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OR,

MONTHLY JOURNAL OF VETERINARY SCIENCE,

FOR 1844.

VOL. XVII.—VOL. III. NEW SERIES.

EDITED BY

MESSRS. YOUATT AND PERCIVALL,

ASSISTED BY

PROFESSOR DICK AND MR. KARKEEK.

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

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THE

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THE VETERINARIAN.

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

THIS day our Journal enters its seventeenth anniversary. For the last sixteen years has it been before the public, an open record —and its Editors trust a faithful one—of the sayings and doings of the members of the profession; and now it stands forth, in all the pride of sixteen volumes, charged with these (to us) valuable records, embodying a more comprehensive veterinary history of its times, and a greater collection of cases, serving us with materials for reflection and guides for practice, than is to be found in any work extant, or than can be got together for some years to come in any future work. This we say in pride and exultation, not as reflecting upon ourselves more than—if so much as—upon those of our professional brethren who have for many a-day laboured along with us in the common cause of science, and some of whose writings will, so long as, and wherever THE VETERINARIAN is known, prove its greatest ornament and surest passport. When in our minds we look back sixteen years, and call to memory the circumstances attending the origin of our Journal, it raises a smile within us to see, despite the ominous prophecy pronounced on its birth—that "no veterinary periodical could long survive for want of subject matter,"—how the work, in the hands of the profession, has thriven and grown, and what heaps of materials yet lie scattered around, awaiting only ability and industry to work them up, to make them last the Journal for even another sixteen years.

In these times of general depression—of depression in the book-trade in particular—it will be something if we even spin out our Journal for a quarter of a century: we would fain have said, *half* a century, but that is a day we ourselves may never see: die when it may, however, THE VETERINARIAN will cease to exist but from one cause alone—from the withdrawal of that kind and liberal support it has uniformly met with at the hands of the profession.

We are too late to wish our friends "a merry Christmas:" before they read this they will have eaten, and almost forgotten the flavour of, their Christmas pudding. We may, however, and we most sincerely do, wish them all "a happy New Year:" may they live to see many such, and we to offer them our seasonable gratulations! The school boy's carol,

> "Christmas comes but once a year,
> And when it comes it brings good cheer,"

still charms our ear with pleasing reminiscences, still invites us to jollity at this *par excellence* feastful season; and we hold we have a sort of patent right to make the most of it; therefore we say, "*buvons mes amis.*"

In thus mirthfully ushering in the new year, we must not take final leave of the old one before we have cordially thanked our good correspondents for all past favours: without their kind aid we should be nothing; with it, and with the heaps of unused materials we have yet around us, we may possibly manage to extend the life of THE VETERINARIAN to sixteen years longer. But we will not anticipate. We will continue to pursue that path—of truth and justice—which we from the first planted ourselves in; and so long as the principles therein found, and our own good and true friends, will support us, we shall not fail to be forthcoming.

EDITORS.

CASES OF QUARTER-EVIL, OR STRIKING.

By Mr. W. A. CARTWRIGHT, *V.S., Whitchurch, Salop.*

CASE I.—ON the morning of the 12th October, 1843, I was sent for to a year-old ox-bullock that was thought to have put his shoulder out. I saw him about 9 A.M.: he was lying down at full-length on his side. His respiration was quite calm. The man turned him over, as he said it was the other side that he was lame on, when I immediately saw that he was struck in the shoulder. He was killed.

Examination.—The butcher dressed him and sold him for meat, and the whole of him, except the affected shoulder, was of as healthy and natural colour as could be. The disease appears to have confined itself, outside, to the whole of the muscles of the shoulder, which were enormously swollen and emphysematous. The whole of the abdominal viscera were healthy. The third stomach was full, and its contents were getting a little hard. The folds of the stomach were but little inflamed.

On laying the thorax open, I found excessive disease in and around the heart. The pericardium was a mass of intense inflammation, and within it there was at least a pint of red serum. The heart was inflamed to a greater extent than I had ever seen before, and in some places there was extravasation of blood in its substance. The inflammation was confined to the outside and muscular portion, for the inside of the ventricles and auricles were not affected. The left side of the heart was most inflamed. The muscles of the thorax underneath the diseased shoulder were a little discoloured, but not of much importance, and the pleura lining that side was scarcely different from the other healthy side.

