three cows an eruption was witnessed that covered the entire skin—a kind of surfeit—with tumours as large as the fist seated in various parts of the body, and which terminated in abscesses yielding a very thick pus.

In young calves the affection progressed much more rapidly. The complication showed itself sometimes before the animal had been ill twenty-four hours; the creatures were then very prostrated, and had rigors; sometimes the head was much tumefied, and the eyes became lacrymose. The diarrhœa was more of a serous than a dysenteric character; and their excrements were never composed exclusively of epithelial cells, as often happened with older animals. These calves frequently died before the third day of the attack.

The pathological anatomy of the malady was interesting. In calves that had succumbed to this complication, the mouth was very red, as was the pharynx, true stomach, and even the intestines. At times there were no traces of aphthæ in the mouth; the epidermis of the tongue was simply relaxed, and detached in some points; but in a far larger number of cases, well-marked aphthæ were met with in the true stomach and on the mucous membrane of the duodenum. These were superficial erosion, appearing as if stamped out with a sharp instrument, and situated in the middle of ecchymosed patches; these patches of ecchymoses in calves have been seen to result from a hæmorrhagic inflammation of the mucous follicles, as in older animals. All the calves that perished from aphthous fever did not present these cadaveric

lesions; often these young animals had "dysenteric diarrhœa, with debility and emaciation," which became complicated with aphthæ in the feet (*cocotte*), but on examination after death offered no traces of aphthæ in the gastro-intestinal tube.

In adults aphthæ were found in the mouth, progressing towards cicatrization; the erosions were at times simply covered with a white cheesy varnish, composed of non-agglomerated cells, and on other occasions with a real white epidermis. But alongside of these cicatrising aphthæ there were others of more recent origin, and still in an ulcerated condition; sometimes vesicles still entire were found. The latter were rarely met with in the mouth; but they were observed on the palate, in the pharynx, on the muffle, in the nostrils, and, lastly, even on the mucous membrane of the true stomach and duodenum. They were never seen in the larynx, trachea, or œsophagus, as some writers say they have been.

The epithelium of the reticulum was easily removed, and showed the mucous membrane highly injected, and covered with reddish violet patches, measuring from $\frac{3}{4}$ to $1\frac{1}{2}$ inches in diameter, where the membrane looked as if eroded, and its superficial surface as if cut by a stamp. The same pathological alteration was seen in the mucous membrane of the third and fourth compartments of the stomach and in the duodenum, though in a variable degree. The erosions in the true stomach were most marked. The food in the stomach, especially in the third compartment, was dry, and everywhere the epithelium was readily detached in removing the contents. In the rumen there were usually ecchymotic patches, larger than those in the reticulum, but no erosions.

The intestines only showed some reddish spots, which were more evident in those portions near the gastric viscera. On cutting into them, they were found to be full of mucosities, without any traces of food, and showing, as in dysentery, evidences of subacute inflammation. On the mucous membrane of the duodenum and part of jejunum, in addition to the aphthous erosions just mentioned, and which were of small dimensions, there were observed numerous hæmorrhagie patches projecting beyond the level of the mucous membrane, coloured a deep red, and punctated on their borders.

The spots corresponded to the orifices of the glands of the mucous membrane—the mucous follicles—particularly those of Brunner and Peyer, which were hypertrophied, and the seat of a special inflammation, with capillary hæmorrhage into the surrounding tissues.

Left to nature, the animals affected with this complication infallibly succumbed towards the fourth day—the ninth of the disease.

Those cured rapidly recovered, though often with the loss of their hoofs.

The prognostic was always serious, for the malady was much more contagious than the ordinary aphthous fever; it was more unfavorable for calves than adults, though out of thirty-six of the latter eight died.

The treatment was varied according to the indications, but was always simple. The calves were separated from the mothers, and fed artificially.

Severe measures of sanitary police were resorted to, and the flesh of the diseased animals was not allowed to be sold.

Lafosse, sen., had observed this complication of aphthous fever more than a century ago, but since that time it has been rarely mentioned by veterinary writers. In the *Comptes-Rendus* of Zurich for 1846, there is allusion made to the case of a calf that died of aphthous fever, after being fed on the milk of a cow affected with that disease, and in whose stomach *ulcers* were found.

Petri, in the *Annales de Bruxelles* for 1843, speaks of several instances in which the milk of diseased cows has had a deadly effect on calves and young pigs. Observations of the same kind have been made in Germany by Tannenhauer, and Hering admits that in the "millet" of young animals the aphthæ may extend to the larynx, œsophagus, and even to the stomach, and produce a deadly form of the disease, accompanied by *dysentery*.

Spinola speaks of aphthæ on the pharynx, which may become ulcers; but he does not mention vesicles in the digestive canal, nor yet dysentery. Röll, in his treatise on veterinary pathology, says that aphthous fever is often complicated with catarrhal affections of the respiratory passages, inflammation of the pharynx, and an *acute gastro-intestinal catarrh*.

Delafond is the only author who has come near M. Zundel's description of the complication. In his 'Traité de Police Sanitaire,' he admits diarrhœa to be a frequent termination of the second period of aphthous fever. "A mucous or bilious diarrhœa soon accompanies this condition, and the animals, promptly prostrated, lose condition and die." And again:—"At the autopsiæ of the animals, there are found ulcers with red margins, involving the thickness of the mucous membrane, in the nasal cavities, the larynx, trachea, soft

palate, *pharynx, true stomach, and the first portions of the intestinal tube. The small intestines contain much bilious and mucous matters, and numerous reddish patches are observed here and there, with thickening and softening of the mucous tissue; the mucous follicles are very apparent, and their orifices are often surrounded by a red margin.*

Veterinary Surgeon Adams, of Augsbourg, states that instances of this kind, although rare, have been noted by him, and that the complications of aphthous fever consist in a catarrhal affection of the *gastro-intestinal mucous membrane, with thickening of the follicles and erosion.*

Lafosse, jun., in his 'Dictionnaire d'Hippiatrique,' article "Aphthes," writes:—"On the 12th January, 1771, I was called to the Barrière-Blanche to a man named Antoine Louvet, to see some cows that were attacked by an epidemic malady, which had caused the death of all so affected. I opened some of them, in which the parts above named (pharynx, œsophagus and trachea) were *covered with aphthæ. I found the intestines sphacelous and full of fluid, which was the matter of the dysenteric dejections* that they expelled five or six hours before death.

Vatel, in his 'Eléments de Pathologie Veterinaire,' says—"These ulcerations (aphthæ), especially occupy the inner face of the lips, gums, tonsils, and sides of the tongue. They are also sometimes developed on the deeper-seated mucous membrane, as in the *pharynx*, larynx, œsophagus, trachea, &c."

Gelle remarks, in his 'Pathologie Bovine'—"Sometimes the aphthæ are continued into the pharynx, œsophagus, and *true stomach.* Then the case is serious; deglutition is very difficult, and the inflammation of the mucous membrane causes obstinate constipations."

Lafore, in his 'Traité des Maladies Particulières aux Grand Ruminants,' says—"In the few autopsies which have been made, there have been found traces of inflammation in the gastro-intestinal mucous membrane, and *ulceration of it. It appears that the affection is only mortal in cases in which the critical phenomena of ulceration takes place internally,* instead of being localised only in the mouth and digital region."

Hurtrel d'Arboval, in the 'Dictionnaire,' article "Aphthes," writes—"These aphthæ especially occupy the inner aspect of the lips, gums, fauces, and sides of the tongue; but they are also developed on the membrane of the *pharynx*, œsophagus, larynx, trachea, and even at the posterior nares down to the stomach, or even as far as the true stomach of didactyles

In the latter they are not perceptible, and it is only in opening the animals after death that they are discovered. . . . . Sometimes a new crop of ulcers is observed to succeed those primarily formed. . . . . The aphthæ are but little dangerous in themselves; they scarcely kill more than a few calves at the udder . . . . On opening these animals there are remarked aphthæ not only in the mouth, but also in the larynx, pharynx, œsophagus, stomach, and intestines, and sometimes in the bronchiæ. At times there are also noticed disorganisations in the intestines, and portions of the membrane detached and mortified."

M. Cruzel, in the latest work on bovine maladies ('Traité Pratique des Maladies de l'Espèce Bovine') does not allude to the gastro-intestinal aphthæ.

In Russia this complication would appear to be common. Jessen, Rawitsch, and several other Russian veterinarians, have observed that nearly on every occasion when the rinderpest manifests itself in a locality it is preceded for some months by aphthous fever. Frequently this fever is as benignant as we know it to be; but at other times it assumes a deadly character, and leaves the best practitioners undecided as to whether it is the aphthous fever or a mild form of the rinderpest they have to contend with, such as is seen where the latter malady is said to occur spontaneously. According to Jessen, in this way the aphthous fever destroyed in nine years, in the government of Orenburg alone, 1354 head of cattle out of 5,341 affected, And these Russian veterinarians had also notified that, in these cases of death, there are complications of the digestive organs, ulceration of the gastro-intestinal mucous membrane, dysentery, and lesions which approach those of rinderpest, and increase the uncertainty of the observations.

In this way there would appear to be some relation between the two diseases. Both come from the neighbouring or identical regions to us; aphthous fever, at least, can generally be traced to Poland, Moravia, and Silesia, from whence it is most frequently carried by droves of pigs. Jessen has also remarked that often in inoculating with the virus of rinderpest he has produced a benignant eruption resembling that of foot-and-mouth disease. And in 1829 the rinderpest, which since 1815 had never emerged from beyond the steppes, appeared in Bessarabia, Moldavia, and Hungary. But in the year 1831 aphthous fever, after slowly traversing Germany, appeared in France, where it was believed for the moment to be the rinderpest. In 1845 the latter malady entered Poland, Gallicia, and Hungary; and in 1846,

aphthous fever prevailed from the Caspian Sea to the Adriatic. In 1854 and 1855 there was a new eruption of Rinderpest, soon followed, in 1855 and 1856, by foot-and-mouth disease, which spread over Germany, into Switzerland and the east of France. Lastly, in 1861, 1862, and 1863, the rinderpest showed itself in all the Danubian provinces, in Turkey, and Italy; and shortly after an epizooty of aphthous fever broke out in Germany, Switzerland, and France. In the last century the two diseases were often observed to coincide in their irruptions; the epizooty of 1763-64 especially is confounded in many points with the rinderpest. These coincidences, however, fail when we come to examine the visitations of these contagions to our own country in this century.

Roche-Lubin, Sainte-Colombe, and Lafosse ('Traité de Pathologie Vétérinaire'), have remarked the simultaneous existence of pleuro-pneumonia and aphthous fever, but without any mixture of the two maladies, either in the same communes or stables; but in the majority of instances the former disease has succeeded the latter.

Of the extreme contagiousness of the malady there can be no doubt whatever, and it is so readily inoculable, that it can be produced in healthy animals by merely impregnating their mouths with the oral discharge, or giving them fodder which has been so soiled by diseased beasts. In Germany it has been often noted that a drove of cattle or pigs passing through a village or district, without even halting, have left the infection behind them. Healthy stock passing across their tracks have been contaminated.

There can be little doubt as to the transmission of the disease to man, chiefly by partaking of the milk obtained from cows in which the secretion has not been entirely suppressed. Besides the numerous accidental cases on record, Hertwig, Marin, and Villain have experimentally produced in themselves fever, and an aphthous eruption in the mouth, by drinking milk drawn from the teats of cows so involved. The negative results arrived at by other veterinarians were, in all probability, due to the fact that they used milk obtained from animals whose teats were not affected; and it is extremely likely that in those cases in which the external orifice of the teat is circumscribed by aphthæ, the milk, if consumed by human beings or animals, will reproduce the morbid symptoms in them. That the teat, when it shares in the eruption, is the most probable source of the reproduction of the malady in man appears to be proved by the many examples to be found in Continental veterinary literature of

people who milked diseased cows having the eruption on their arms, and sometimes in the mouth.

Hadinger, of Namiest, Moravia, in 1865, published his researches into the nature of eczema epizootica. With the microscope, employing a magnifying power of 700 diameters, he constantly found a cryptogamous plant on the vesicles of the mouth, in the white matter that covered the ulcers, whether these were in that orifice, or on the mammæ or feet. He also observed it in the saliva and the discharge from the affected limbs. His investigations led him to the conclusion that this fungus, which appears as a conical ramifying body covered with spores, was identical with the *rust* of plants, and that the aphthæ might be originally due to animals eating this diseased vegetation. He noticed that the malady, in traversing a country, travelled in zones, and that in the localities where it broke out the vegetation was much altered by rust. When a speck of this discoloration was microscopically examined, it was seen that it consisted only of vegetable tissue, dying or already dead, with fissures on its surface containing these cryptogamic growths, which, when favoured by heat and humidity, became enormously developed, and spread rapidly as much towards the periphery as into the substance of the plant. In animals it was the same fungus, only more highly developed; and numerous experiments proved that, to induce the aphthous disease in the mouth or feet, it was only necessary to introduce a leaf covered with the parasite, either beneath the tongue or into the interdigital space.

The vegetable closely resembled the *Oidium albicans*, the fungus that produces the stomatitis or millet of children, and the same disease in calves, lambs, and kids; it was of a cylindro-conical form, with roots, branches, and spores. The roots were cylindrical, translucent tubes, and penetrated gradually, not only the somewhat thick layer of epithelial cells covering the mucous membrane, but also the entire substance of the membrane, as it did in the plant it infected. Its branches, which extended in large ramifications on the epithelium, carried at the free extremity of each filament, as also sometimes at their point of bifurcation, a great number of spores. It is when this cryptogam takes root in the mucous membrane of the mouth, or in the skin of the interdigital space, and over which it spreads by multiplication, that the characteristic symptoms of aphthous fever declare themselves. So long as it remains only on the surface of the epithelium, it scarcely produces more than a simple mechanical irritation, with increased heat and abundant secretion; but when the roots have passed through the epithelium, there is congestion:

he irritated points become red in a variable extent, in proportion as the cryptogams are few or numerous; and when they have finally penetrated the texture of the membrane, they provoke a reaction in the organism, manifested by fever and the aphthous eruption, the object of which appears to be only to eliminate the parasite, to remove it from the soil into which it has fixed itself, and expel it from the body. The presence of the aphthæ produces pain, renders mastication and deglutition difficult, opposes locomotion, &c. The tissue of the cicatrice that gives it its pseudo-membranous aspect is only formed in part by the spores and tubular filaments of the parasite, mixed with isolated epithelial cells.

Such is the nature and, it might be asserted, the origin of this troublesome epizooty; and the researches of Hadinger enable us to readily understand many points connected with its pathology, treatment, and panzootic tendencies, which cannot be so satisfactorily accounted for by microscopical examination of the blood or milk.

PRACTICAL CHEMISTRY AS APPLIED TO VETERINARY SCIENCE.

By James Mason Broad, M.R.C.V.S., Bristol.

I am so convinced of the importance of a knowledge of practical chemistry to a veterinary surgeon, that I am induced to write you a few lines which may perhaps encourage students to pay a little more attention to this most important branch of the veterinary art; at present I am afraid it is sadly neglected.

During the time I was a student in veterinary medicine at the Ecolé Veterinaire, of Alfort, Paris, I had great opportunities for studying the practical branch of chemistry, termed analysis, in the splendid laboratories of the college, under the supervision of Professor Clèmence. Students there are, of course, obliged to go through the regular routine of practical chemical instruction, having to attend so many hours a week, and to analyze various portions of organic and inorganic matters; some of which are purposely poisoned, as directed by the laboratory assistant, which position is filled by a senior student, who has previously proved himself well informed; they are all consequently, upon leaving the college, for all practical purposes, good chemists.

As far as I am concerned, I very soon found, upon getting into practice, that my little extra chemical knowledge proved of great utility, for not only is it satisfactory to one's employers, but it is highly remunerative to be able to conduct the chemical examination of the viscera of an animal supposed to have been poisoned. Now, analysis is a scientific word, calculated, perhaps, to frighten a first sessioner, and students in general are so apt to think that an analysis is a thing so utterly beyond their reach, that they seldom venture even to think about it. As long as they know by heart "Who discovered oxygen?" "The symbol for hydrogen?" "The composition of air and water?" and a few such elementary questions, they think that quite sufficient.

Now, this is a great mistake, for a simple qualitative analysis is a very minor affair; and I hold that a very fair and satisfactory knowledge is to be easily obtained by spending a few hours weekly in Professor Tuson's laboratory during the two sessions allotted for study at the Royal Veterinary College. I wish, also, to show that time and money thus laid out will prove to be a good pecuniary investment for a student starting in practice.

During the time I was at Camden Town I spent two evenings of the week in Professor Tuson's laboratory, when, if I had not been there, it is highly probable that I should have been wasting my time at some of the fellows' rooms after leaving college. And before I had been in practice twelve months I made the following analyses:

First. Chemical examination of the viscera of some pigs found dead in their sties one morning, in which case a large quantity of common salt was found, which clearly accounted for death.

Second. Analysis of the viscera of a number of cows pastured upon ground in which rifle practice had been conducted; considerable quantity of lead found.

Third. Contents of some valuable fowls found dead; lead was found present in this case also, and it was afterwards found out that a paint-pot had been scraped out in the yard where they were kept.

Fourth. Contents of the viscera of a dog. No poison found.

Fifth. Analysis of the viscera of an ox. No poison found.

Besides many other rough chemical examinations. As I have before said, my object in quoting these is to show that there really is a necessity for the more complete study practical chemistry on the part of "veterinarians."

Will not the public generally hold us higher in its estimation if we can conduct these simple examinations ourselves, rather than run to chemists and druggists for assistance. We all admit that the great aim of the veterinary profession is to raise its standing in the estimation of the public, and is this not most effectually to be accomplished by enforcing longer attendance at the College, and greater application to such matters as these under discussion? Again, pathologically, practical chemistry is of great assistance in many ways, in the examination of urine *par example*, though I must admit that disorders of the urinary organs of the horse are not so numerous and complicated as those of the human subject; yet I am inclined to think that if examinations of the urine were more frequently made, we should be able oftener to satisfy ourselves as to the nature of certain obscure diseases we occasionally meet with.

If the veterinary student will but take an interest in this all-important branch of veterinary science, he will find in after life very many opportunities for applying his knowledge of simple practical analysis. I hold also that it would be much better for the modern veterinary practitioner were he to thoroughly understand the examination of oil cake, superphosphate, guano, and artificial manures generally; besides, if a man understands chemistry, there are many ways in which he can not only raise himself in the opinion of the public, but pass a spare hour now and then pleasantly and profitably, as in the chemical examination of bread, milk, sugar, and many other common things which are being daily proved to be adulterated to a frightful extent with all sorts of deleterious matter.

[While we fully agree with the opinions expressed by Mr. Broad relative to the desirability of veterinary students pursuing a course of laboratory instruction in analytical chemistry, and while we desire to congratulate that gentleman on the success which has attended his endeavours to turn to practical and profitable account the chemical knowledge he possesses, we nevertheless believe that anyone desirous of assuming the duties of an analytical chemist, must have a far greater experience in practical chemistry than can by any possibility be acquired by a pupil during the allotted period of study in any veterinary school, English or foreign. Moreover, we fear that, unless the professional engagements of veterinary surgeons are much fewer than they or we could wish them to be, the care, time and attention, analytical

investigations demand, could not possibly be bestowed upon them. In short, a rudimentary knowledge of practical chemistry is a valuable acquisition to, and should be possessed by, every member of the veterinary medical profession; but, as common sense teaches us, we must ever entrust to the professed and experienced analyst the prosecution of chemical inquiries save those of a simple and elementary character.—Eds.]

DISEASES OF CATTLE IN IRELAND.

By R. H. Dyer, M.R.C.V.S.

The last leading article in the *Veterinarian*, with reference to Ireland and its cattle exports, contains much that is interesting, as well as truthful; and, perhaps, I may be permitted to add a little to the information thereby afforded. It will be, I believe, admitted by most persons that the Orders emanating from the Privy Council of Ireland are very good, and not more strict than necessary; but, it may be asked, how are these Orders carried out? The police officers have authority to do much towards preventing cattle traffic in this country; and if they were better informed and interested themselves more than they are known to do, much good might be thereby effected.

For my part, however, I never hear of the seizure of an animal except in Dublin, or in a few other places, where inspectors are supposed to be at all times on the alert. I have frequently witnessed the removal of dead animals along the public highway, which must have passed immediately under the eyes of the police. Again, I know many places where pleuro-pneumonia has existed for a long time, yet the owners of the stock have had no check put upon them. Advantage is taken of this, which affords many opportunities of doing that which is contrary to the Orders of the Privy Council.

The executive in Ireland has, as far as the issuing of Orders is concerned, effected much; but it is necessary that, to protect the interests of the public, something more should be done. These Orders should be carried into effect by some one in authority, or they will avail but little. If those persons whose office it is to seize diseased meat were to do their duty, they would not permit such carcases as I sometimes meet with to be exposed for sale in the street stalls.

Even when an animal dies—no matter of what disease—there are plenty of butchers ready to purchase the carcase, to sell to their customers. I think I may with truth assert that no carcase is lost in this country; it always finds its way into the stomachs of Her Majesty's subjects.

Again, until practical men are appointed to act as inspectors in their several districts, I do not see what advantage is likely to result from Orders in Council.

Fairs in Ireland are being held daily at some place or other, and it is in fairs that an inspector should be found.

In Ireland there are *five thousand one hundred and sixteen fairs held during the year*. This seems incredible, but there is no difficulty of proving its correctness. This fact alone will afford a good idea as to the risk people run in purchasing animals at these places, as there must be a corresponding number of buyers and jobbers constantly trafficking in unhealthy as well as in healthy beasts. It has often surprised me that Ireland is so free from disease as she is; this may be explained in part from the hardy manner in which the animals are reared.

Ireland also is not so liable to contamination from the introduction of disease as many other parts of the empire. She is an exporting, and not an importing, country; but, nevertheless she is, to a certain extent, subject to some of the evils which exist elsewhere.

If pleuro-pneumonia is a contagious disease, and the incubative stage extends from ten to forty days, and the highways upon which diseased animals travel are sources of danger to healthy cattle, it appears to me to be of little or no use to issue Orders which are well calculated to arrest the disease, unless proper provision is made for enforcing their requirements. A want of this would lead us to conclude that the Council lacked faith in its own acts.

As the cattle plague was vigorously attacked and got rid of, so also could the lung disease, if effective means were had recourse to.

Speaking of cattle plague reminds me of a case I saw last year. A man came in a hurry to inform me that his cow had died of rinderpest, and requested me to see it. Upon examination of the internal structures I found that acute inflammation of the stomach and intestines was the cause of death. Another case to which I was called presented symptoms so nearly allied to those of that truly dreadful malady, that had rinderpest been in the country I should have been inclined to view this case as one of that disease. I did not see the animal after death.

The people in Ireland, to a certain extent, are all quacks. I am free to confess that they are sharp as regards horses and cattle, but at the same time, the old adage "a little learning is a dangerous thing," is often verified in their practice. They seem to prefer groping along in the dark rather than breaking through their old customs, and seeking at once the advice of those who ought to, and do, know more than themselves.

Some time ago I was consulted in reference to disease in some cows, chiefly for the purpose of giving an opinion as to the desirability of inoculating them. After looking over the animals casually, I discovered that one of them was suffering from "the complaint." She was immediately removed, and taken care of. The shed in which these animals were kept was open to the north-east, and the dung from about sixty animals was packed up behind them, so as to form walls to keep off the weather. This I complained of, and recommended the owner to remove it without delay, explaining at the same time the risk incurred by such an accumulation of filth. Notwithstanding my advice it was allowed to remain for some time, the owner not believing that any harm could arise from such a source. I was not favorably impressed that the operation would save the herd: however, the owner was determined to have it tried, and about eighty head of cattle were operated upon.

It must be borne in mind that everything was mentioned to him calculated to save his pocket, as regards the disposal of the cows and fat stock.

From time to time subsequently to the inoculation animals were attacked, when some friend persuaded the owner that the operation had been imperfectly performed, and as such he was induced "to try another hand" upon the survivors. This second operation was as ineffectual as the first, and a third person was appealed to, who went through the same ceremony. To shorten a long story, I may remark that ultimately from seven to eight hundred pounds were lost by the owner, owing to his not having sufficient confidence in the advice he first received, and believing in everything he was told by other practitioners. Since then he has more than hinted that had he left himself in my hands his losses not have been so severe.

THE PRINCIPLES OF BOTANY.

By Professor James Buckman, F.G.S., F.L.S., &c. &c.

(*Continued from p.* 846.)

In continuing our description of the *Cryptogamia,* or non-flowering plants, it will be our duty now to explain the general principles connected with the structure and uses of fungi, and the part they play in the economy of nature. Like the *Algales,* the *Fungales* admit of divisions into several groups, the principles of which will be explained by the accompanying table :

Natural Orders of Fungales.

Spores generally quaternate on distinct sporophores. Hymenium naked.	6. Hymenomycetes, Agariaceæ, or Toadstools.
Spores generally quaternate on distinct sporophores. Hymenium inclosed in a peridium.	7. Gasteromycetes, Lycoperdaceæ, or Puffballs.
Spores single, often septate, on more or less distinct sporophores. Flocci of the fruit obsolete or mere peduncles.	8. Coniomycetes, Uredinaceæ, or Blights.
Spores naked, often septate. Thallus floccose.	9. Hyphomycetes, Botrytaceæ, or Mildews.
Sporidia contained (generally eight together) in asci.	10. Ascomycetes, Helvellaceæ, or Morels.
Spores surrounded by a vesicular veil or sporangium. Thallus floccose.	11. Physomycetes, Mucoraceæ, or Moulds.

The first section of these, to which the term toadstool has been given, in recognition of the abhorrence in which too many of the species are held, yet contains a number of individuals—and the list is daily increasing—which are acknowledged to belong to the greatest of our edible delicacies ; to these the popular name of mushroom has been given—a name derived from the French *mouceron,* and which is applied to all edible species just as toadstool is used as denunciatory of those considered as non-edible. However, as our knowledge of these plants increases, it is found that while most of them really contain highly poisonous qualities, yet that very many are highly nutritious, so much so that Dr. Badham wrote a treatise on esculent funguses, with the view of pointing out an abundant, yet all-neglected source of food, which he

recommended to the palates of his countrymen in a time of threatened famine; and in regard to those of our own country he has the following remarks:

"No country is, perhaps, richer in esculent funguses than our own; we have upwards of thirty species abounding in our woods. No markets might, therefore, be better supplied than the English, and yet England is the only country in Europe where this important and savoury food is, from ignorance or prejudice, left to perish ungathered.

"In France, Germany, and Italy, funguses not only constitute, for weeks together, the sole diet of thousands, but the residue, either fresh, dried, or variously preserved in oil, vinegar, or brine, is sold by the poor, and forms a valuable source of income to many who have no other produce to bring into the market;" and yet he feelingly states—"I have this autumn myself witnessed (1847) *whole hundredweights of rich, wholesome diet rotting under trees; woods teeming with food, and not one hand to gather it.*"

Such are the remarks of a man of scientific and medical education, who had studied the fungus market in Italy and other European countries, and from which he was led to conclude that in Rome alone the poor derived as much as £4000 per annum from the sale of funguses.

But, as regards ourselves, he might have gone further than to lament over mere neglect, as we have too often seen people busily employed in crushing and destroying what they themselves could not appreciate.

The genus *Agaricus*, which stands at the head of our table, and to which mushrooms, though not all esculent funguses, belong, may be thus defined.

Hymenium, consisting of plates radiating from a common centre, with shorter ones in the interstices, composed of a double closely connected membrane (gills), more or less distinct from the *pileus* (cap); *volva*, or veil, various or absent; named from *Agaria*, a region of Sarmatia.

The parts here described are those which appear elevated on a *stipe*, or stem, which springs from a floccose cellular matter, often found in the soil, and investing the roots of grasses, upon the decaying elements of which so many of the species exist. Many of the species occur in woods, upon the decaying stumps of trees, on decaying manure, and in the meadows; and we would here direct attention to the latter, as some of the species are attractive to the botanist and man of science, from the influence they seem to exert on the pasture, and, besides, many of these are capable of affording food luxuries of the most grateful kind.

Still, in directing attention to the study of the Agarics, we must remind our readers that many species possess most active qualities, and this fact should stimulate the medical student to look deeper into their history, not merely with a view to the adding to his store of remedial agents, as well as increasing the food produets of our country, but with, if possible, the still more important matter of what to avoid, or how to act in the ease of danger.

The Rev. J. M. Berkeley, in the second volume of Dr. Hooker's 'British Flora,' has deseribed no less than 333 speeies of plants, referred to different seetions of the genus Agarie, now, we think, unwisely divided into many genera. Of these Dr. Badham has described forty species as being wholesome as food; and since his book, before cited, made its appearance, this list has been greatly extended, and it is known that many speeies are commonly eaten on the Continent whieh are refused in this country; and we shall presently see that the one we call mushroom *par excellence* is looked upon with great disfavour in Italy. We would now describe the following species with a view of bringing some important facts in the history of these plants the more prominently before our readers.

1. *Agaricus campestris,* L. Mushroom.
2. ,, *Georgii.* With: White caps.
3. ,, *prunulus,* Scop. Moueeron, May mushroom.
4. ,, *oreades,* Bolt. Fairy-ring agaric.

1. The first of these is the well-known mushroom, so well known, indeed, as to require no further description in this plaee. It is the mushroom of England, and the only one reeognised as fit for food by, for the most part, the inhabitants of these islands; and yet we year by year see paragraphs in the papers detailing cases of poisoning by some one having partaken of "toadstools" in mistake for mushrooms! Here, then, at starting, to describe edible fungi it would seem curious that we should have either to cast doubt upon the qualities of the favourite, or really to admit that there is such difficulty in the diserimination of a mushroom as to render it dangerous to trust to it. But the truth is, that the veriest bumpkin is never mistaken in the common speeies; but, alas! either from eating too greedily of such an admitted dainty, or from some peeuliarity in constitution, mushrooms sometimes exert a very dangerous power: and it is not a little interesting to find that this eommonly reeeived English edible mushroom is really considered dangerous on the Continent.

It would appear that in all the Italian towns there is appointed an inspector of fungi, who, amongst other directions, is warranted as follows:

"The stale funguses of the preceding day, as well as those that were mouldy, bruised, filled with maggots, or dangerous, (*muffi, guasti, verminosi, velenosi*), together with any specimen of the common mushroom (*Ag. campestris*) detected in any of the baskets should be sent under escort, and thrown into the Tiber."

Dr. Badham further states that—

"In Rome, whilst many hundreds of what we call *toad-stools* are carried home for the table, almost the only one condemned to be thrown into the Tiber by the inspector of the fungus market is our own mushroom; indeed, in such dread is this held in the Papal States that no one knowingly would touch it. "It is reckoned one of the fiercest imprecations," writes Professor Sanguinetti, "amongst our lower orders, infamous for the horrible nature of their oaths, to wish that any one may die of a pratiolo!"

Now, as we have frequently investigated cases of supposed poisoning by mushrooms, and *never found any mistake made in the species*, we are inclined to the belief that the common English mushroom is not the safest, as we shall presently show it is not the best of our English agarics.

2. The *Ag. Georgii*, now better known as *Ag. arvensis*, is readily distinguishable from the ordinary mushroom by its size and the paler colour of its gills, and, besides, the whole flesh turns of a yellowish hue when bruised. This gets the common name of whitecap when in its fresh white unexpanded condition; but when it becomes broad and flattened it is better known under the appellation of horse-mushroom, a name given on account of its greater size and coarseness when compared with the smaller and more compact *Ag. campestris*. This term is meant to convey inferiority, just as the bitter horse-chesnut is contrasted with the sweet chesnut, horse-radish or radix with the smaller radish of the salad, and the like. This large agaric is sometimes found occupying fairy-rings; we got a dozen from a ring in our hayfield last June, the largest of which, as it laid with its flattened cap on a plate, measured a foot in diameter, and its stem was as much as three inches through.

We have partaken of this fungus with great satisfaction, and Persoon pronounces it to be superior to the common mushroom, in smell, taste, and digestibility; on which account, he says, it is generally preferred in France; in England, however, it is more lightly esteemed. Still, as

a ketchup species, it is undeniably good, and its yield of this sauce is rich and abundant.

3. The *Agaricus prunulus* of authors, so called by Dr. Badham, is the *Ag. gambosus*.—Fries, or the true St. George's mushroom; it is the mouceron or mousseron of the French, from its growing so frequently amongst moss on the Continent, so says Dr. Bull; but this is by no means its character in England. With us it is usually found in the meadow or on the downy upland, occupying well-defined fairy rings; and as it is seldom seen beyond the second or third week in May, it can scarcely be confounded with any other species. Dr. Badham says truly: "They are reproduced in these rings about the same time every year, the circle continuing to enlarge till it breaks up at last into irregular lines, which is a sure sign to the collector that the *prunulus* is about to disappear from that place, just as the presence of an unbroken ring is conclusive of a plentiful harvest the next spring."

This is one of the most delicious and wholesome of the whole tribe, and yet so little is it known that tons of it are destroyed every year, every countryman deeming it a merit to kick about and trample upon this "toadstool" wherever he finds it, and yet, as we are informed by Badham: "It is much prized in the Roman market, where it easily fetches 30 *baiocchi*, *i. e.* 1*s.* 3*d.* a pound, a large sum for any luxury at Rome. It is sent in little baskets as presents to patrons, fees to medical men, and bribes to Roman lawyers. When dried, it constitutes the so-called 'funghi di Genoa,' which are sold on strings throughout Italy."

These *funghi* are sold at the Italian warehouse at the high price of 6*d.* an ounce for flavouring soups, &c.

We have known the fresh agarics cooked like mushrooms, partaken of by seventy hearty young men in an evening, and with no after ill-effects, which, indeed, we have never heard of, though we have introduced it at so many tables, and always look out for it in its season with great interest. They are good grilled, fried with a little bacon, stewed, in a mince or fricassee, or in a *vol-au-vent*, and wherever the smell of these well cooked is once perceived, it becomes as appetising as the burnt pig in Charles Lamb's story, of which Bo-bo thrust the lesser half by main force into the fists of Ho-ti, still shouting out "Eat, eat, the burnt pig, father; only taste —O Lord!"