Case II. 19*th October*, 1843.—This morning, a two-year old in-calf heifer, the property of the same gentleman, was found to be a little lame in the off hind leg, and the bailiff told the owner that it was nothing but a strain, and would soon be well, and was not of the least importance.

About 11 A.M. I saw her, and immediately discovered that she was "stricken" in the hind quarter and loins. She was down and could not rise, and was fast sinking. The respiration was a little increased, but not at all laboured, and she was warm all over. The principal parts that were affected were the rump and loins on her off side. I bled her, but could not get above two or three quarts, and that came away slowly. I also punctured the loins. Seeing no probability of her recovering, or, indeed, of her living long, I afterwards had her stuck.

Examination.—There was not the least staking; the heart was a little spotted with extravasated blood on its outside, but not so much diseased as the last case. The emphysema and extravasation were principally on the off side of the loins, but slightly extending to the other loin. There was extravasation of blood on the off side about the kidney. The spinal marrow about the lumbar vertebræ was decidedly softened, and there was some little effusion of serum within its theca.

Case III.—I examined a yearling calf that was stricken the night before on the thigh and loins. The peritoneum was inflamed, and the abdomen contained more serum than usual. The contents of the third stomach were getting a little hard. The heart and the

membranes around it was the great seat of disease, being highly inflamed.

I bled and setoned twelve others the day following, and no more have been yet affected. I also ordered them upon a more spare pasture, as they were very fat, but not more so than they had been other years.

Mr. Youatt has described this disease as "inflammatory fever," and has given a long account of its symptoms; but he justly observes, that they differ materially in different districts. In this neighbourhood it confines itself to a particular spot, either in the shoulder, loins, or thighs. It is very fatal. It is decidedly an inflammatory disease from repletion of the system, and Nature, in trying to get rid of it, produces carditis.

Please to make the following corrections:—

In Vol. xvi, page 22, line 25, for "Antim." read "Autumnale."
— page 26, line 14, for "easily," read "rarely."

THE CHRISTMAS SHOW OF CATTLE.

THIS great national exhibition—the greatest of its kind in the world—was opened to the public at an early hour on Wednesday morning, Dec. 6, 1843, and attended throughout the day by a much larger number of visitors than have been known to have attended upon any previous occasion. It might be supposed that the inspection of fat stock would be interesting only to a portion of the male sex; but this exhibition has become attractive to females of the highest rank. Indeed, a large proportion of the visitors at the bazaar were females, who contemplated the different specimens of animal beauty with a mixed feeling of curiosity and admiration.

The collection of animals this year was not only more numerous, but of a more varied description than at any previous exhibition. It will be found, on reference to the award of prizes by the judges, that the competition has not, as heretofore, been limited to districts adjacent to the metropolis, but that it has taken a much wider scope, extending to the more remote parts of the kingdom. This may be accounted for in part by the facility of transit afforded by railways, but is in a greater degree attributable to the encouragement held out by the Smithfield Cattle Club and the Royal Agricultural Society of England, which have induced cattle breeders to abandon their old-fashioned treatment of animals, and

to adopt such of the newly-discovered scientific principles as had met with the sanction of competent judges and practical graziers. The consequence of this overthrow of old prejudices is evident in the great number of new competitors from parts of the kingdom in which the idea of fattening an animal for the Smithfield Cattle Show had never before been entertained.

The local agricultural associations, it must be confessed, have had no inconsiderable influence in promoting this spirit of emulation. Many members of these bodies, although good practical farmers, and thoroughly conversant with the treatment of stock, would have deemed it presumptuous to enter the lists against noblemen and gentlemen of condition, were it not that at the meetings of the local associations they had been invited and stimulated to do so.

The principal contributors to the present exhibition were Lord Spencer, president of the club, the Duke of Richmond, vice-president, the Duke of Bedford, the Earl of Warwick, Sir William Wake, Lord Western, the Earl of Hardwicke, the Earl of Radnor, Sir Charles Tempest, the Marquis of Exeter, the Duke of Manchester, the Hon. W. Wilson, and Mr. Fisher Hobbs.

The appearance of his Royal Highness Prince Albert as a competitor for prizes at this annual exhibition will not fail to raise the character of the Smithfield Club still higher in the estimation of the agricultural community. The Prince has been unsuccessful this year; but it should not be forgotten that his royal highness has only recently turned his attention to these practically useful pursuits, and that this is the first time he has entered the field. His royal highness exhibited two Scotch oxen, and three Suffolk pigs, all of which were bred and fattened at his royal highness's farm near Windsor, and under his own immediate superintendence. Although not considered by the judges entitled to prizes, the animals were much commended by all who saw them. These specimens attracted a great deal of curiosity throughout the day.

There was never, perhaps, a fuller attendance of agriculturists in the metropolis on any similar occasion than at present. Besides the annual exhibition of the Smithfield Cattle Club, the Royal Agricultural Society of England held its *soirées* in Hanover-square: and Professor Brande delivered two lectures on the application of chemistry in connexion with agriculture, in the theatre of the Royal Society, Albemarle-street. The Farmers' Club, recently established, also held its meetings at Radley's Hotel, Bridge-street, Blackfriars. These friendly *reunions* are in every respect desirable, as they will necessarily tend to the diffusion of knowledge upon various points essential to the well-being of that important body.

Catalogue of Stock and Award of Prizes.

N.B. The figures at the commencement of each description signify the judges' number.

Oxen.

Class I.—*Oxen or Steers, of any breed, under five years of age, without restrictions as to feeding, yet the kind or kinds of food must be certified.*

4. Mr. Robert Burgess, of Cotgrove Place, Notts, a three years and eight and a-half months old Durham ox, bred by himself, from the stock of Earl Spencer, and fed on grass, vetches, hay, clover, cabbages, turnips, oil cake, and boiled barley. Travelled to the show by van six miles, and by railway one hundred and thirty miles. The third prize of £10.

13. Mr. H. Mann, Pigburn, near Doncaster, an under three years and six months old short-horned ox, bred by himself, and fed on hay, sainfoin, green clover, tares, white turnips, Swedes, potatoes, and linseed cake. Travelled to the show by van nine miles, and by railway one hundred and seventy-six miles. Commended.

19. The Right Hon. Earl Spencer, of Althorp, near Northampton, a four years and six months-old Durham ox, bred by his lordship, and fed on Swedes, mangold wurzel, cabbages, hay, oil cake, and bean meal. Travelled to the show by van ten miles and by railway sixty-six miles. The first prize of £30, and a silver medal.

23. Mr. J. Watson, of Thorney, near Peterborough, a four years and eight and a half months old Hereford ox, bred by Mr. C. Blakeney, of Shelderton, near Ludlow, and fed on hay, cake, barley and bean meal, linseed, tares, carrots, and cabbages. Travelled to the show by van thirty-one miles and by railway ninety-five miles. The second prize of £15.

Class II.—*Oxen or Steers of any breed, under six years of age, weight* 90 *stone and upwards, that have not had cake, corn, meal, seeds, grain, or distillers' wash, during twelve months previous to the* 1*st of August,* 1843.

24. Mr. John Beasley, of Chapel Brampton, near Northampton, a four years and eight months old short-horned ox, bred by himself, from a bull of Earl Spencer, and fed on mangold wurzel, turnips, hay, and 1770 lbs. of oil cake. Travelled to the show by van ten miles and by railway sixty miles. The first prize of £30, and a silver medal.

25. His Grace the Duke of Bedford, of Woburn Abbey, Bedford, a four years and seven months old Hereford ox, bred by his grace, and fed on grass, hay, turnips, carrots, mangold wurzel, 1000 lbs. of barley meal, 340 lbs. of oatmeal, and 1000 lbs. of linseed. Travelled to the show by van forty-two miles. Highly commended.

31. Mr. A. Perkins, of Arnesby, near Leicester, a four years and eleven months old Hereford ox, bred by Mr. J. Williams, of Kingsland, near Leominster, and fed on grass, hay, turnips, and 1200 lbs. of oil cake. Travelled to the show on foot nine miles and by railway one hundred miles. The second prize of £20.

33. The Right Hon. Earl Spencer, of Althorp, near Northampton, a four years and seven months old Durham ox, bred by his lordship, and fed on Swedes, mangold wurzel, cabbages, hay, 1143 lbs. of cake, and 12 bushels of bean meal. Travelled to the show by van ten miles and by railway sixty-six miles. Commended.