We once took a basket of these to a meeting of the Cotteswold Naturalists Field Club, which was appointed at Swindon Station. On sending these by the waiter to be cooked, it was evident that he had some misgivings as to the sanity of

our party; not so an Italian cook, who was afterwards reported to us as striking an attitude in the kitchen on beholding the beloved *funghi,* and going into raptures about verdant Italy. Be this as it may, they were marvellously cooked, and though none of the party except ourself had tasted them before, no sooner was the cover uplifted and the agreeable odour made itself felt, than the contents of the whole dish vanished as if by magic.

4. The *Agaricus Oreades* is really the French champignon. It too grows in rings, and is in season a great part of the year. It is a somewhat small fungus, of a yellowish-brown colour. This species can scarcely be popularly known from description, but it should be learned, as it is very abundant, exquisite in flavour, nutritious, and wholesome. It dries readily, and in this state is excellent as a flavour for soups and sauces.

There are many other agarics equally worthy of notice, but the descriptions already given will, it is hoped, be sufficient to show that in this one genus of fungales we have a choice of most exquisite articles of food; and it may not be too much to expect that an extended study of these may increase our list of both viands and remedies.

In our next we shall attempt to explain the formation of fairy rings.

LAMINITIS.

By Wm. Pallin, M.R.C.V.S., Kilkenny.

"One fact is worth a thousand theories" was a favourite expression of one who has left a wide niche in the pillar of fame of the veterinary profession—I allude to the late Professor Dick. The animated discussion which has filled the pages of the *Veterinarian* for months past seems to me to have been a fair fight between two friends which never should be separated—I mean theory and practice. The seconds and supporters of the former were few, still their scientific encounters with the ablest of all weapons, the pen, was almost a sufficient match for the many small voices who exclaimed in favour of the latter, standing firmly on the base of facts. It is now full time for the referee, which is the profession at large, to give its decision.

The champions, Messrs. Fleming and Broad, have each

played their parts as men should do; still it appeared to me that Mr. Fleming's *periplanter side-cut,* in his last communication, was an adroit changing of tactics to turn the tide of affairs.

It is not my intention to run to the rescue of either, or entangle myself after the battle is over, but to state a few facts connected with the matter. A case of laminitis, of the most severe form, occurred in my practice in April last, and although I used the most careful and approved treatment, disorganization of the foot and displacement of the *os pedis* followed. After this had taken place I had to remove the entire sole. I wrote to Mr. Broad for particulars of his treatment, and received by return full directions, and also one of his "special" shoes. I had a pair made after the pattern, and put on, and the horse seemed immediately relieved, and walked much better. I have continued their use since, only removing them every three weeks. The soles have grown, and no further displacement has taken place since the first day the shoes were put on. The horse, of course, goes on his heels, and will never have perfect action again; but I am fully convinced that the use of the shoes has not only relieved his sufferings, but also checked the progress of the disease.

The question of light and heavy shoeing for general use was extraneous to the point at issue. Practically to my mind this depends on the foot you have to shoe, the work the horse is intended for, and the roads he has to travel over. But as a shoe intended to supply the wants of nature in a foot undergoing a state of either acute or chronic inflammation, with a tendency to displacement of the bones, I am satisfied, after a fair trial, that Mr. Broad's is the shoe to be preferred. Our thanks are not only due to him for its introduction, but for his courtesy towards those who asked his aid, with the wish to test the principle. If the readers of the *Veterinarian* are to decide, all who have tried the relative treatment of each combatant should speak out, or for ever after hold their peace. Otherwise each may go his own way, congratulating himself on having carried off the laurels.

[The discussion on Laminitis and its Treatment by Mr. Broad's system of shoeing must close. No further benefit can arise to the profession by its continuance.]

PATHOLOGY OF BROKEN WIND.

By the same.

In the October issue of the *Veterinarian* "Veritas" makes a most unjust accusation of my having pirated the theory of broken wind, which is put forward in my essay, read before the Irish Central Veterinary Medical Association, from Professor Williams, through my having gained a sight of my brother's "note-book." This statement I hasten to disprove.

For the last six years I have made lung diseases of the horse my special study; and the theory which I claim to be the originator of is the result of careful researches and investigations on the subject which were instituted before Professor Williams became the Principal of the Edinburgh Veterinary College or my brother thought of entering the profession. Further, I affirm that I never had any conversation with my brother relative to the disease till after my paper was written; nor have I ever read a *note* of his on the subject. I can perhaps account for the similarity which may exist between Professor Williams' view and my own respecting the derangement of the nervous system in this disease, from the circumstance that, in all probability, our first idea of this being the case was obtained from the same source, *namely*, the lectures of the late lamented Professor Barlow, who left behind him many beautiful but undeveloped theories.

The pathological view of the paralysis of the muscular fibres of the bronchial tubes, their ultimate atrophy, and probable absorption, was entirely the product of my own investigations, and I never either saw in print or heard of a similar opinion *before*. I am proud, however, to find this view corresponds with that of so able and painstaking a veterinarian as Professor Williams, whom I look on as an ornament to the position he occupies.

I would much sooner see "Veritas" employing his early literary talents and evident good note-taking to a better purpose than acting the part, especially if he is a new y fledged member of the profession, of a "presumptuous critic." Let me recommend to him deeper investigations into the pathology of broken wind. These are quite possible. The task of making them is one which I have set myself to do, and which I hope to show the result of, on some future occasion.

TUBERCULOUS DISEASE, AFFECTING THE SECOND CERVICAL VERTEBRÆ, THE BRAIN, AND SPINAL CORD.

By Neil Barron, V.S., Turriff.

Scrofulous or tuberculous disease in cattle has been of very frequent occurrence during the last ten years in the agricultural district where my lot is cast. On some farms it has caused great and gradual degeneracy of a large proportion of the whole bovine stock, and consequently much pecuniary loss.

It attacks various organs and parts of the animal system, most frequently those of the thoracic and abdominal cavities, occasionally extending its ravages to the coverings of the brain and spinal cord, and even to the bones, altering both their structure and position.

In a stock where from time to time animals of any age, class, or condition, fall a prey to this disease, the cause can generally be traced to a progenitor having had a scrofulous diathesis. I have always dissuaded farmers from using a bull for breeding purposes which had enlarged glands about the submaxillary space, even although otherwise a superior animal. One stockowner in this district, within the last three or four years, has lost over a dozen good yearlings and two-year-olds by tuberculous deposit in the chest and abdomen, inherited from a tainted sire; whilst many others of the same stock have been reduced in value by "gritty" tumour about the fauces, &c. Another farmer had his stock so thoroughly deteriorated by the same cause, that at the public sale held at the end of his lease in 1863, his cattle were turned out, one after another, making such a hideous noise during respiration, from the presence of "gritty" tumours and swelling in the region of the throat, that buyers were extremely cautious in making offers, and it was with difficulty that even small prices were realised.

Apart from those affected in consequence of hereditary transmission, the animals I have found usually suffering are, young cows that have endured extensive laceration of the vagina during parturition, and been improperly treated thereafter; old cows that have been extra milkers; cows that have given birth to twin calves repeatedly; and most common of all, cows that have calved at two years of age, and suckled

their calves until they (the cows) were reduced, to use a popular phrase, "to skin and bone."

These facts accord with the statement of Professor Brown in the July number of the *Veterinarian*, 1868, viz. "The abnormal deposit is the natural consequence of diminished tone of the system, induced by causes which tend to debilitate the organism." But I must hasten briefly to describe two cases in accordance with the heading of this communication, chosen because the structures implicated are much more rarely affected than several other parts of the body.

Case 1.—In the middle of the summer of 1866 I was requested by John Ledingham, Esq., Slap, to look at a one-year-old "stot" of his, at grass in a field with a number of other cattle, which had been observed to keep apart from the herd for several days. On examining the animal I observed a peculiar stiffness, with fixedness of the head and neck; the countenance somewhat dejected, and the coat unthrifty; an occasional but by no means severe cough: the appetite was moderate, and the food seemed well enough digested. Auscultation of the chest revealed little, and pressure on the windpipe elicited neither pain nor cough. The owner informed me that he had bought this animal, and therefore no antecedent history could be obtained. Thinking it was, perhaps, the commencement of the formation of a hydatid cyst in the cranium, and that medical treatment would be useless, I recommended a continuance at grass if the weather should prove favorable.

I saw the patient several times during the following three months, but no alteration of symptoms was at any time discernible until the beginning of October, when he was noticed to have a difficulty in getting up, whereupon the owner had him housed, and again solicited my attendance. Being satisfied that my former suspicion of an hydatid in the cranium had no foundation, I now felt certain that pressure on some part of the spinal cord existed, the exact nature of which I was unable to determine. No particular treatment was advised, except stimulating the course of the spine, and afterwards placing a charge thereon. The difficulty of rising increased day by day for eight days, during which time he always required assistance.

For forty-eight hours more he was able to lie in the natural position, but gradually the paralysis extended, and muscular power was lost, the head being last affected, until Oct. 25th, when he lay with head and limbs outstretched, in a perfectly helpless condition. Still the appetite and digestive powers remained, and he eagerly devoured any food placed within

his reach. Having no hope of recovery, Mr. Ledingham concurred in my suggestion to have the animal slaughtered. This was done by bleeding, in order that a careful *post-mortem* examination might be made, a short description of which will conclude the relation of this case. The whole of the digestive organs appeared to be unimpaired in structure or function, and likewise those of respiration with the exception of the upper end of the trachea, on which a gritty tumour had been pressing, thus probably causing the occasional cough. On removing the horns a large quantity of yellowish fluid escaped; and by laying open the cranial cavity and spinal canal from end to end, a very interesting scene was presented, which well repaid our investigation. The centre of the mischief was the second cervical vertebræ, more than two thirds of which had lost all the characteristics of healthy bone, and become a gritty, tuberculous mass, occupying much more space than is required by the dentata in a normal state, to the detriment of adjacent tissues, and chiefly the spinal cord. The latter was so completely compressed within the mass, that after it was liberated it retained its acquired shape as perfectly as if a ligature had still been tightly fastened round it. The effects were, enormous effusion of blood under the theca, and over the whole brain surface, so as to form a complete coating. This extended downwards to the mid-cervical region. Along the whole cord posteriorly to this, effusion of yellowish fluid was very abundant, escaping freely when the membranes were accidentally injured during opening up. There was also infiltration of the same fluid into the muscular tissue in various parts of the body.

Case 2.—On the 24th of May, 1867, a year-old calf, belonging to Charles Wilson, Esq., Hiltown, was observed, whilst at grass, to extend her head in a peculiar manner, and to have a difficulty in gathering and swallowing her food. I was called immediately, and had the animal housed for inspection. No foreign body was lodged in the mouth or fauces. Manipulation of the trachea evinced tenderness, but auscultation indicated no thoracic disease. Considerable depression was manifest, but nothing pointing to a fatal result. I treated the case as one of inflammation of the mucous membrane of the larynx and trachea by blistering in that region, and ordering laxatives and linseed gruel.

On the 29th I found my patient standing obstinately in a corner, and much averse to having her head moved. There was some effusion at the brisket, resulting from the blister, and the cough had ceased. The appetite was entire lost, and greatly increased depression of the vital powers was apparent.

Replying to my inquiries, the owner told me he had bought the animal, when a few weeks old, from a neighbouring crofter, the tendencies of whose stock to tuberculous disease I well knew.

I soon learned she was the calf of an old cow which had died of tuberculous disease only a month previous to this time. I had no longer any doubt as the nature of the ailment, and intimated to Mr. Wilson that death would be an early result. The animal lived a week longer, but gradually lost power, and became completely comatose during the last three days.

Death took place on the 7th of June, on which day I made a *post-mortem* examination of the carcase. To be brief, I may just state that the membranes of the brain were studded with the peculiar gritty deposit, and considerable effusion of fluid was observed, as in the former case. The contents of the chest and abdomen were free from taint, as far as the eye unaided could detect. I confess I expected to find considerable deposit on the pleura, more especially from my knowledge of the following fact:—A calf, descended from a healthy stock, in possession of the crofter above mentioned, which had been allowed for several months to suck the milk of the old cow referred to, presented the symptoms of the above case in a marked degree, when only eight months old, being thoroughly prostrated and utterly oblivious to all surrounding objects during the last four days of existence; and when examined by me, after death, the thoracic cavity was literally packed with masses of tuberculous matter.

Circumstances prevented my inspection of the cranial cavity and spinal canal of this animal, else, no doubt, indications of the disease would have been met with in these parts.

OPEN JOINT IN A CART HORSE.

By Joseph Leather, M.R.C.V.S., Liverpool.

I beg to submit to your notice the following singular case of open joint associated with fracture of the bones of the knee.

On the 20th October, 1869, I was called in to see a remarkably fine and valuable roan cart horse, the property of Messrs. Roberts and Robinson, contractors and builders in this town. The horse had fallen in the cart. No injury was done to the anterior part of the knee-joint, but a wound was

inflicted on the posterior and lateral parts; very little lameness occurred at the time, but it increased daily, and was attended with discharge of synovia. The remedies adopted, which consisted of cathartics, astringents, absorbents, &c., produced no benefit. Great attention was given to insure quietude of the limb; but when the knee-joint is implicated, I must confess this is a difficult task to accomplish.

On the 29th my friend, Mr. J. Lawson, of Manchester, and Mr. B. Briscoe accompanied me to see my patient. They simply recommended a continuance of the treatment hitherto adopted, the discharge then being trifling, but shortly afterwards it made its appearance on the anterior part of the joint, which I considered a very unfavorable symptom. Exfoliation of a small portion of bone soon followed, and I now saw that the case was becoming hopeless. On November 2nd I advised the owners to have the horse destroyed.

Post-mortem examination showed a fracture of the head of the inner small metacarpal and trapezoid bones, the latter was shattered into a dozen pieces. The cause of the injury, in my opinion, must have been a blow either from the heel of the shoe of the fore foot, or the toe of the hind foot, in the animal's efforts to recover himself from the fall. The singularity of the case appears stronger when we look at the complicated structure of this joint, with its extreme flexibility. The blow must have been very great to have produced such destruction of the parts.

Pathological Contributions.

CATTLE PLAGUE.

Buckowina and Hungary are still infected with the plague, despite the means employed for its eradication. The disease is also reported as being on the increase in Galicia, and to have reappeared with great virulence in several parts of Roumania.

The Saxon Government requires bills of health with regard to Moravian and Bohemian cattle imported into the country; and with reference to Hungarian, Podolian and Galician cattle, in addition to the bills of health, certificates

setting forth that the animals have been kept for at least three months either in Moravia or Bohemia, previous to their export therefrom, are demanded. The animals must also travel in special railway trucks, and notice be given of the intention to send them on.

The disease alluded to in our last month's issue as existing on the southern shores of the Black Sea, would appear, from more recent information, to be cattle plague. Egypt is thus again threatened with a reintroduction of the disease, as her supplies are almost continuously being drawn from Asiatic Turkey.

PLEURO-PNEUMONIA.

Our information, both from Great Britain and Ireland, with regard to this disease, is less satisfactory than could have been wished.

In Ireland the malady is more prevalent and fatal than it has been for many years. It has also broken out in the great grazing county of Meath. Not less than forty counties in England and Scotland are the seat of the disease, and as many as 165 fresh outbreaks have been reported as occurring in one week during the past month. As might be expected, the question of inoculation as a prophylactic has been revived, and new experiments in this direction are reported as about to be commenced. To this we see no objection, but to be of value in deciding the *questio vexata* still attaching to inoculation, they must be on a more extended scale and carried over a far greater length of time than heretofore, as well as be undertaken by persons who are careful not to come with a small amount of experience to hasty conclusions. Pleuro-pneumonia frequently ceases in a herd spontaneously after having carried off a few animals. The disease will likewise remain dormant, in some instances, even in a small herd of fifteen or twenty animals, for ten or twelve weeks.

It is things of this kind which, unless properly considered, are likely to lead to conclusions the very opposite to truth.

ECZEMA EPIZOOTICA—FOOT AND MOUTH DISEASE.

This disease would appear to have reached its climax in Great Britain, and now to have begun its decline. According

to the returns, sixty-six counties were the seat of the malady down to the middle of November, in the place of sixty-eight to the corresponding period of the preceding month. A similar diminution had also taken place in the number of centres of the disease and of the places reported as affected for the first time; the proportion of the former being as 2600 to 3000, and of the latter as 740 to 800. In Ireland, however, the malady is said to be on the increase. On the Continent it would also seem to be extending, as accounts have reached us of its appearance in Gallipoli and many other places in the vicinity of the Dardanelles, and likewise in the district of Malmo, in Sweden, most of the intervening countries between these far-distant localities being still affected to a greater or less extent.

SCAB OF SHEEP.

No diminution appears to have taken place in the number of places in which scab exists in the neighbourhood of Stettin. The disease is also rife in many other parts of the Continent. Two cargoes of infected sheep have been imported into this country, but in both instances all the animals were killed at the port of debarkation. One of these cargoes came into Leith from Aarhuus, and the other into Goole from Antwerp.