34. The Right Hon. the Earl of Warwick, of Warwick Castle, a four years and eight months old Hereford ox, bred by Mr. W. Perry, of Monkland, near Leominster, and fed on grass, hay, turnips, potatoes, 951 lbs. of cake, 450 lbs. of barley meal, and 390 lbs. of bean meal. Travelled to the show by van eleven miles and by railway eighty-four miles. The third prize of £10.

Class III.—*Oxen or Steers, of any breed, under five years of age, under* 100 *stone and above* 70 *stone weight, that shall not have had cake, corn, meal, seeds, grains, or distillers' wash, during twelve months previous to the* 1*st of August,* 1843.

35. His Grace the Duke of Bedford, of Woburn Abbey, a four years and three months old Hereford steer, bred by Mr. Thomas Davis, of Dilwyn, near Weobly, and fed on grass, hay, turnips, mangold wurzel, clover, chaff, 925 lbs. of cake, and five bushels of bean flour. Travelled to the show by van fifty-six miles. Commended.

36. Mr. Bouverie, of Delapré Abbey, near Northampton, a four years and eight months old Hereford ox, bred by Mr. J. King, of Colwall, near Ledbury, and fed on grass, hay, mangold wurzel, turnips, potatoes, 632 lbs. of cake, and 1 bushel of barley flour. Travelled to the show by van four miles and by railway sixty miles. Commended.

43. Mr. J. T. Senior, of Broughton House, near Aylesbury, a three years and six months old Hereford steer, bred by Mr. P. Stephens, of Hampton, near Kingston, and fed on grass, hay, and 730 lbs. of cake. Travelled to the show by railway fifty miles. The second prize of £10.

45. Mr. George Turner, of Barton, near Exeter, a three years and seven months old North Devon steer, bred by Mr. R. Moggeridge, Molland, South Molton, and fed on hay, mangold wurzel, 360 lbs. of cake, and 4 bushels of barley-meal. Travelled to the show by van twenty-five miles and by railway one hundred and seventy miles. Commended.

46. Mr. Thomas Umbers, of Wappenbury, near Royal Leamington Spa, a three years and seven months old North Devon steer, bred by himself, and fed on grass, hay, turnips, 850 lbs. of cake, and 800 lbs. of barley and bean meal. Travelled to the show on foot nine miles and by railway eighty-three miles. The first prize of £15, and a silver medal.

Class IV.—*Oxen or Steers, of any breed, not exceeding four and a quarter years of age, under* 85 *stones weight, that shall not have had cake, corn, meal, seeds, grains, or distillers' wash, during twelve months previous to the* 1st *of August,* 1843.

54. Mr. Thomas Umbers, of Wappenbury, near Royal Leamington Spa, a three years and six months old North Devon steer, bred by himself, and fed on grass, hay, turnips, 850 lbs. of cake, and 800 lbs. of barley and bean meal. Travelled to the show on foot nine miles, and by railway eighty-three miles. The first prize of £10, and a silver medal.

55. Sir W. Wake, Bart., of Courteen Hall, Northampton, a three years and eight months old Hereford steer, bred by Mr. J. Williams, of Staunton-upon-Wye, and fed on grass, hay, mangold wurzel, turnips, carrots, and 1098 lbs. of cake. Travelled to the show on foot one mile and by railway sixty miles. The second prize of £5.

Class V.—*Oxen or Steers, of any breed, under four and a half years of age, under* 80 *stone weight, without restrictions as to feeding, yet the kind or kinds of food must be specified.*

56. Mr. W. J. Bailey, of Shenley House, near Stoney Stratford, a three years and one month old Hereford steer, bred by Mr. Stubbs, of Wheetmore, and fed on grass, hay, and oil cake. Travelled to the show on foot two miles, and by railway fifty-two miles. Highly commended.

59. Mr. T. Bridge, of Buttsbury, near Ingatestone, a three years and eleven months old Hereford steer, bred by Mr. Arden, of the Ley, near Weobly, and fed on vegetable roots, grass, hay, oil-cake, and bean meal. Travelled to the show by van twenty-four miles. The prize of £10, and a silver medal.

63. Mr. J. Manning, of Harpole, Northampton, a Scotch ox, fed on oil cake, bean meal, grass, and hay. Travelled to the show on

foot four miles, and by canal boat seventy-two miles. Highly commended.

64. Mr. J. Miller, of Ballumbie, near Dundee, a three years and eight months old Durham ox, bred by himself, and fed on turnips, potatoes, cut clover, tares, hay, oil cake, and bean meal. Travelled to the show by van fifteen miles and by steam-boat four hundred miles. Commended.

65. Mr. J. Tucker, of West Ham Abbey, a three years and one month old Hereford steer, bred by Mr. Roberts, of Invingtonbury, and fed on cake, meal, hay, Swedes, and parsneps. Travelled to the show by van eight miles. Commended.

66. The Right Honourable Lord Western, of Felix-hall, Kelvedon, a three years and six months old Devon steer, bred by his lordship, and fed on turnips, cake, hay, mangold wurzel, and bean meal. Travelled to the show by van forty-five miles. Highly commended.

Cows.

Class VI.—*Fattened Cows or Heifers, under five years of age. Free-martins and spayed Heifers are not qualified.*

68. Messrs. Fudlington and Kemp, of North Elkington, near Louth, a four years and three months old short-horned heifer, bred by themselves, and fed on grass, hay, cake, turnips, and bean meal. Travelled to the show by van thirty miles, by railway 256 miles, and by boat three miles. The second prize of £10.

69. The Right Honourable the Earl of Hardwick, of Wimpole, near Arrington, a four years and three months old short-horned heifer, bred by his lordship, and fed on bean and barley-meal, mangold wurzel, and hay. Travelled to the show by van forty-five miles. Commended.

70. Mr. William Ladds, of Ellington, near Huntingdon, a four years and one month old Durham heifer, bred by himself, and fed on grass, Swedes, cake, and bean meal. Travelled to the show by van sixty-eight miles. Highly commended.

71. The Right Honourable the Earl of Radnor, of Coleshill, near Farringdon, a two years and seven months old Hereford and short-horned heifer, bred by his lordship, and fed on hay, roots, corn, and cake. Travelled to the show by van six miles, and by railway seventy-four miles. Highly commended.

73. Sir Charles Tempest, Bart., of Broughton Hall, near Skipton, a four years and nine months old short-horned heifer, bred by himself, and fed on hay, cake, and turnips. Travelled to the show by van thirty miles, and by railway 196 miles. The first prize of £20, and a silver medal and a gold medal.

74. The Hon. H. W. Wilson, of Keythorpe Hall, near Leicester, a two years and eleven months old short-horned and Ayrshire heifer, bred by himself, and fed on cake, barley-meal, beans, peas, hay, and vegetables. Travelled to the show by van thirty miles, and by railway about 100 miles. The second prize of £5.

Class VII.—*Fattened Cows, of five years old and upwards. Freemartins and spayed Heifers are not qualified.*

76. Mr. Barnett, of Stratton-park, near Biggleswade, a five years and six months old Durham cow, had one calf, bred by himself, and fed on grass, hay, oil-cake, linseed, bean-meal, and carrots. Travelled to the show by van forty-five miles. The first prize of £20, and silver medal.

78. Mr. J. T. Smith, of Thornby Grange, near Northampton, a five years and two months old short-horned heifer, bred by Mr. Cooke, of Cunnington, and fed on cake, bean meal, carrots, and hay. Travelled to the show on foot five miles, and by railway seventy-eight miles. The second prize of £5.

Class VIII.—*Fattened Cows, of five years old and upwards, that shall have had at least two live calves at separate births.*

80. The Most Hon. the Marquess of Exeter, of Burghley, a seven years and two months old Durham cow, had two calves, bred by himself, and fed on oil cake, barley meal, and turnips. Travelled to the show by van eighty-four miles. The second prize of £5.

81. Mr. Edward Lakin, of Beauchamp-court, near Worcester, an eleven years and nine months old short-horned cow, had six calves, bred by himself, and fed on hay, grass, vetches, straw, cabbages, turnips, mangold wurzel, potatoes, oil cake, and bean meal. Travelled to the show by van nine miles, and by railway one hundred and forty miles. The first prize of £15, and a silver medal.

Extra Stock—Cattle.

98. Mr. James Webster, of Peakirk, near Peterborough, a three years and eight months old short-horned ox, bred by himself, and fed on cake, bean meal, turnips, and hay. Travelled to the show on foot five miles, by van forty-five miles, and railway seventy-eight miles. A silver medal.