Scab continues to prevail also in many parts of Great Britain, and since our last month's publication several lots of sheep sent for sale have been seized by the inspectors at the markets. In most of these cases fines have been inflicted on the owners of the animals.

SMALLPOX OF SHEEP.

From the information we have received with regard to the prevalence of this disease on the Continent, it would appear that the malady is not so rife, on the whole, as it was a short time since. It, however, still exists in many parts of Pomerania, and, like scab, it not only has not been eradicated from the neighbourhood of Stettin, but is said to be on the increase there.

CONTAGIOUS DISEASES (ANIMALS) ACT, 1869.

"RETURN of the number of foreign animals brought by sea to ports in Great Britain, which on inspection on landing, within the month of October, 1869, have been found to be affected with any contagious or infectious disease, specifying the disease, and the ports from which, and to which, such animals were brought, and the mode in which such animals have been disposed of.

Foreign ports from which brought.	Ports in Great Britain to which brought.	Disease.	NUMBER OF ANIMALS AFFECTED.					DISPOSAL.
			Cattle.	Sheep.	Goats.	Swine.	Total.	Slaughtered by Order of Customs.
Hamburg .	London ...	Foot-and-Mouth .	11	...	...	...	11	11
,, ...	Grimsby...	,,	...	7	...	...	7	7
,, ...	Hartlepool	,,	51	22	...	21	94	94
,, ...	Newcastle-upon-Tyne	,,	76	...	...	12	88	88
Harlingen.	London ...	,,	6	...	...	45	51	51
Husum ...	London ...	,,	198	320	...	...	518	518
Rotterdam	London ...	,,	2	2670	...	...	2672	2672
,, ...	Harwich...	,,	...	6	...	24	30	30
Tonning...	London ...	,,	12	514	...	...	526	526
Total ...	... ...	... ...	356	3539	...	102	3997	3997

"ALEXANDER WILLIAMS,

"Privy Council Office, Secretary.
"Veterinary Department, 11th November, 1869."

REMARKABLE SPECIMEN OF DISEASED LIVER.

MR. RAYMENT, Inspector of the Metropolitan Cattle, has forwarded to us the liver of a cow, which weighed not less than 200 *lbs. avoirdupois*. As can be easily supposed, its enormous

size, altered form and changed colour, led at first sight to its being mistaken by several persons for a large fibrinous tumour. Its pathological condition appears to have consisted originally of a rupture of the tissue of the middle lobe, associated necessarily with the escape of a considerable portion of blood, which, however, by clotting, prevented fatal hæmorrhage. This extravasated blood seems afterwards to have been surrounded with effused fibrine, which in turn was covered with a fresh effusion, and so on until the whole organ was brought into a similar morbid condition.

The animal from which the liver was taken was an aged Irish cow, the carcase of which attracted Mr. Rayment's attention, on his visit to the slaughter-house, by its emaciated and dropsical state. The carcase was condemned as being unfit for human food; and on Mr. Rayment making inquiry respecting the viscera, he was shown the liver in question, which had been thrown into the yard with a quantity of refuse matter from the slaughter-house.

Facts and Observations.

Creosote Oil as a Source of Heat.—We have it on the authority of our contemporary, the *Journal of the Science of Arts*, that Mr. W. D. Dorsett has brought out a system by which not the creosote oil but its distilled vapour, which is more powerful, is made to do the work of coal in heating iron plates to the heat necessary for bending them for ships' armour-plating and other similar purposes, where the advantages sought are very high and at the same time so equal a temperature as that, while producing the required amount of ductility in the material to be operated upon, it shall not be deteriorated in its fibrous tenacity. For some two or three months Mr. Dorsett has been experimenting with his patent fuel in Woolwich Dockyard, and so satisfactorily to the Admiralty authorities, that they have instituted tests at Chatham, with a view to the preparation of the armour-plating of the *Sultan* armour-plated ship now building in that dockyard. The advantages may thus be shortly summed up as compared with coal :—A greatly diminished cost and saving of time in producing the required heat of iron, as well as a saving of labour; an absence of refuse, and a surface altogether free from scale. As regards the effect of this

new mode of heating upon the metal itself, one of the dock-yard operatives declared, somewhat emphatically, that the commonest iron treated by it came out of the furnace as good as the best Low Moor. The apparatus is simple, and inexpressibly applicable to existing coal-furnaces. It consists of a reservoir, from which the oil is pumped up as wanted into a receiver, where, by the application of heat, the vapour is generated, and this is passed through pipes into the furnace, and used as fuel in the ordinary way.—*Popular Science Review.*

The Vascular parts of the Retina of the Hedgehog.—The *Proceedings of the Royal Society*, May, contains a communication by Mr. J. W. Hulke, in continuation of his former papers on the structure of the retina. The chief peculiarity, he says, is that *only* capillaries enter the retina. The vasa centralia pierce the optic nerve in the sclerotic canal, and, passing forwards through the lamina cribrosa, divide at the bottom of a relatively large and deep pit in the centre of the intraocular disc of the nerve, into a variable number of primary branches, from three to six. These primary divisions quickly subdivide, furnishing many large arteries and veins, which, radiating on all sides from the nerve-entrance towards the ora retina, appear to the observer's unaided eye as strongly projecting ridges upon the inner surface of the retina. When vertical sections parallel to and across the direction of these ridges are examined with a quarter-inch objective, it is immediately perceived that the arteries and veins lie, throughout their entire course, upon the inner surface of the membrana limitans interna retinæa between this and the membrana hyaloidea of the vitreous humour, and that only capillaries penetrate the retina itself.—*Ibid.*

Oats as Protein-yielding Plants.—Herr Dr. Kreusler has a paper on this subject in the *Journal für praktische Chemie* (No. 9). He found that the protein compound was extracted from the coarse oatmeal by means of alcohol of ordinary strength—80 per cent. He states the composition of the pure substance to be in 100 parts—C. 52·59, H. 7·65, N. 17·71, S. 1·66, O. 20·39.—*Ibid.*

The Nutrition of Plants.—In a paper lately laid before the Society of Sciences of Göttingen, Herr W. Wicke communicated some results of researches upon the nutrition of plants. He had been experimenting on plants with phosphate of ammonia, hippuric acid, and creatine. He con-

cludes, from numerous investigations, that all these substances constitute the nitrogenous food of plants which grow in aqueous solutions. As to the changes which they may undergo in the soil, he thinks that a new series of researches must be made to determine this.—*Ibid.*

How Light affects the Decomposition of Carbonic Acid by Plants.—In the *Comptes-Rendus* of August 9, a paper is published by M. Prillieux detailing the results of experiments made on plants with gaslight, electric light, and magnesium light. The experiments were conducted on aquatic plants; the stem of the plant being cut across, and thus allowing the escape of bubbles of oxygen to the surface; these could then be readily counted. He found that whilst in a given time sunlight caused the disengagement of twenty-two bubbles, in the same time under the influence of electric light only eleven bubbles were disengaged. Other lights furnished less. But still, as all the lights caused the disengagement of oxygen, it shows—the author thought—that these sources of light contain the same elements as sunlight. —*Ibid.*

The Chemistry of the Air.—In the report just issued by the Inspector under the Alkali Act, the inspector gives the following as a summary of conclusions in reference to the state of the air: "The rain from the sea (Western Islands) contains chiefly common salt, which crystallises clearly. The sulphates increase inland before large towns are reached. The sulphates rise very high in large towns, because of the amount of sulphur in the coal used, as well as decomposition. When the air has so much acid that two or three grains are found in a gallon of the rain-water, or forty parts in a million, there is no hope for vegetation in a climate such as we have in the northern parts of the country. Free acids are not found with certainty where combustion or manufactures are not the cause. Experiments in the direction indicated above may enable us to study and express in distinct language the character of a climate, and certainly of the influences of cities on the atmosphere."—*Fifth Report* published by Spottiswoode, and presented to both Houses of Parliament.—*Ibid.*

Wax of the Ear.—M. Petrequin shows that the wax of the ear is variously compounded in different animals; thus, in man, its base is potash; in the dog, lime; and in the horse, magnesia.

THE VETERINARIAN, DECEMBER 1, 1869.

Ne quid falsi dicere audeat, ne quid veri non audeat.—CICERO.

INFECTIOUS DISEASES AND SANITARY REGULATIONS.

FOOT AND MOUTH disease has extended over a considerable part of the kingdom, indeed, only two counties in England have escaped, while a large portion of Scotland and Wales have suffered, and Ireland is now experiencing the beginning of the trouble.

Pleuropneumonia exists in thirty-four counties of England, Scotland, and Wales, and in Ireland it is reported to be extensively prevalent. Scab in sheep—a very annoying though not a fatal disease—exists in several places, and glanders in horses is far more common than many people suspect. To the etiologist the spread of these maladies at certain periods is a fact not easily accounted for; in the course of his investigations he sometimes discovers centres of infection, from which, however, no mal influence appears to radiate, until suddenly new conditions arise, and the affection extends over the country with wonderful rapidity. Quite unsuccessfully the inquirer seeks to ascertain the nature of these new circumstances, nothing of a tangible character rewards his search; so far as he can see, all the essential features of the disease remain as they always were; but instead of the affection advancing only in consequence of direct contact, it seems to have acquired an excess of malignancy, and to proceed in defiance of laws, and regardless of all attempts to arrest its progress by sanitary means.

Numerous causes may combine to assist the spread of a contagious disease; there may be a general disregard of necessary caution in the movement of diseased and infected animals, disinfection may be neglected, and animals which are suffering from the disease in the incubative stage may, in consequence of being sold in fairs or markets, carry the infection to distant parts; still there is the fact that all these causes are constantly in action when foot and mouth disease

and pleuropneumonia are in the country, and yet no serious extension of them occurs, no one is alarmed at the presence of the affections among cattle, and no suggestions are made in respect of their prevention. Suddenly, without any change in the general arrangements, the diseases manifest the infectious character to a remarkable extent, and prevail to an alarming degree. That foot and mouth disease and pleuropneumonia are exclusively of foreign origin, and due to the importation of foreign stock, is an article of faith so firmly established in the agricultural mind, that to oppose it, or even to venture upon a suggestion to the contrary, is now a hopeless task. Nevertheless we must, in passing, plead the well-known fact, that foot and mouth disease appeared in England, and pleuropneumonia in Ireland some years before foreign stock were admitted. It is said that animals were landed from the Continent both in England and Ireland before 1842, but, after careful inquiry, we have failed to discover any reliable evidence of the truth of the statement. An outbreak of pleuropneumonia is rarely traced to foreign animals, while it is frequently communicated to English cattle by beasts brought from Ireland, and, in all probability, cattle in Ireland receive the infection back again from diseased animals sent from this country.

In the whole space of the United Kingdom we possess the means of perpetuating this disease, and also eczema, quite independently of foreign stock, and the more complete and extended the means of transmitting cattle and sheep from one part of the kingdom to another become, the greater will be the risk of spreading infectious diseases among our stock.

We have never hesitated to express our conviction that a separate waterside market for the sale and slaughter of all imported animals would not prevent pleuropneumonia and foot and mouth disease in this kingdom; both of them have been too long established to yield to preventive measures of so very indirect a kind; and if they are to be eradicated, they must be dealt with quite independently of foreign importations.

Speaking entirely with reference to the sanitary aspect of the question, we recognise as a matter of course the necessity for preventing the movement of diseased and infected animals,

whether foreign or English, and the establishment of an extensive depôt for the reception of all animals imported from countries where any infectious disease exists, would be a great public convenience, and if the projected foreign market were now in full action, the great difficulty which is felt in isolating the stock from infected countries would not exist; but what we contend for is the necessity of regulations at home for the suppression of indigenous infectious diseases.

During the rapid spread of eczema and lung disease in the last autumn, all the legislation which was undertaken with the especial object of dealing with them has been rendered abortive, not intentionally, but as the inevitable result of divided responsibility and conflicting opinion. In several counties police constables have been appointed inspectors for the suppression of maladies of which they can know nothing. In other cases no inspectors were appointed at all until the disease had advanced beyond all hope of arresting it. In Ireland, where pleuropneumonia constantly prevails among cattle, no inspection of any kind takes place; and notwithstanding a comprehensive Order of Council, which forbids the removal of diseased or infected animals, it is no one's business to see to its provisions being carried into effect, and diseased and infected animals are moved accordingly, just as their owners think proper.

It is quite impossible, with these facts before us, to attempt to discuss the question of the success or failure of legislation upon infectious diseases of animals. The means which have been devised have yet to be fairly tried, and when this has been done it will be time to decide what influence they have had upon the progress of those maladies against which they are directed.

Instead of acting upon a fixed system as Continental authorities do, we amuse ourselves by trying experiments. In one county only (Norfolk), so far as we are aware, has there been any attempt to establish a rational plan of action by dividing the country into districts, and appointing an inspector to each. The idea has not yet, however, been carried out, and we allude to the matter merely for the purpose of suggesting that such a system of division, if applied

all over the kingdom, would be the most convenient, at the same time the most effective, which local authorities could devise.

Mr. Clare Sewell Read's proposal to award the inspector n each district a small retaining fee, and then pay him for the work which he does would, if adopted generally, remove all difficulty on the score of proper remuneration, and would, in all probability, lead eligible young men to occupy positions which are at present in want of veterinary surgeons, but which cannot offer them the inducement of a small fixed salary tocommence with. In the course of time the full development of the system might result in the establishment of special examinations for inspectorships, in order to test the candidate's knowledge of the nature of infectious and contagious diseases, with their modes of propagation, the most effectual means of disinfection and prevention. It would be understood that no candidate would receive his certificate unless he possessed a comprehensive knowledge of all these subjects, and, in addition, was perfectly familiar with the state of legislation on everything relating to diseases of animals.

Reviews.

Quid sit pulchrum, quid turpe, quid utile, quid non.—Hor.

Horseshoes and Horseshoeing: their Origin, History, Uses, and Abuses. By George Fleming, F.R.G.S., F.A.S.L., Veterinary Surgeon, Royal Engineers, &c. London: Chapman and Hall.

The art of farriery never before found, and probably never will again find, so erudite an exponent as the author of 'Horseshoes and Horseshoeing.' In itself the work is sufficient to establish the writer's reputation as a historian, an ethnologist, and an archæologist of no mean order.

The student of men and manners will find stores of legends, illustrative of the thoughts of the people of long-past times. The antiquary will not fail to discover ample food for careful digestion in the many interesting facts which the author has brought to the surface in his search for material to enrich his

special subject; and the scholar may unhesitatingly take up the volume in the assurance that he will meet with much that will instruct and interest him, even though he may not feel an absorbing interest in the history of the humble craft of farriery.

Referring to the origin of the art of shoeing with iron, our author points out several instances of incorrect translation of passages of Homer leading to wrong conclusions, the terms brazen-hoofed and metallic-footed being interpreted to mean metal-shod feet, an interpretation which is shown to be fanciful.

Among the Greeks, according to the evidence afforded by their works of art, metal horseshoes were unknown, as they were never represented on their statuary; and Mr. Fleming gives due weight to this circumstance in the history of a people whose love of truth was apparent in every phase of art which, in all its details, was absolutely unerring.

Passing on to the history of the horse in the time of the Romans, our author gives many interesting particulars of the method of protecting the feet of horses by means of woven shoes of straw, or silk and cotton mixed.

Between the third and ninth centuries occurs a gap, when, as Mr. Fleming says—

"Learning was at a low ebb, because of the disturbed condition of the civilized world, and the overthrow of kings and dynasties by the irruptions of these strange and less than semi-barbarous nations, who swept away or destroyed in their progress nearly everything valuable to future ages, leaving only the more salient and remarkable historical facts to be imperfectly described by a few monks or refugees. These were, for the most part, buried in cloisters or secluded spots, and had but few opportunities, even if they possessed the inclination or ability, to note the various changes which befel many of the arts, or chronicle those which appeared for the first time; so that it is not to be wondered at that the annalists of those days should be silent with regard to these foot defences, and that the first intimation of their existence should only be given at so late a date as the ninth century."

A very complete account of the methods of shoeing practised by the Eastern nations is given in Chapter V, from which we quote the following description of the state of the farrier's art among the Chinese:

"In journeying toward the eastern termination of the Great Wall, 'you cannot help bestowing a passing glance at the operations of the *Ting-chang-ta*, as the shoer of hoofs is

denominated, for you may require his assistance frequently during your travel to secure your pony's clanking shoes, or to adjust a new pair; and you are certain to find him busy in the most crowded thoroughfare, or in the most stirring corner of the market-place. He is not generally a very bold man in his calling, nor has he much patience with skittish or unmanageable solipeds; for he too often makes it his practice to secure the unruly and vicious brute in the old-fashioned 'trevises,' or stocks—exact counterparts of those employed by country farriers in Britain and the Continent half a century ago—where it is firmly bound and wedged in by ropes and bars, and a twitch—an instrument of punishment still tolerated in other lands—twisted to agony round the under lip of the subdued beast, until its extremities have been iron-clad. The more docile and submissive animal is less harshly dealt with, for it is allowed to stand untied, with one of its feet flexed on a low three-legged stool, while the workman shaves off great slices of superfluous horn from the thick soles, with an instrument which differs in no particular that we can see from the now obsolete 'buttress' of England, or the present *boutoir* of France. Perhaps a fidgety draught animal does not quite relish the idea of parting from its worn-out shoes; and the squeamish shoer, to avoid sundry uncomfortable contusions on his shins, stands some distance off, and hammers at the end of a long thin-pointed poker, inserted between the useless plate of iron and the hoof, to twist it off."