Sheep.

Class IX.—*Long-woolled fat Wether Sheep, one year old, that have never had cake, corn, meal, seeds, or pulse.*

102. Mr. Thomas Twitchell, of Willington, Beds, a pen of three twenty months old Leicester wethers, bred by himself, from rams hired of Mr. S. Bennett, of Bickering Park, Woburn. The first prize of £20, and a silver medal.

103. Mr. Thomas Umbers, of Wappenbury, near Royal Leamington Spa, a pen of three twenty months old New Leicester wethers, bred by himself, from rams hired of Mr. W. Umbers, jun., and Mr. J. Buckley. The second prize of £5.

Class X.—*Long-woolled fat Wether Sheep, one year old, under 8 stone weight, that have never had cake, corn, meal, seeds, or pulse.*

104. Mr. J. S. Burgess, of Holme Pierrepoint, near Nottingham, a pen of three twenty months old long-woolled wethers, bred by himself. The prize of £10, and a silver medal.

Class XI.—*Long-woolled fat Wether Sheep, one year old, without restrictions as to feeding.*

108. Mr. J. S. Burgess, of Holme Pierrepoint, near Nottingham, a pen of three twenty months old long-woolled wethers, bred by himself. Commended.

112. Mr. George Piercy, of Kirkburn, near Driffield, Yorkshire, a pen of three twenty months old Leicester wethers, bred by himself, from rams hired of Sir T. Sykes, Bart. Highly commended.

114. Mr. William Sandy, of Holme Pierrepoint, near Nottingham, a pen of three twenty months old long-woolled wethers, bred by himself. The second prize of £5.

117. Mr. Thomas Twitchell, of Willington, near Bedford, a pen of three twenty months old Leicester wethers, bred by himself, from rams hired of Mr. S. Bennett. The first prize of £20, a silver medal, and a gold medal.

Class XII.—*Long and short-woolled cross-bred fat Wether Sheep, one year old, without restriction as to feeding.*

121. His Grace the Duke of Manchester, of Kimbolton Castle, Kimbolton, a pen of three twenty-one months old Southdown and Leicester cross wethers, bred by Mr. G. Edie, Wytonhill Lodge, near Huntingdon, from rams of his Grace. The second prize of £5.

122. Mr. Charles Tomson, of Sundon, near Luton, Beds, a pen of three twenty-one months old Down and Gloucester cross wethers, bred by himself. The first prize of £10, and a silver medal.

Extra Stock—Long-woolled Sheep.

129. Mr. Charles Large, of Broadwell, near Burford, a fifty-six months old long-woolled ewe, bred by himself. A silver medal.

Class XIII. — *Short-woolled fat Wether Sheep, one year old, without restrictions as to feeding.*

138. Mr. Grantham, of Stoneham, near Lewes, a pen of three twenty months old Southdown wethers, bred by himself. The first prize of £20, and a silver medal, and the gold medal.

142. Mr. S. Webb, of Babraham, near Cambridge, a pen of three twenty months old Southdown wethers, bred by himself. The second prize of £5.

Class XIV.—*Short-woolled fat Wether Sheep, one year old, under 8 stone weight, without restrictions as to feeding.*

149. Mr. Samuel Webb, of Babraham, near Cambridge, a pen of three twenty months old Southdown wethers, bred by himself. The prize of £10, and a silver medal.

Class XV.—*Short-woolled fat Wether Sheep, two years old, without restrictions as to feeding.*

153. Mr. Grantham of Stoneham, near Lewes, a pen of three thirty-two months old Southdown wethers, bred by himself. The prize of £20, and a silver medal.

156. Mr. Samuel Webb, of Babraham, near Cambridge, a pen of three thirty-two months old Southdown wethers, bred by Mr. H. J. Adean, of Babraham. The second prize of £5.

Extra Stock—Short-woolled Sheep.

161. Mr. W. B. Harris, of Hinton Farm, Abingdon, a seven years and nine months old Southdown ewe, bred by himself.

166. Mr. Thomas Higgins, of Woollton, near Northampton, a twenty months old Down and Leicester wether, bred by himself.

Pigs.

Class XVI.—*Pigs, of any breed, above thirteen and under twenty-six weeks old.*

167. Mr. William Hobman, of Ewell Marsh Farm, near Epsom, a pen of three twenty-four weeks and five days old Neapolitan pigs, bred by himself, and fed on peas, barley meal, and middlings. The first prize of £10, and a silver medal.

Class XVII.—*Pigs, of any breed, above twenty-six and under fifty-two weeks old.*

168. His Royal Highness Prince Albert, Windsor Castle, a pen of three twenty-eight weeks old Suffolk and Bedfordshire pigs, bred by his Royal Highness, and fed on meal, milk, and peas. Highly commended.

171. Mr. W. F. Hobbs, of Markshall, near Coggleshall, a pen of three thirty weeks and six days old improved Essex pigs, bred by himself, and fed on peas, barley meal, steamed potatoes, mangold wurzel, and milk. The first prize of £10, and a silver medal.

176. The Right Hon. Lord Western, of Felix Hall, near Kelvedon, a pen of three twenty-seven weeks and two days old improved Essex pigs, bred by his lordship, and fed on barley meal and beans. The second prize of £5.

Extra Stock—Pigs.

178. Mr. Jacob Crawther, of Isleworth, near Brentford, a thirty-one weeks old improved Middlesex pig, bred by himself, and fed on boiled potatoes, fine middlings, and skimmed milk. Commended.

182. The Right Hon. Lord Western, of Felix Hall, near Kelvedon, a twenty-seven weeks old improved Essex pig, bred by his lordship, and fed on barley meal and beans. A silver medal.

ON THE SUDDEN LOSS OF VITAL POWER.

By Mr. A. S. Copeman, *Walpole.*

Sept. 24*th*, 1843, I was requested by Mr. James Haward, of this place, to attend an aged cart-mare. On inquiry I ascertained that, at six o'clock in the morning, the mare was taken to work in apparent health, and performed her labour with all her usual spirit until nine o'clock, when, after drawing a load of manure up the field, she was observed to reel upon and cross her hind legs, and before she could be taken out of the shafts of the cart she fell. Having been cleared of the cart and harness, with great difficulty she got upon her legs and was led to the stable, which was not more than forty roods off. In doing which she several times dropped upon her haunches, and twice fell completely down, and could not rise without considerable assistance. As soon as she was taken into the stable she again fell, and was unable to rise.

I found her pulse, on examination, to be 50, full and bounding —the respiration slightly accelerated, and the body bedewed with perspiration.

Treatment.—Having first elevated her head and shoulders, I had recourse to venesection until approaching syncope. I then gave a very strong dose of cathartic medicine; emptied the rectum, which contained a quantity of hard fæces, and gave an enema. I next applied blankets, dipped in boiling water and wrung out, to the whole spine, as hot as she could bear them without great uneasiness.

Four o'clock, P.M.—Pulse 60, softer—body warm—bowels rumbling—large quantities of hard fæces passed during the afternoon—and she has made several violent but ineffectual endeavours to rise. I ordered the bath to be discontinued, the body to be well rubbed with wisps, and dry rugs and bandages to be put on. I gave aloes, carbonate of ammonia, and ginger, in water, and applied oil of cantharides along the spine.

25*th.*—Four o'clock, A.M.: With a little assistance she got upon her legs, but can make very little use of either of her hind ones.

Eight o'clock, A.M.—The paralytic state of the hind quarters appears unaltered—she has lain or rather fallen down again. Repeat the hot bath to her loins for three hours, and then rub in a fresh blister and give a fever ball.

26*th.*—The constitutional excitement is fast disappearing. The loss of nervous power is principally confined to the off-hind quarter: give strychnia two grains twice a-day.

27*th.*—My patient is evidently improving: continue the strychnia.

She took the medicine twice a-day until the 30th; she was then put into a large loose box for three weeks, and from that period to the present time has been working in apparent health.

ON THE USE OF TOBACCO FOR HORSES.

By the same.