The history of the ancient Britons has furnished Mr. Fleming with many valuable facts elucidatory of his subject; and this portion of his work has called for the most considerable amount of patient labour.

Then follow traditions of the "iron age," the history of shoeing in England after the Norman conquest, references to older veterinary writers; some among them Mr. Fleming has really brought to light; then we have records of the days of chivalry, when a sure-footed horse meant something, even more than it does now, as a stumble might bring the disgrace of defeat on the rider.

Tracing the history of horseshoeing throughout the sixteenth and seventeenth centuries, Mr. Fleming arrives at our own time, touches upon the establishment of veterinary schools on the Continent and in England, criticises the systems of shoeing which have been at different times "the rage," and, without setting down aught in malice, does not spare the inventors upon the absurdities which are still in vogue. Mr. Fleming is not unnecessarily severe, and if his

strictures do not quickly tend to the reform of many abuses, they will at least open the eyes of the public to their existence. Mr. Fleming's views on the subject of shoeing are too well known to the readers of the *Veterinarian* to render it necessary to quote from the latter part of his work.

We welcome 'Horseshoes and Horseshoeing' as a valuable contribution to veterinary literature.

A Pharmacopœia, including the Outlines of Materia Medica and Therapeutics, for the use of Practitioners and Students of Veterinary Medicine. By Richard V. Tuson, F.C.S., Professor of Chemistry and Materia Medica at the Royal Veterinary College; formerly Lecturer on Chemistry at the Charing Cross Hospital. 1869. Churchill.

It is, for obvious reasons, impossible for us to offer in this journal any general opinion on the merits of this new contribution to veterinary science. Our readers will readily understand that any praise of it would be equally ungraceful in us and distasteful to Professor Tuson. But the production of a new 'Veterinary Pharmacopœia,' founded on the principles of modern science, and arranged in accordance with the recent 'British Pharmacopœia,' is an event too important to veterinary practitioners to be allowed to pass unnoticed in these pages, and we think it our duty to describe, as shortly as possible, the chief characters of the book. The arrangement adopted is succinctly explained in the following quotation from the preface. It is carefully modelled upon that of the 'British Pharmacopœia,' though the scope of the work is considerably wider.

"The agents are arranged in alphabetical order, according to the plan adopted in the 'British Pharmacopœia,' and are treated of under the following heads:

"1. Latin Pharmaceutic Name.
2. English Pharmaceutic Name.
3. Synonyms.
4. Composition.
5. Mode of Preparation.
6. Character and Tests.
7. Action and Uses.
8. Doses.
9. Modes of Application.
10. Incompatibles.
11. Antidotes.
12. Preparations."

The number of preparations included by Professor Tuson in the new 'Pharmacopœia' is very nearly 350—a fact which illustrates very strikingly the rapid progress which veterinary practice has made within the last few years, and the rapidity with which the improvements introduced by human practitioners are adopted by veterinarians. In the description of them the author has of course met with the same difficulty which beset the framers of the 'British Pharmacopœia,' namely, the difficulty of deciding between the new and old systems of nomenclature and atomic weights. The new systems have now been so generally adopted by chemists that to ignore them would have been to keep veterinary science in the rear of progress; but, on the other hand, their introduction is still so recent, that only those practitioners who have received their chemical education within the last few years can be expected to understand them.

This difficulty has been surmounted in the following manner. Every fact which is important *for actual practice* is stated in the simplest and least scientific language possible, and the old nomenclature is retained. Thus, in the preparation of "Ferri Carbonas Saccharata," we are directed to take 'sulphate of iron' and 'carbonate of ammonia,' instead of 'ferrous sulphate' and 'ammonium carbonate,' as they are called in the new system. But, on the other hand, all the purely scientific portions are given in the most modern scientific form. The composition of the above-named mixture, for example, is thus described:

"Ferrous carbonate (carbonate of iron), $FeCO_3$, mixed with ferric oxide, Fe_2O_3, and sugar, the carbonate forming at least 57 per cent. of the mixture."

And the description of the chemical change which attends its preparation is given in a similar style. The atomic weight and formulæ employed throughout the work are those of the new system, but this will probably be a matter of indifference to the practitioner, who, we fancy, does not often bother his head about either of them. Whether green vitriol be $FeSO_4$ or FeO, SO_3, and whether it ought to be called ferrous sulphate, or sulphate of iron, he will find easily enough that he is to take two ounces of it, and that is the main thing after all.

Another novelty introduced into the book is in the specification of the doses; these are given not only for horses, but also for cattle, sheep, pigs, and dogs. Thus, the doses of calomel are stated in the following terms:

"Horse, 20 to 60 grains; cattle, 10 to 30 grains; sheep, 4 to 8 grains; pig, 1 to 4 grains; dog, 1 to 4 grains."

Many other points of originality might be pointed out, and we are bound to remark that the innovations appear to be all on the side of practical convenience. The appendix contains tables of the new and old atomic weights, of the weights and measures of the British Pharmacopœia, and of the French metrical system, and a careful comparison of the two.

In addition to a very full ordinary index, the work contains a carefully prepared "Index to Veterinary Medicines, arranged according to their Actions and Uses." In this index the meaning and derivation of the terms employed are given at the head of each list of drugs. The following example will best illustrate the mode of arrangement:

"Emetics (*εμετικα*, emetica, from *εμέω*, I vomit),—agents which cause vomition.
Antimonium Tartaratum.
Cupri Sulphas.
Ipecacuanha.
Zinci Acetas.
Sulphas."

It is scarcely necessary to add in conclusion that the book is well got up and very clearly and accurately printed. To say that it is published by Messrs. Churchill is, in fact, almost equivalent to saying so much for it.

The Animal World: a Monthly Advocate of Humanity.

It is hardly a satisfactory reflection for humanity that there should be a necessity for any special advocacy of the claims of the lower animals to *humane* treatment. When men cease to be humane they lose their right to be called human, and the words in which *Punch* a few weeks ago made the stricken ox plead to his manly (?) assailant—"Am I not a *brute* and a brother"—become literally accurate in their expression.

If there ever was a need to teach men reverence and compassion, it exists now, and especially do we agree with the "Animal World" in believing that these essential qualities of humanity should be, by precept and example, indoctrinated in our youth, in whom the lack of them is not only mischievous, but even deadly.

The second number of the new publication is before us, and we have been much interested in the perusal of its

articles illustrative of the habits of animals, and condemnatory of the disregard which is manifested for their feelings, even by those who would disdain to actually injure them.

Mr. Fleming's paper on "Mutilation of Horses' Tails," and the article on "London Macadam Roads," are pungent, and to the point, striking at palpable and quite inexcusable abuses. Some of the communications seemed to us to adopt the extreme view of assuming the possession of human sensibility by the lower animals, and to put sentimentality in the place of humanity in their advocacy of a superstitious reverence for life in all its forms; but on every subject opinions will vary according to idiosyncracy.

The object of the work must command sympathy and support, and its extensive circulation cannot be otherwise than beneficial.

Extracts from British and Foreign Journals.

FOOT AND MOUTH DISEASE IN RELATION TO THE MEAT AND MILK SUPPLY.

Diseases of the lower animals are not only interesting to the student of comparative pathology, they also constitute an integral part of all questions which have reference to the supply of animal food for human consumption; and it seems a singularly unfortunate circumstance that animals which furnish us with meat and other alimentary material are especially liable to the most virulent forms of disease—for example, typhus, trichiniasis, and "measles" of the pig; variola, scab, and liver rot of the sheep; cattle plague, splenic apoplexy, and foot and mouth disease of the ox.

The last-named malady has prevailed in this country since 1839, and has assumed a very virulent form at different times since its introduction. At no period, however, has its spread been more rapid than during the last few months. Since last June the reported number of attacks exceeds 30,000, and probably 50,000 would be much nearer the truth. Very few counties in England have escaped; and the disease prevails on the continent even to a greater extent than it does in our own country.

Unlike most infectious diseases, foot and mouth complaint has an extensive range of affinities. Cattle, perhaps, are more susceptible to the influence of the virus; but sheep, pigs, and poultry frequently suffer severely. Its influence on the human species is at the present moment a subject of dispute, and as soon as we have carefully analysed the evidence we shall again refer to it.

Eczema, or foot and mouth complaint, belongs to the exanthemata, and is distinguished by a short period of incubation (from thirty-six to forty-eight hours); followed by a period of invasion, during which the temperature is increased from two to four degrees; and, finally, by the formation of vesicles, which vary in size from a fourpenny-piece to a florin, on the tongue, roof of the mouth, inside the lips, on the udder, and immediately above the hoofs, either between the digits or on the coronary surface and the skin of the heels, in which latter situation they are small and very numerous. The speciality of the disease is a tendency to the separation of cuticular tissues from their secreting struetures: thus the epithelium of the buccal membrane is thrown off in patches; loss of hair often occurs; portions of cuticle are removed from the udder; and a partial, or even in some cases complete, separation takes place between the hoofs and the internal tissues. Among diseases of cattle, foot and mouth complaint is probably the most infectious, and the remarkable rapidity of its spread is due to the facility with which it can be communicated by indirect means.

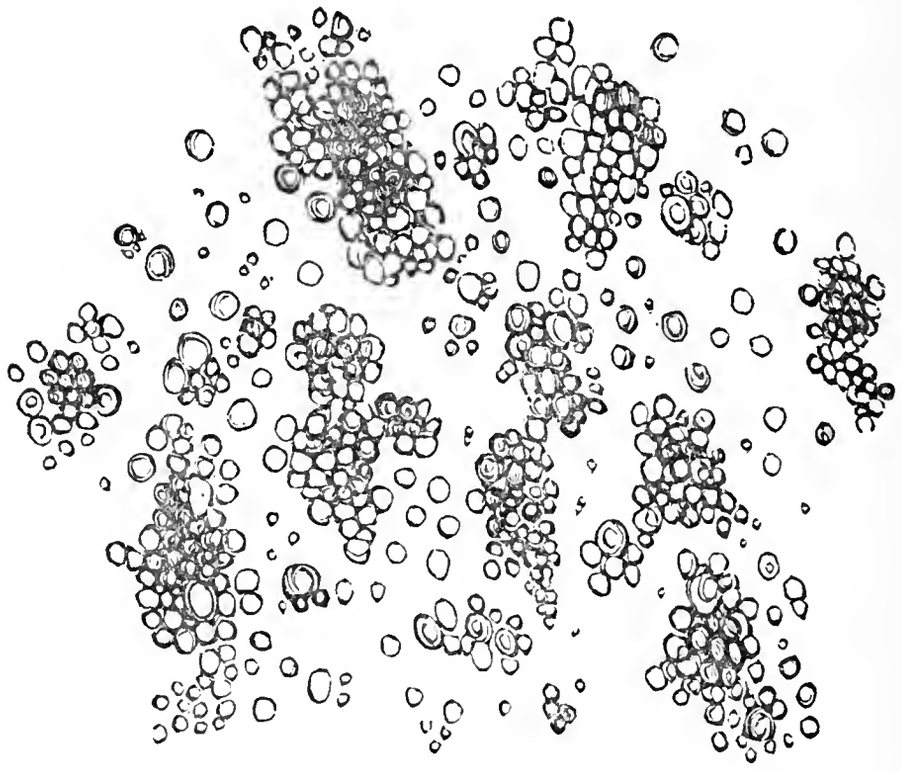
Under ordinary circumstances the morbid phenomena are not very severe in character: considerable fever is present in the early stage; but as soon as the vesicles are formed it subsides, and convalescence is established in six or seven days. When the malady assumes a virulent form, as it has frequently during the recent outbreak, the resulting lesions are more serious, consisting of ulceration of the mucous tissues of the mouth, formation of abscesses in the mammary gland and in other parts of the body, sloughing of hoofs, and extreme debility and emaciation, terminating in death. The losses in this malignant form of the disease amount sometimes to 20 per cent. of the animals attacked. The influence of foot and mouth disease upon the meat and milk supply is a question of importance to the consumer; and it must be admitted that the results of recent observations on this subject are not altogether satisfactory.

Milk from cows affected with foot and mouth disease acts energetically upon young animals to which it is given warm. Calves occasionally die quite suddenly after sucking cows

affected with the malady; and fatal effects have followed the administration of the milk to young pigs. It has been alleged that there is not any direct evidence of injurious consequences arising from the consumption of the milk by human beings; but it must be remembered that the fluid is very rarely taken immediately from the cow, and still more rarely in an undiluted form; and it may be not altogether an unfortunate circumstance that the decrease of the secretion during the prevalence of the disease necessitates a large admixture of water in order to keep up the quantity which is required for daily consumption.

FIG. 1.

MILK IN FOOT AND MOUTH DISEASE. (EARLY STAGE.)



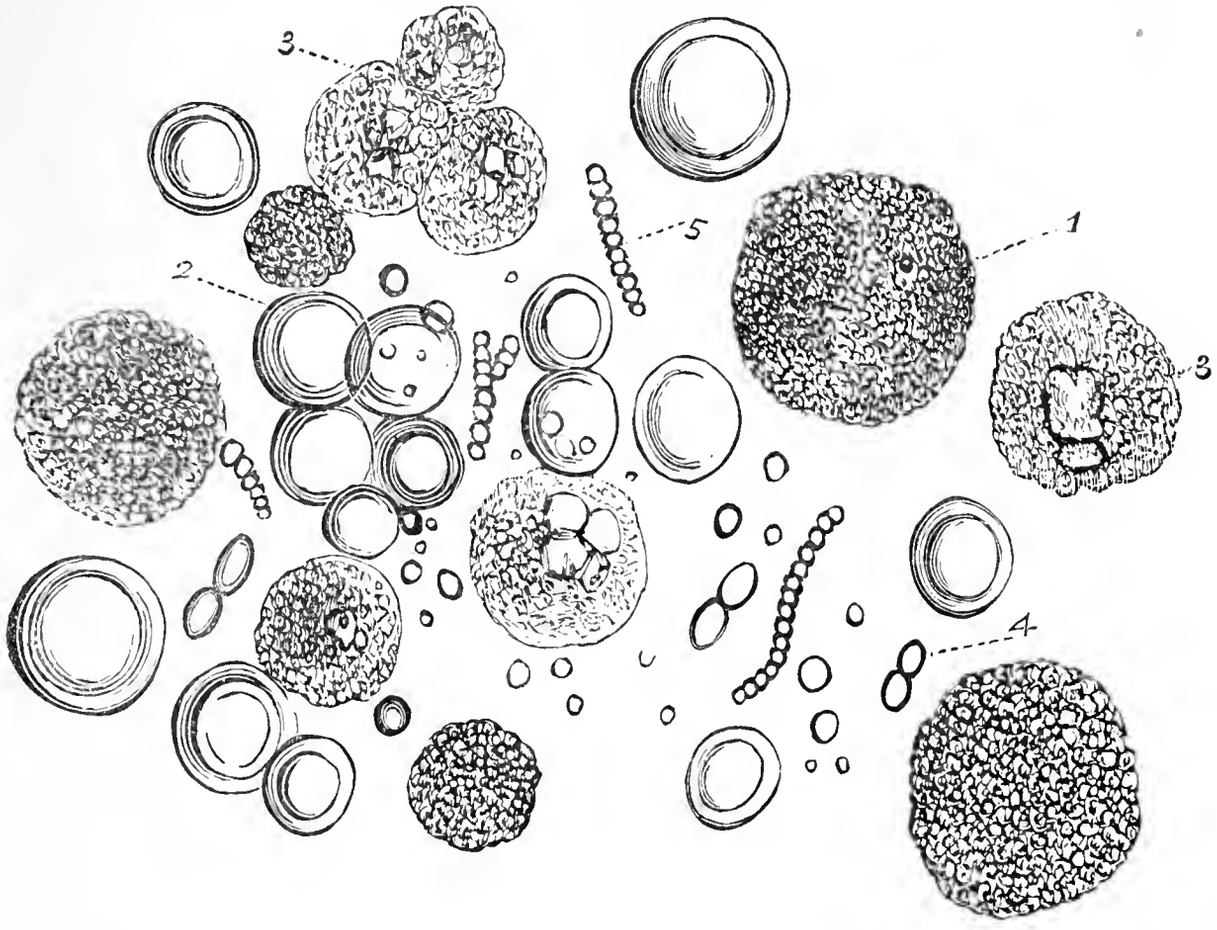
Clustering of milk-corpuscles. Bacteria and minute spherical bodies are scattered over the field. (Mag. 200 diam.)

In the early stage of the disease the milk presents few abnormal characters: the specific gravity falls to 1024, and the milk-corpuscles are always found to be arranged in clusters, as shown in fig. 1. A few minute moving specks are also seen under the quarter-inch objective, and these under the 1-25th are resolved into bacteria and spherical bodies.

When the disease is fully developed, about the third day from the first appearance of vesicles, the milk invariably contains morbid products of a very pronounced character, which are shown in fig. 2. This specimen was taken from a cow

FIG. 2.

MILK IN FOOT AND MOUTH DISEASE. (LATER STAGE.)



1, Large granular masses. 2, Milk-corpuscles. 3, Pus-like bodies. 4, Bacteria. 5, Vibriones. (Mag. 1300 diam.)

which had been suffering from the disease for ten days. The fluid, after standing for some time, separated into two parts —a curdy deposit and an amber-coloured whey. The same elements were found in both constituents—viz., large granular masses of a brownish-yellow colour, numerous pus-like bodies, bacteria, vibriones, moving spherical bodies, and a few milk-corpuscles.

It is particularly worthy of remark that these morbid elements were found in specimens of milk which in their physical character presented no appreciable peculiarity.

In some specimens which were viewed with the micrometer eye-piece the milk-corpuscles varied in size from 1-2000th to 1-10000th of an inch in diameter, and the granular masses from 1-500th to 1-1000th of an inch. Milk from animals affected with cattle plague and also with pleuro-pneumonia was always found to contain an abundant quantity of the granular masses and pus-like bodies; and in cases of cattle plague similar elements were distinguished in the curdy

exudation which existed in the mucous membrane of the mouth, pharynx, trachea, and bronchial tubes.

Examples of milk taken from animals in different stages of foot and mouth disease afforded very interesting results. At the commencement the specific gravity fell to 1024-5, and continued to range between the two numbers until the animal was convalescent, when it rose to 1026-7, which standard was not exceeded for two months after recovery.

The granular masses and pus-corpuscles decreased in number as the affection subsided; but in all the specimens examined after the animals had recovered they were found scattered here and there among the milk-corpuscles; and even in specimens which were examined a month after recovery, they were detected. The granular masses were not found in milk from the same animals two months after recovery, but even in these specimens a few pus-like corpuscles were present.

Two examples of milk taken from cows on the fourth day of the disease were found to be highly charged with granular masses; the milk, however, was remarkably rich in quality, having a specific gravity of 1034, and yielding a large proportion of cream. Diminution of the quantity of milk is invariably observed during the progress of any febrile disease; and in foot and mouth complaint the loss is sometimes considerable. Cows, when suffering from the worst form of disease, lose nearly all their milk; but when the attack is mild in character, the decrease will not be more than one-third of the usual yield. The average loss in a large dairy while the disease is going through the sheds will vary from one-third to two-thirds, according to the number of severe cases. As all the milk obtained is mixed, the worst milk will be to some extent modified by the addition of that which is less highly charged with morbid elements, and the whole is further diluted by the addition of water, which, judging from some specimens obtained from an establishment where the disease was known to exist among the cows, is sometimes added to the extent of 40 per cent.

Boiling the milk has been recommended for the purpose of preventing or lessening its injurious action; but as a matter of fact it may be stated that boiling does not alter the appearance of the morbid elements, nor does it arrest the movements of bacteria in the fluid.

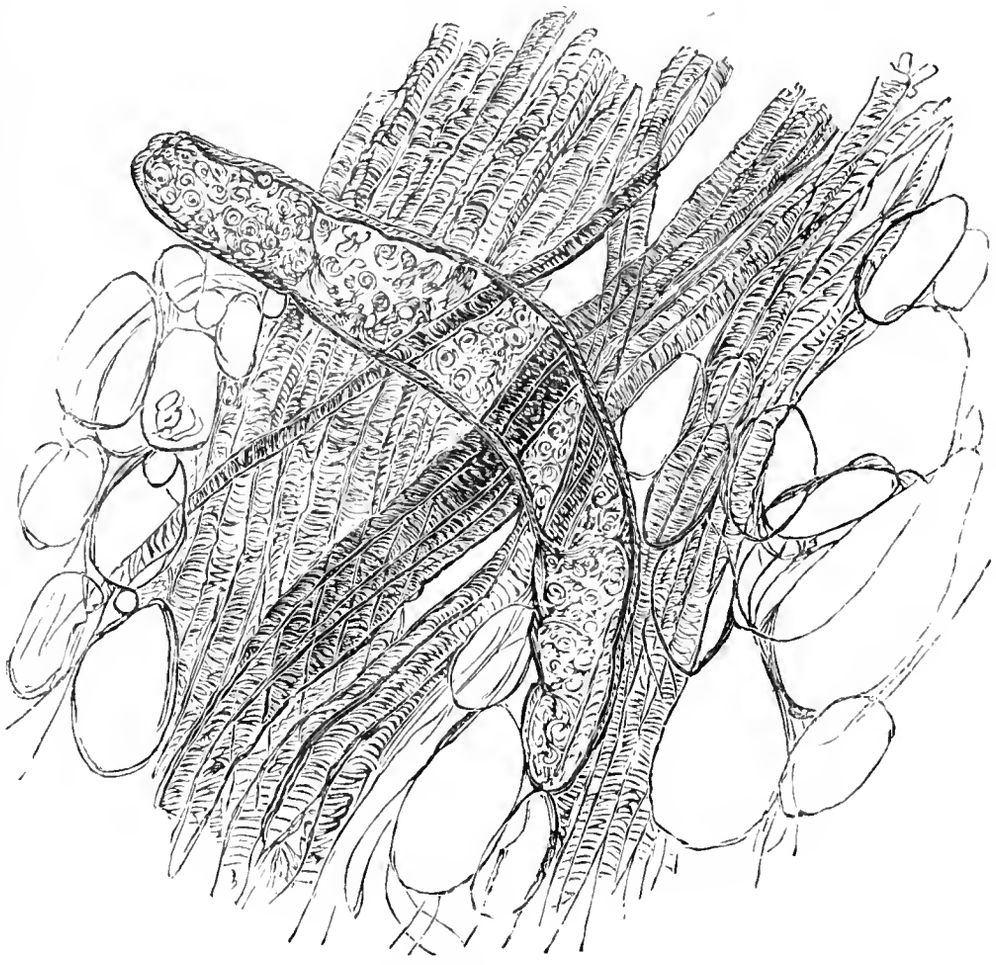
No changes of a specific kind have been observed in the blood of animals affected with foot and mouth disease. The blood-discs, when examined immediately after the blood is taken, will be seen to be covered with projecting points; but

after a short time many of them resume the normal circular form. The white corpuscles are in excess, and there are also present minute circular bodies, which move actively; but all these phenomena may be observed in the blood of animals suffering from other diseases.

Numerous examinations of the flesh of cattle which have been destroyed while suffering from foot and mouth disease have been made at various times; but no important morbid changes have been detected. In many specimens the peculiar worm-like bodies, which were found so abundantly in the muscles of animals dead of cattle plague, have been seen, but seldom in large numbers. The illustration fig. 3 was

FIG. 3.

MUSCULAR TISSUE OF HEART IN FOOT AND MOUTH DISEASE.



Worm-like body (psorosperm) lying loose among the fibres.

taken from a preparation of the heart of an ox which had the disease in a very severe form. The meat, however, presented no indications of disease, and, considering that an enormous quantity of such meat has been consumed during the last four months, it can scarcely be imagined that the flesh of animals affected with foot and mouth complaint possesses any deleterious qualities.—*Lancet.*

THE HIGHLAND AND AGRICULTURAL SOCIETY OF SCOTLAND.

At the first ordinary monthly meeting of the directors of this society for the season, Mr. Walker, of Bowland, in the chair:

A letter was read from Mr. Malcolm Macgregor, containing an extract from the minutes of meeting of the Lord Provost and Council as trustees of Professor Dick, held on the 27th September, relative to the election of Mr. William Edwin Duns, V.S., Dunbar, to the chair of cattle pathology in the Edinburgh Veterinary College. The board approved of the appointment of Mr. Duns, and the Secretary was instructed to intimate this to the agent for Professor Dick's trustees.

The Secretary stated that on Monday last he had, along with a deputation from the society, attended the introductory lecture delivered by Professor Williams, at the Veterinary College, when the session was formally opened by the magistrates of Edinburgh. Mr. Gillon, of Wallhouse, the chairman of the Society's Veterinary Committee being unable to attend, he (the Secretary) had congratulated the College on the number and respectable appearance of the students already enrolled.

Mr. Menzies stated that a deputation from the Royal College of Veterinary Surgeons had requested an interview with the trustees for the Veterinary College and with the deputation of the Highland Society. After being introduced by Professor Williams, they stated that the object they had in view was to induce the trustees and the Highland Society to join with the Royal College of Veterinary Surgeons in instituting preliminary examinations for veterinary students on entering at the various teaching schools. The trustees had agreed to take the subject into consideration, and he (Mr. Menzies, had stated that the directors had already approved of such examinations taking place, and that he felt confident that the society would gladly aid them in their endeavours, but that he would bring the subject before the directors at their first meeting. Consideration of the matter was postponed till the next meeting of the board.

The Secretary mentioned that at the request of Mr. Stair Agnew, he had sent for Lord Granville's use, in taking the Pharmacy Bill through the House of Lords, a statement of what is required by the society from candidates for their

diploma in veterinary surgery; and he laid on the table the Act as amended (11th August, 1869), by which all persons holding the society's veterinary certificate have now the power of dispensing medicines for animals under their care.

A communication was submitted from the veterinary department of the Privy Council Office, dated 31st August, intimating that a committee had been appointed by the Lord President of the Council to consider and report—(1) "How a sufficient supply of food and water may be provided for all animals brought by sea to British ports, and for all animals carried by railway in Great Britain; and (2) how animals may be protected from unnecessary suffering, whether in consequence of overcrowding or from other causes, during their sea passage from ports abroad to ports in Great Britain —from ports in the United Kingdom to ports in Great Britain—also on their landing, and also during their inland transit." The letter also expressed a hope that the society would furnish the committee with any information, or with any aid which it might be in their power to give.

The Secretary stated that as the board meetings were adjourned at the time, and as the Privy Council Committee had to report before the 1st of November to the Lord President of the Council, he had at once replied to the letter, and forwarded the last number of the Society's "Transactions," in which there was a report of considerable length on the subject, the directors having considered the matter so important that they offered a premium in 1868, and awarded the gold medal to the author of the paper considered the best. The board approved of the course followed by the Secretary.

Printed copies of letters by Miss Burdett Coutts on the humane treatment of animals were circulated among the directors; and Mr. Menzies stated that, at her request, he had had an interview on Tuesday with her, when she expressed a desire that the directors would aid her in the object she had in view. The directors expressed their sympathy with Miss Burdett Coutts' kind endeavours, and remitted to the District Show Committee to consider what course was best to be taken to further her wishes.—*North British Agriculturist.*

Analysis of Continental Journals.

By W. Ernes, M.R.C.V.S., London.

EXPERIMENTS WITH PHENIC ACID AND CARBONOUS BLOOD.

Recueil de Médecine Vétérinaire, June, 1869.

In the last number we gave a short account of a malady which annually affects the cattle in the mountainous district of Auvergne, which experiment has shown to be of a carbonous or carbuncular nature (anthrax). According to analysis, the alteration of the blood in carbuncular affections is identical with that produced when the blood is left to itself in a vase exposed to the air ferments and putrefies.

A fact acquired by science is, that phenic acid (carbolic) possesses the power of preventing the development of the phenomena which terminates in putrefaction. This led to the idea of experimenting with carbolic acid on the disease of the mountain.

To this effect on the 11th of August four sheep numbered 1, 2, 3, and 4, were inoculated with the blood of one of the rams of another experiment which had died the previous evening. Nos. 3 and 4 were inoculated with the saliva, the operations in all were made by six punctures on the inside of the thighs. On the same day, at six in the evening, 100 grammes of phenic water, containing twenty minims of the pure acid, was given to Nos. 1 and 3.

On the 12th, No. 1, a black-woolled ewe, very lean and bad shape, was found to be dull and ill, another dose of phenic water was given. The three others showed no symptoms of illness. At five o'clock in the evening there was no change. The following days the state of No. 1 seemed not aggravated, notwithstanding it died on the 16th at 2 p.m.

At the autopsy, four hours after death, the following was found: chronic lesions in the peritoneum; the small lobe of the liver adhered to the pariety of the abdomen by means of an abscess formed in the omentum, the corresponding surface of the rumen was wasted. The mesentric ganglia tumefied as well as the lymphatic glands. The heart seemed hypertrophied; the liver was bloodless, and crepitated under the scalpel; the spleen was not tumefied. The blood which had escaped in the abdomen was of a pale colour, and like jelly examined by the microscope, it contained no bacteria. The three other sheep of the experiment survived, moreover

had shown no sign of illness. Had the other died from the effect of the inoculation or from the chronic lesions? This question could only be decided by the inoculation of the blood, which was done immediately in a healthy, vigorous, wether sheep, which died forty hours after. The abdomen of the sheep was strongly distended with gas. There was no extravasation of blood under the skin; the liver was of a pale colour; the spleen was healthy; the heart softened; the lungs were healthy; there was a slight redness in the small intestines, the blood fluid; no bacteria were found in it on microscopical examination.

Experience thus proved that the ewe No. 1 not only died of carbon, but that its blood possessed active virulent properties. On the 11th of August, a rabbit strong and robust, and a young bull in good health, eighteen months old, were inoculated with the blood of the last sheep, the rabbit by six punctures on the inside of the ears, and the bull by the same number at the base of the tail round the anus and muzzle. The rabbit died on the 19th. At the autopsy the spleen was smaller; the liver enlarged and gorged with blood; the lungs slightly congested; the pericardium reduced; the blood liquid and black, containing a great number of bacteria. It is remarkable that none were found in the blood of the sheep from which the rabbit was inoculated; this has been shown several times in these experiments.

On the 19th, the bull was dull, the horns were hotter than usual; there was great sensibility in the spine; the pulsation was pronounced by the attendant, who was very intelligent, to be quick, he also observed the bull to have slight rigors. On the 20th, in the morning, these symptoms were more decided, half a litre of the carbolic (phenic) water was given to him out of a bottle; the last swallows provoked a fit of coughing which produced dangerous phenomena, he fell, got up again; the respiration became hurried, and anxious meteorisation set in; the signs of asphyxia became imminent, no doubt some of the liquid had got into the bronchial tubes. At two o'clock the meteorisation had somewhat abated; the respiration was less laboured. At four o'clock the calm and appetite had returned, the animal eat its rations. On the 21st, the animal was still a little dull, a second dose of the phenic water was given this time without any accident. At five in the evening the animal seemed quite well and survived.

These experiments authorised the investigator to believe in the efficiency of the carbolic acid, notwithstanding the death of the rabbit which had been inoculated at the same time as the young bull; if true that all animals attacked do not die of the

malady of the mountain, it is not less true that they do not recover so rapidly.

A man and his child were affected with malignant pustule (pustule maligne); they had not received any treatment, the child was considered irrecoverably lost. A portion of the carbolic acid was prescribed, a spoonful to be taken every hour for the man, and a teaspoonful for the child, and lotions of the same to be applied to the malignant tumours. This treatment was punctually followed for several days, and to the great astonishment of every one they both recovered.

Attention is invited to the following experiment: On the 15th September, a sheep which had never been inoculated was bled at the jugular, the blood received in a tube and hermetically closed at both ends. On the 16th, an elongated coagulum was formed, surrounded by limpid serum, globules were deposited in the tube. A small portion of the serum was removed into another tube to which some alcohol was added, which provoked the formation of a coagulum similar to that in the normal serum. On the 17th, the serum in the first tube was strongly coloured with red on microscopical examination. Some globules only had begun to lose their circular form and taken the straight one. On the 18th, at 10 a.m., the globules were grouped, starred, and free nuclei or corpuscles animated by the Brownian movement, one well-defined bacteria similar to those in the blood in carbon was seen on the field of the microscope. The blood exhaled no bad or putrid odour.

It was considered that the blood might have acquired the virulence which was indicated by its physical constitution; and the same day in the afternoon six animals, viz. two young bulls, two cows, and two sheep, were inoculated with it; the ovine on the inside of the thigh, and the bovine on the inside of the ears, the indocility of the latter causing as many as twelve punctures to be made, several of them bleeding, and thereby inoculation was impossible. On the 21st, at 10 a.m., one of the bulls which we will call No. 1 manifested a slight change in his general habits; the attendant declared that the signs were similar to those he had observed with other animals at the commencement of this malady before their death.

He had observed nothing on the other five animals. On the 22nd, the bull No. 1 was decidedly dull; the horns were hot; great sensibility on pressure of the spine; cardial pulsation accelerated and strong; these symptoms are the more saillant, as the animal was very vigorous and impatient. No diagnosis was formulated, though it might have been

justified. On the 23rd all the symptoms were aggravated, and there was no doubt as to the existence of the malady and the speedy death of the animal. To guard against illusion and give this experiment its full value, the animal was submitted to the inspection of several persons who were well acquainted with the malady of the mountain, and who were ignorant of the means by which this case had been produced, amongst whom was M. Marret, a member of the commission, who one and all confirmed the diagnosis. It seems, therefore, an established fact that the blood taken from an animal perfectly free from carbonous fever or any other disease, but which had undergone out of its proper vessels a certain amount of fermentation and alteration, could by inoculation produce the characteristic symptoms of carbonous affections. It remained now to test whether carbolic acid would stay the progress of the malady to this effect. On 22rd half a litre of the phenic or carbolicised water was given, which was swallowed without difficulty. At six in the evening same day there was a perceptible improvement in the state of the patient; notwithstanding, a second dose was given of the same. On the 24th, continued improvement, the animal ate his rations with appetite. On the 25th, the animal was in its normal state, and the recovery was considered complete. On the 27th of September, the bull No. 2, and the cows 1 and 2 of the previous experiment, and which had shown no symptoms, were inoculated with the blood taken from a cow which had died the previous evening of the malady of the mountain by six punctures, on the inside of the ears, as on the prior occasion they were very violent and resisted the operation. It was agreed that the first animal affected should be abandoned to itself, but the others should be submitted to the carbolic treatment. The cow No. 2 was the first that manifested the symptoms, and she died in the night of the 2nd to the 3rd of October. The next was the bull who showed symptoms of being dull, and having rigors on the 3rd. The malady was allowed to progress so as to obtain stronger proofs of the efficacy of the malady. On the 4th, all the symptoms (which it is not necessary to repeat) were aggravated. On the 5th, the malady being declared beyond doubt, and in an advanced stage, half a litre of the carbolised water was given ; this was followed by the same distressing symptoms of asphyxia, &c., which had occurred before in the same animal in a former experiment, and were attributed to some of the liquid having got into the bronchial tubes, but this time nothing of the kind had occurred, and must thereby be ascribed to a pecu-

liar susceptibility of the animal to the action of the carbolic acid. At 4.30 p.m. there was a sensible amelioration in the state of the patient; another dose of the acid was given which provoked some rigors and anxiety, but the animal began to feed soon after. On the 7th, the animal was considered completely cured.

The summary of this last experiment is, that three animals of the bovine race were inoculated with the blood from one affected with carbon; two of these contracted the malady, one was left to itself and died, the other was treated with carbolic acid and recovered. The result seemed to be conclusive. The experiments made at Allanche showed that none of the animals which were successfully inoculated survived when not submitted to treatment, while those which were treated with carbolic acid in proper doses recovered. It does seem, therefore, impossible to doubt the efficacy of this agent as an excellent antiseptic. It seems that its effect is speedy, and in proportion as it penetrates into the blood-vessels, the countenance of the animal evidently changes; it stops the alteration of the blood by its chemical properties.

From these experiments and the results of others on animals affected with the malady of the mountain, the commission recommends the phenic, *i. e.* carbolic acid as a cure, and the coal tar which contains it as a prophylactic in all cases of the malady of the mountain and carbonaceous diseases.

H. Bouley, *President.*
A. Sanson, *Secretary.*

DANGER OF FEEDING ON OILCAKE.

Some excellent oil is extracted from the beech-nut, which is sometimes very lucrative; but the cake given to horses in quantity may prove fatal. Death for certain follows the ingestion of 1 to 1½ kil. per diem. The danger to cattle is not so great; but it is nevertheless necessary to take precaution, and not to exceed when given to milch cows 2½ kil. a day. The narcotic principle is contained in the brown pellicle which envelopes the kernel, but fortunately not in the substance of the kernel; for this reason pigs do not suffer from picking them up in the forest. The nature of the poison has not been ascertained, but hot water removes it; but the water then becomes poisonous. Its effect is on the spinal marrow, paralysis of the lungs, causing death by suffocation.—*Ibid.*

CHRONIC FEMORO-TIBIO-ROTULIAN ARTHRITIS IN OX TRIBE, VULGARLY CALLED GOUT.

By M. Bouleau, Vétérinary Surgeon at Mantereau-faut-Yonne.

The author by this name describes an affection of the stiffle joint in cattle which seems to be of frequent occurrence in his district, he having had 806 cases during the time he has been in practice, about 30 years. The affected articulation is the seat of a dropsical condition of the synovial capsule, which is much distended by the accumulation of the fluid secreted, forming sometimes three large tumours, one on the outside between the ligament and the origin of the tendon. Soft fungus may exist in the capsule, but the ligament tendons and muscles remain healthy. These are the anatomical alterations at the commencement but if allowed to run its course a notable change takes place; the worse modification is the deposit of calcareous substances and urate of soda incrusting the articular surfaces, and finish by either greatly limiting the movements of the articulation or preventing it altogether. No formation of pus or ulceration of the cartilages has been found by the author.

Etiology.—This has much preoccupied the author. It attacks more particularly young animals of two years and above old, and what is remarkable of the Norman race and an important remark is, that it often precedes or follows abortion or manifests itself after laborious or difficult parturition.

Is there in this case simply coincidence or any pathological affinity between the serous membrane of the articulation and the genital? Several farmers have assured the author that when the cowmen were careless and brutal, allowed the cattle to be chased by their dogs, they have been visited by the malady. This led to suppose that running when provoked by dogs may often be a direct cause for animals of the bovine race not formed for rapid movemeuts, the femorotibial articulation being, moreover, very limited in its extension in the normal state.

Symptoms.—At first the animal is slightly lame, which becomes soon aggravated in a manner that the leg is held up, and is frequently shaken, causing intense pain. This is soon followed by distension of the capsule, which leaves no doubt of the seat and nature of the disease.

Treatment.—The author has tried nearly all the topics in the pharmacopœia without much success, when he thought of

an old remedy which was yet much employed by farriers, viz. sulphuric acid, which is to be applied as follows :—A short stick garnished with some tow at an end to be dipped in the acid and applied to the affected parts with some friction, taking great care that none gets on the other parts, particularly the udder, which should be well greased before, and drawn out of the way by an assistant, the animal well secured after, so as not to lick the parts ; a scar forms and the tumour disappears and with it the lameness.—*Ibid.*

NORTH OF ENGLAND VETERINARY MEDICAL ASSOCIATION.

The twenty-third quarterly meeting of this Association was held at Greg's Adelphi Hotel, Newcastle-on-Tyne, on Friday, October 16th, 1869. The members present were: Messrs. M. Hedly (President), C. Stephenson, R. Brydon, D. Macgregor, J. Gofton, W. Marshall, D. Dudgeon, W. S. Moore, H. Hunter, W. Temple, J. E. Peele, A. Mann, and the Honorary Secretary.

The minutes of the preceding meeting were read and confirmed. The election of office-bearers was then proceeded with. *Mr. Brydon* proposed, and *Mr. Stephenson* seconded, that Mr. Dudgeon be elected President for the ensuing year; carried unanimously.

It was proposed by *Mr. Macgregor*, and seconded by *Mr. Mann*, that Mr. Brydon be elected a Vice-president ; carried.

Proposed by *Mr. Stephenson*, that Mr. Marshall be elected a Vice-president ; seconded by *Mr. Hunter*, and carried.

Mr. Brydon proposed, and *Mr. Stephenson* seconded, that the Treasurer and Secretary be re-elected ; carried.

Mr. Peele proposed that Messrs. H. E. Wilkinson, C. Stephenson, H. Hunter, D. Macgregor. J. Gofton, and W. S. Moore be Councilmen for the ensuing year; seconded by *Mr. Hedly*, and carried unanimously.

Mr. Stephenson then read his paper on

OBSTRUCTED BOWELS IN HORSES.

Gentlemen,—I purpose bringing before your notice to-day the rather common occurrence of "obstructed bowels." I have chosen this subject in preference to many others with more sounding names because of its frequency and great importance. I am well aware that many of you, particularly those in large colliery practice, must have seen a great number of those cases, and in all probability are more fitted than I am to treat the subject ; but it is one that has always interested me, and upon which I have often thought, and I know of no disease in which the Veterinary Surgeon shines to greater advantage than in this one. To see the caution yet firmness with which he acts, at once stamps him as a master of his profession.

These are not cases that the practical farrier, cow leech, or stud groom can grapple with; they work in the dark, and are soon at a standstill. No, gentlemen, it is only the man who has begun at the foundation of our profession, namely, anatomy and physiology, and has worked steadily onwards, dissecting and making post-mortem examinations on every opportunity, until he feels, when standing by his patient, that he can mentally see, trace, and read off all that is going on within him; the small stomach, the great length of the small intestines, and the extraordinary capaciousness of the large ones, with their relative position and functions, must all be known and remembered. There must be no hesitation; what we do must be done promptly and efficiently, and having done all that we consider necessary in the case, no amount of pressure from either the owner of our patient or the bystanders, of which there are always plenty about, and ready to give advice, should make us give unnecessary drugs. These are cases in which the doctrine of non-intervention must be carried out; the Veterinary Surgeon must either have entire command of the case, or he will be wise to withdraw from it; for our patients are quite as likely to die from over-treatment as from the disease itself.

I will now endeavour briefly, but I am afraid only feebly, to lay my views respecting the disease before you. I have seen the disease in all classes of horses, but, as a rule, cart horses are most subject to it. This may be easily accounted for from the fact that they are not so carefully fed and taken care of as their better bred brethren; they have less time to feed in, coarser food, are often called upon to lift heavy weights, are more exposed to bad weather, often have to stand in water up to the knees and hocks, or even the belly; all these things tend to produce derangement of the digestive organs, and thereby, directly or indirectly, produce the disease in question. By directly I mean an impacted state of the bowels without acute inflammatory action, twist, or displacement of the bowels; by indirectly I mean obstruction, the result of inflammation, twist, displacement, rupture, or intussusception following spasmodic or flatulent colic.

The simplest form of obstructed bowel that we meet with is that of impaction of the colon from eating bean or pea straw instead of hay. This is a very common form of the disease, and often met with in the farmer's horse. In these cases the animal does not suffer acutely, the pulse is little affected except when the colic pains are present, the mucous membranes are little or none affected, and, as a rule, the mouth is clean; the abdomen is swollen, particularly the off side; it is rather hard to the feel, not resonant, and the space between the last rib and spine of the ilium is not so tense and drum-like as in those cases I shall afterwards direct your attention to. There is general uneasiness, but no acute pain, the animal often lying quiet for some time. Some have a morbid appetite, eating dirty litter, &c., in which cases the mouth is foul and pasty; the action of the bowels is not entirely suspended, an occasional very small dry piece of fæces will be voided. On passing the hand into

the rectum it will generally be found empty; the mucous membrane comparatively speaking, is dry, and the hand, when withdrawn, is covered with a pasty secretion containing minute portions of fæces. In some cases the impacted colon may be felt through the coats of the rectum. Before speaking of the treatment of those simple cases, I will draw your attention to those important ones where the obstruction is caused by loss of muscular power in the bowels, or some displacement, twist, intussusception, or the presence of calculi.

As a rule these cases come under our care, in the first place, as cases of colic or inflammation of the bowels, and it is only after some treatment has been adopted, and a few hours have elapsed, that we begin to realize the true position of affairs. Our patient from the first has shown all the symptoms of colic or enteritis, we have given our anti-spasmodic medicines and enemas, the abdomen has been fomented or blistered, and our patient may also have been bled, but still he continues suffering, and now is the time to be extra careful in our treatment of the case. Examine the pulse, mucous membranes, extremities, and the expression of the countenance; explore the abdomen outwardly and inwardly as far as possible; make, again, careful inquiries into the antecedents of the patient, and into the probable cause of the present attack. All those things tend materially to aid us in our diagnosis; but I would here remind you that we must not confound "obstructed bowel" with any of the other acute abdominal diseases which we meet with in the horse, diseases equally common and fatal, but which have special symptoms of their own.

In obstructed bowel the pulse is more or less quickened, generally from 50 to 70, but of a good character; indeed, it is surprising how long the pulse may continue good in these cases. The breathing is a little quickened, the skin is pretty warm but the extremities are cold; the abdomen, particularly the off side, is always swollen; it is tense and drumlike. No fæces are passed; the rectum has emptied itself at first, and now there is a complete stoppage. The animal is uneasy, is up and down, often on his back, or is wandering about his box. At first the mucous membranes are very slightly injected, but they gradually become more so; there is capillary congestion, often accompanied by yellowness. The mouth becomes foul and pasty, and the countenance gradually assumes an anxious expression.

These are the ordinary symptoms we meet with, but of course some variations will be met with in the severity of the symptoms and the duration of the disease, depending upon the parts implicated, and the cause in operation to produce the obstruction; and it is these variations, together with the history of the case, that must guide us in our diagnosis and prognosis.

Twist or displacement of the colon is most likely to follow an acute and sudden attack of colic, a case in which there has been great pain and tympanitis; the animal may never have had colic before, and the attack may have followed drinking cold water, eating wet grass, or an extra quantity of food after a long fast; and in one

case I have known intussusception follow the administration of an ordinary dose of physic. This was a very peculiar case; the patient was a thorough-bred horse, was difficult to purge, and as sure as he had any purgative medicine given to him, as sure would he have an attack of colic; finally, one of these attacks proved fatal; he suffered great pain, accompanied with obstructed bowels, lasting five days. There was great tympanitis, and he was only easy when lying on his back.

The *post-mortem* revealed an extraordinary state of the bowels; the whole of the cæcum was inverted into the colon, the whole mass being jelly-like and full of cells, it could be cut into slices; this was caused by the adhesions and organizations of the effused fluid from the imprisoned and strangulated peritoneum.

In another fatal case that I attended, the attack of colic followed eating cut grass. There was obstructed bowels for seven days, accompanied with great tympanitis and rumbling. The poor animal walked incessantly around his box, and his countenance bespoke the utmost suffering and anxiety; the *post mortem* revealed a small and simple twist of the colon upon itself, just at the sigmoid flexure; the bowels anterior to the twist were enormously distended with fluid fæces; and, curious to relate, there was not a blush of inflammatory action to be seen. This case occurred just when I was commencing practice. It caused me much anxiety at the time; and to this day every feature in it is vividly before my mind. It was this case that made me think about the disease more than I had ever done before, and led me to have settled views respecting its nature and treatment, The horse was a valuable one, and highly prized by his owner, who, unfortunately for the poor animal, was anxious to try almost everything that was recommended by his friends as being likely to "open the bowels," as it was termed. I myself was also anxious to oblige, and could not then say *no*, so firmly as I can now, to the many recommendations which were offered on all sides, so the poor animal had repeated doses of purgatives, medicated enemas, tobacco-smoke, &c. &c.; and he was allowed water and gruel *ad libitum*.

Now, look at the *post mortem*, a small knuckle of intestine had turned over upon itself; does it not stand to reason that the intestine would have been more likely to right itself by being kept empty and quiet, and allowing the natural peristaltic action to go on as easily as possible, than by irritating and loading it by means of purgatives and fluids which, by their direct weight and pressure, must render the twist or strangulation tighter than before. If the bowels are comparatively speaking empty, air may pass along them, which, together with the peristaltic action, may cause the twist or displacement to disappear; whereas, by attempting to force purgatives through a twisted bowel, we render the strangulation of greater intensity, producing pain, inflammation, and exhaustion of the system, and considerably reduce the chances of our patient's recovery.

Obstruction caused by calculi will generally be found in aged

animals, and most frequently in cart- or pit-horses. The animal suffers from repeated attacks of acute colic; and I know of one case where, during one of these attacks, a small calculi was passed, with fæces. Death from calculi is generally caused by it becoming fixed in a narrow part of the colon, causing complete obstruction to the passage of fæces. There is always inflammation, and sometimes even rupture of the bowel takes place. These cases seldom continue longer than two or three days, and the symptoms are always acute.

In those cases depending upon an impacted state of the colon, and following acute attacks of colic, and which appear to be referable to loss of muscular power in the bowels, the symptoms are all mild, the pulse keeps good, there is little or no tympanitis, and the countenance of the patient is cheerful. These cases may continue from three to seven days without any passage of fæces, and they may then pass in a natural state—no purging, although large doses of purgatives may have been given, and our patient, to the surprise of many, does well.

I will now direct your attention to the different conditions in which, upon examination, we find the rectum; in some it is dilated, and the hand and arm can be easily passed along, enabling us to feel the bladder-rim of the pelvis, and form some idea of the state of the colon and its contents; in other cases it is so tightly contracted that the hand can only be introduced a short way, and that with difficulty, the colon feels to be forced backwards, and nothing can be made out distinctly. My experience leads me to think very gravely of these later cases. I have generally found them in those cases that have proved fatal, and in which there was complete obstruction from twist or displacement of the bowel.

Having carefully examined our patient, and satisfied ourselves that we have got a case of obstructed bowel to contend with, the question naturally arises, "What shall we do?" The first thing is to find out what has already been done, for you will remember that the patient has already been treated, either by ourselves or some one else—it may have been for colic, enteritis, or some other intestinal disease. Naturally we think of purgatives first—and here I would beg of you to remember that they carry with them life or death, depending upon the cause of the obstruction. In impaction of fæces from eating coarse food, or loss of muscular power, they are of the first importance and exceedingly valuable; but should the obstruction be caused by a twist or displacement of the bowel or impaction of calculus, they will aggravate all the symptoms, and hasten the death of the patient. If a purge has not been given, and we consider that it is a case requiring one, then give a full bold dose at once; aloes and oil are the two agents of most use; the former ought only to be given once and at the first, the latter may be repeated at any stage of the disease. With our purgatives it will be generally necessary to give some sedative or antispasmodic medicines, depending upon the amount of pain the animal is suffering; I have most faith in opium, and I give such a dose as I think

will allay the pain, repeating it when necessary. I order enemas of warm water to be given every two hours, and hot fomentations to the abdomen. Should at any time the pain increase, and the pulse indicate inflammatory action, we must bleed from the jugular and blister the abdomen, the blistering to be followed with hot fomentations again. If the mouth is foul, give small and repeated doses of carb. magnesia or sodæ. Keep the body and extremities warm, be particularly careful to stop all solid food, do not allow the smallest quantity of any kind; a mouthful of water, linseed-tea, or oatmeal-gruel occasionally, is all that ought to be allowed. Some people are afraid the patient will die from want; have no fear of this; he is more likely to die from eating.

I have often found benefit to follow kneading the abdomen with the hands, particularly the off flank—by kneading, I mean the act of gently pushing and moving the hands upon the abdomen; particularly will this be found serviceable when there is much flatulency present; by it the bowels are moved about, wind is expelled, and action of the bowels promoted. The other remedy I will draw your attention to, namely, forcing air into the rectum by means of a pair of bellows; this, I think, will be serviceable in case of twist or intussusception occurring in the posterior part of the colon. I have tried it in two cases, and I firmly believe that, in one of the cases, it was the means of saving the patient's life. He was a cart-horse, and had been suffering severely for five days, and everything pointed to a fatal termination of the case. When I mentioned it to Dr. Heath of this town, and he recommended the use of the bellows and told me of a case in which by their use he had saved a patient's life, I obtained a pair, and for two days a man did little else but force air into the rectum with them; the bowels became perceptibly distended, the patient was always easy while the bellows were used, and when not used large quantities of wind were passed off per rectum, the bowels became acted upon, fæces passed, and the patient made a good recovery.

In conclusion, I think we can do more good by giving such medicines as will allay pain, stopping all food, and giving copious enemas, than by any other means. Purgatives I look upon as only secondary agents; as a rule one dose at the first is all that ought to be given; a second dose of aloes should never be ventured upon, although a second, or, in some cases, even a third dose of oil may be given with advantage; but, bear in mind, the more acute the case, and the greater the obstruction, the more harm will the purgatives do: they will irritate and set up inflammatory action, and the bowel, anterior to the obstruction, instead of being kept empty and quiet, will be distended, weakened, and inflamed. The patient's strength must be husbanded, not by food, but by keeping him free from pain, attending to his general comfort, and, in protracted cases, port wine may be given with benefit. We must act with extreme caution, for from the parts implicated being so hidden from view, it is impossible to speak positively as to the real cause of the obstruction in all cases. We can only approximate to it, therefore

our agents must do no harm if they can do no good. So long as the general symptoms keep mild there need be no alarm at the non-passing of fæces. I have known several cases that ultimately did well, although no fæces were voided for seven days. But should the pulse and breathing get gradually worse, the countenance become anxious, abdomen tympanitic, and the body covered with cold perspiration, then, in all probability, the case will prove fatal, in which case a *post-mortem* examination should always be made; it will well repay the time spent over it. On the other hand, if the patient recovers, we have no after consequences to apprehend, he regains his normal health and strength, and is not predisposed to a second attack.

Finally, gentlemen, I must ask you to look leniently upon the omissions and errors that from the hurried preparation have got into this paper. I know it is far from what it ought to be, and what I would like to have made it, but some of you are aware that I have had very little time to prepare it, and it was only at the urgent request of our secretary, coupled with my own desire for the continuance of our Society, that I consented to bring a subject before you. The present is a critical time for our Society. I have been grieved and ashamed to see the small attendance at our meetings lately, and I am sorry to say the absentees are those who ought to attend best. If those living at a great distance can come, surely those near at hand might attend. Our Society was one of the first formed, let it not be said that it was one of the first to collapse, which, depend upon it, will be the case unless we put our shoulders together; we must all work, there must be no shirking, and if we all do our best, our Society will be a success, and an honour to our profession.

This essay was well received, and led to a long and interesting discussion, in which most of the members took part. At the close of the discussion, *Mr. Brydon* proposed that Mr. Stephenson's paper be sent for insertion in the *Veterinarian*, seconded by *Mr. Macgregor;* carried unanimously. *Mr. Hedley* complimented the essayist upon his very able and instructive paper, and proposed a vote of thanks. The motion was supported by *Mr. Peele*, and carried unanimously. The proceedings were closed with a vote of thanks to the Chairman.

JOHN MEIKLE, *Hon. Sec.*

YORKSHIRE VETERINARY MEDICAL SOCIETY.

THE last quarterly meeting for the current year was held at the Queen's Hotel, Leeds, on Wednesday, the 3rd November, at 12·30 noon; the President, Mr. M. E. Naylor, in the chair. The following members were also present, viz.: Messrs. Edmundson, Anderton, Patterson, Bale, Jas. Freeman, Josh. Freeman, John Freeman, Pratt, Murdoch, Kirk, Carter, Greaves, P. Smith, Fall-

ding, Faulkner, Nicholson, Dray, Cuthbert, Broughton, and Fearnley; Mr. Anderson, Manchester, was also present as a visitor.

Apologies for non-attendance were received from Messrs. M'Taggart, Chas. Secker, P. Walker, B. Smith, Bourdass, and Prof. Williams.

The minutes of the last meeting were read and confirmed.

The resignation of a member, Mr. Jas. Thornton, was accepted.

Messrs. Percival Smith, of Winterton; and Wm. Colbeck, of Barnsley, were duly elected members.

Mr. Fearnley proposed, and *Mr. Dray* seconded, the following resolution:

"That it is the opinion of this Society that the Veterinary Medical Societies in the United Kingdom are of sufficient importance to be represented in Council; and further, this Society is of opinion that if each Society in the United Kingdom would send one of its members to represent its views in Council, the profession would be more thoroughly represented, and thereby the Council, so constituted would be better able to bring about the desired changes which are so much needed, and which are so essential before our profession can claim that status in society which, as one of the liberal professions, it has a right to expect."

After some discussion as to the practical carrying out of the resolution, during which Messrs. Broughton, Jas. Freeman, Patterson, Cuthbert, Carter, and Greaves, spoke, the resolution was unanimously carried, the Secretary being requested to forward a printed copy of the resolution to all the secretaries of the various veterinary medical societies in the United Kingdom.

In consequence of the absence of Mr. Godfrey Smith, the resolution of which he had given notice was not proceeded with.

Mr. Fearnley then read a paper on Wounds, dividing his subject into incised, lacerated, and contused wounds, &c., the various features in the treatment of these cases being lucidly and practically explained. An animated discussion took place, in which Messrs. Greaves, Broughton, Nicholson, Jas. Freeman, Josh. Freeman, Pratt, Carter, Kirk, Bale, Fallding, Murdoch, Anderton, P. Smith, Dray, Faulkner, Cuthbert, and the essayist, took part.

A unanimous vote of thanks was awarded to Mr. Fearnley for his kindness in providing food for discussion.

The *Treasurer* (Mr. Dray) submitted the financial statement, which showed the sum of £79 5*s*. 11*d*. to the credit of the Society.

The election of officers for the ensuing year then took place.

Mr. Greaves proposed, and *Mr. Dray* seconded, "That Mr. James Freeman, of Hull, be the President."—Carried with acclamation.

Mr. Freeman briefly returned thanks for the honour conferred upon him.

Messrs. Edmundson, Joseph Freeman, and Fearnley, were chosen as Vice-Presidents; Messrs. Broughton, Secretary; and Dray, Treasurer, were unanimously re-elected.

Mr. Nicholson proposed, *Mr. Anderton* seconded, and *Mr. Cuthbert* supported,

"A most cordial vote of thanks to Mr. Naylor, for the very able, courteous, and energetic manner he had carried out the duties of President for the current year."—Carried with éclat.

Mr. Dray gave notice that at the Annual Meeting he should propose to add the following words to Rule 8:

"And no monies or funds of this Society be appropriated for any other purpose than to liquidate any debt or debts of the said Society, or to further the legitimate advancement of veterinary science, or to aid in the cause of benevolent objects connected with the veterinary profession."

Mr. Patterson gave notice, that Rule 11 of the Society Regulation Rules be rescinded, and the following resolution substituted, viz.:

"That the whole of the meetings of this Society be held in Leeds."

The annual meeting of the Society will be held in January, when Mr. J. W. Anderton, of Skipton, will introduce a paper for discussion.

WILLIAM BROUGHTON,
Hon. Secretary.

P.S.—At the conclusion of the business refreshments were provided at the expense of the Leeds members.

WEST OF SCOTLAND VETERINARY MEDICAL ASSOCIATION.

A meeting of this Society took place on Tuesday, the 2nd inst., at one o'clock, at the Athole Arms, Dundas Street, Glasgow.

Mr. Sharpe, Vice-president, in the chair. Present: Messrs. Sharpe, Professor Williams, William Anderson, James Anderson, Andrew Robb, Blackie, Pottie, Weir, Lindsay, McKirdy, Robinson, Broad, Bath, and Donaldson.

Mr. Anderson proposed, and *Mr. Blackie* secondied, that Mr. James Weir be admitted a member of the Association. After ballot he was unanimously elected. The following gentlemen were then appointed office bearers:—

President—Mr. Alexander Pottie; *Vice-presidents*—Messrs. Robb and Blackie; *Treasurer*—Mr. John Donaldson; *Secretary*—Mr. William Cockburn, jun.

Mr. W. Anderson then produced the diseased bladder and penis of a horse, which presented sub-mucous abscesses and tumours, making it an interesting morbid specimen. For two years, at least, prior to death the symptoms which the animal showed strongly

resembled those so characteristic of calculus in the bladder. Mr. Anderson had, at different times, manipulated for calculus per rectum, but could never feel the hard sensation which a calculus would give to the hand, although, from other symptoms, viz. wide gait behind and urine being voided drop by drop, he was suspicious of stone. Mr. William Anderson's object was, in bringing the case before the meeting, to show how careful a person ought to be, and not conclude hastily with an opinion. Other very interesting cases were brought up and freely discussed.

ALEXANDER POTTIE, *Secretary.*

Veterinary Jurisprudence.

YORK COUNTY COURT.

Tuesday, October 12th.

A CASE OF "ROARING."

GIDLAW *v.* HART.

THIS was a jury case, in which the plaintiff, Mr. James Gidlaw, horse dealer, Leeds, who was represented by Mr. W. P. Husband, sought to recover £45 of the defendant, Mr. H. R. W. Hart, farmer, Dunnington Lodge, near York, for whom Mr. Dale appeared. The facts of the case are as follow:—On the 15th of April last, the plaintiff purchased of defendant, at Howden horse fair, a bay mare for £45, and received a warranty of soundness. A few days afterwards the mare was forwarded with other horses to Brussels, but in July she was returned to the plaintiff as unsound. Notice in writing was sent to Mr. Hart of the return of the mare, and he was asked what was to be done. No answer was received from him, and the mare was duly advertised and sold, and realised £25 4*s.*, and the difference in price, £19 16*s.*, it was sought to recover, together with £7, the cost of transit to Belgium and the return; printing and auctioneer's bill, £1 12*s.*; veterinary's charge, 10*s.*; seventeen weeks' keep, £17; making a total of £45 18*s.*

The plaintiff was called, and, after adducing the above facts, said that when the mare was returned from Brussels she was tried in harness and the saddle, and although in good condition she made a noise in her breathing.

Mr. W. F. Stubbs said he rode the mare on the day of the sale, and told Mr. Hart that he thought there was something wrong in the wind of the animal, but Mr. Hart said it was not so. She blew very heavy, was very thick in the wind, and whistled in her breathing.

Mr. J. Mitchell, veterinary surgeon, Leeds, said he examined the mare on the 10th of August, and found she was unsound in the wind; she was a "whistler," which is a degree of "roaring."

Mr. Dale, in defence, said the question was whether the mare was sound or unsound at the time of sale. The animal was in good condition and fat at the time, and had been in the stable for some time before the fair, which might produce a noise when she was taken fresh out again. Then the sea air might have affected her, and the whistling might have arisen from many causes. He argued that the purchasers in Brussels should have found out the unsoundness, if there was any, before, because they had the mare in their possession three months.

Mr. Hart, the defendant, was sworn, and said he had the animal at his farm for two years and a half previous to the sale, and had used her for riding, driving, and occasionally hunting, and he had never found any symptoms of roaring, whistling, or bad wind.

Mr. Wilstrop, Nun Appleton, farmer, the former owner of the mare, proved that she was sound when he sold her to Mr. Hart.

Mr. Jepson, veterinary surgeon, Bishop Wilton, said the disease could not exist without detection by any person who understood horses; it was a disease which might arise in a fortnight.

Mr. C. Sutton, veterinary surgeon, York, gave corroborative evidence.

His Honour ruled that the £17 claimed for keep could not be maintained after allowing such a lapse of time without giving notice, and that the charges for the sale of the horse by the auctioneer, and the veterinary's fee, should be deducted from the net proceeds of sale. He told the jury the question for them to decide was whether the mare was sound or not at the time of sale.

The Jury, after a short consultation, returned a verdict for the defendant.

CRUELTY TO A HORSE.

John Luff, farmer, of East Brent, Somerset, was summoned for causing and procuring to be ill-treated, a certain horse, and George Mogg was summoned for cruelly using a horse, the property of the aforesaid John Luff. Both defendants pleaded guilty to the charge.

Inspector Choyce, of the Royal Society for the Prevention of Cruelty to Animals, said although defendants had pleaded guilty, it would be as well to state the facts of the case. It appeared that some time prior to October 4th, a mare, the property of Luff, met with an accident by which the small bone of the foot was broken. The animal was turned into a paddock, where it remained until the 4th of October, when it was ordered to be removed to another field, a distance of some three miles. Whilst Mogg was driving the horse to the other paddock, walking on three legs, a gentleman

named Westmacott told the lad to take it back to the first field, upon which Luff said he should have it removed as he at first ordered, and the mare was accordingly driven three miles, the broken foot trailing on the ground.

Mr. J. M. Broad, M.R.C.V.S., of Bristol and Bath, stated that he had examined the mare and found the small bone of the foot broken. He considered it to be a gross cruelty to allow the animal to live, much more to drive it any distance.

Inspector Choyce said as the defendant Luff was in good position, he hoped the Bench would make an example of the case—Fined 40s. and costs, together with the fees of the veterinary surgeon, the Bench expressing a hope that Luff would use all possible diligence in getting the horse destroyed.

The fine and expenses exceeded £7.

ARMY APPOINTMENTS.

(London Gazette, *Oct. 29th.*)

War Office, *Oct. 28th.*

To be Veterinary Surgeons.—Acting Veterinary Surgeon J. H. Lemon.

Acting Veterinary Surgeon G. Durrant.

Acting Veterinary Surgeon J. C. Dwyer.

THE ANATOMY AND PHYSIOLOGY OF THE HORSE'S FOOT.

LETTER FROM MR. W. HUNTING, M.R.C.V.S.

November 17th, 1869.

Gentlemen,—No one, I think, will deny that veterinary surgeons ought to agree on all anatomical and physical points capable of clear demonstration. The structure and functions of the foot is a subject upon which much ignorance exists; it is a subject of great importance, and which might, by means of your columns, be, if not settled, considerably rectified.

With a view to open this consideration, I beg to submit what I consider a number of errors, not of old date, but to be found in very modern books.* Lest I may have misunderstood, I will not now endeavour to refute, but merely ask of authors of or believers in the following statements to kindly furnish us with their evidence and proofs.

* To what modern books does Mr. Hunting refer? We know of only one book in which such statements as he alludes to are made.—Eds.

That the hoof is not vital but inorganic.

That between the wall and sole no direct union exists.

That the wall is covered by a varnish-like secretion.

That the coronary frogband is the bond of union between the skin and the hoof.

That this band secretes a peculiar substance, which principally consists of silex or flint.

That by its elasticity it aids materially in the prevention of concussion during locomotion.

That the wings of the coffin bone extend back to the heels.

That the sensitive laminæ are elastic and do not secrete.

That the wall of a hind foot is thickest at the quarters.

That alteration of the level of a foot by a high-heeled shoe does not tend to shorten the flexor tendons.

Your obedient Servant,

W. HUNTING.

To the Editors of the 'Veterinarian.'

MISCELLANEA.

HORSE COLLARS.

An improvement in the manufacture of horse collars has just been devised by a Philadelphia mechanic. The collar, being stuffed with elastic cork, is light in weight, and adapts itself to the shape of the animal as readily as if it was moulded. It is highly elastic, does not chafe or gall the neck, and the cork being a non-conductor, injury from the heat is prevented.

WOOL GROWING.

A society has been formed in Berlin for the purpose of promoting the production and sale of German wool, and improving its quality. The intention is to provide for the delivery of lectures on the present defects of this branch of industry and to establish an instructive periodical for circulation among the sheep-farmers, who are also to be encouraged by the institution of exhibitions and the distribution of prizes.

OBITUARY.

We much regret to have to record the death of Mr. S. S. Garratt, M.R.C.V.S., Northampton, which took place November 7th, in the 57th year of his age. His diploma bears date November 27th, 1834.

Also of Mr. W. Baxter, M.R.C.V.S. Dundee, on November 3rd. His diploma bears date April 27th, 1846.

INDEX.

A

B.

C.

D.

E.

F

G.

H.

I.

K.

L.

M.

N.

O.

P.

Q.

R.

S.

T.

U.

V.

W.

X.

Y.