As the merits of this drug have of late been canvassed, I freely say that experience and attentive observations for several years past have fully convinced me that, as a therapeutic, and under the eye of the scientific practitioner who has judgment in the selection of proper cases, it possesses properties equal, if not superior, to any other drug we have yet placed in our materia medica. I am induced, after a long and extensive trial, thus boldly to offer my opinion. I have given it by the mouth in the form of a draught in upwards of four hundred cases of spasmodic and flatulent colic, constipation, strangulated hernia, and other diseases of the stomach

and intestines; and such have been the advantages I have found it to possess, that I feel the greatest confidence in recommending it, with the hope that every member of the profession will give this drug a full fair trial. The following is the form I have generally adopted :—Tobacco ℥ss to ℥j, boiling water Oj to Oij; macerate for ten or twenty minutes in a vessel lightly covered: strain off and give warm, either alone or with other suitable medicines.

THE VETERINARY ART IN INDIA.

By J. GRELLIER, *Esq.*, *M.R.C.S.*

[Continued from p. 701, vol. xvi.]

I SHALL now proceed to describe the diseases to which the eye is liable, which, though much fewer in number than in the human subject, are more frequent and fatal to vision. In the horse we have but three diseases, viz. ophthalmia, or inflammation of the eye; gutta serena, or palsy of the eye; and the worm in the eye.

Inflammation, as I before observed, generally arises from natural, very seldom from accidental causes: if, however, it should proceed from external violence, it will always disappear under the directions I shall lay down for the constitutional treatment of which I am about to speak.

It generally appears about the age of five or six, being the time the animal arrives at maturity. The proximate causes are, mostly, too much or too little exercise, want of fresh air, foul litter, &c. That the latter is frequently so, I am much inclined to believe from horses in Europe that are kept in close and foul stables, as in London, being much more liable to this disease than in the country, where the stables are cleaner and less confined. In this case, the effluvia arising from the dung and urine mixed with the litter corrode the extreme delicate coats of the eye, which soon attracts the blood in large quantities to the seat of irritation, whence proceed all its symptoms.

The more external symptoms are, an increased discharge of acrid tears, which corrode in their passage down the cheeks, and may be likewise observed dropping from the nose. The eyelids, particularly the upper, are more or less swelled, and the eye looks cloudy and becomes divested of its transparency. The pupil is scarcely discernible. Sometimes a bright yellow appearance occupies the centre of the eye; the patient becomes heavy, and hangs down his head, which he frequently shakes: the haws, if the inflammation

is violent, cover part of the eye to protect it from the rays of light, which at this time increase the degree of irritation.

He seldom perspires, and when he does it is to excess, which is, perhaps, a proof that the disease is not simply local, but affects the constitution. Sometimes it attacks one eye only, and on losing blood and being purged, it disappears, and again makes its appearance in four or five weeks, when the other eye becomes affected, thus changing periodically until one or both eyes fall a victim to its malignancy*.

The intervening periods of this disease have been supposed to be influenced by the moon; thus this appearance or stage of the disease has been termed by farriers moon blindness. The inflammation is sometimes so great, that a deposit of lymph, or white-looking matter, may be observed at the edge of the pupil, generally the inner angle, as well as on the small glandular bodies observed in the pupil. I would recommend this last symptom to be carefully examined, as it is the never-failing criterion of succeeding blindness, or the formation of a cataract, which last, though treated generally as a separate disease, is but the termination of this; and whenever the malady intervenes at short periods, a cataract is to be expected†.

Independent of the usual remedies prescribed for the cure of this disease, recourse has in vain been resorted to every local application. Messrs. Phipps and Wathen's medicines have been tried. We have scarified and divided with a lancet the larger vessels going to the eyes. The carotids, which supply the head and eyes with blood, have been tied up, but the blood was soon supplied in an equal quantity by anastomosing or corresponding branches. Therefore, to ensure permanent success, we must not rely on local applications alone, but combine them with constitutional remedies.

The unfavourable account which I have given the reader of this disease will, I hope, not discourage him from paying every attention to the animal labouring under it, for by proper treatment the habit is frequently rectified, and the disease perfectly eradicated: besides which, the inflammation may possibly proceed from the admixture of part of his gram, or some other external violence; although, as I have before observed, this is not so frequent as is generally imagined.

* These symptoms sometimes appear and disappear in twenty-four hours.

† Mr. Coleman thinks the ophthalmia in the horse is not of the same specific nature as that in the human subject, or any other in the known animal world. He conceived it to be a kind of gouty inflammation peculiar to the horse.

A cataract is an opacity of the crystalline lens, or its covering: sometimes the crystalline lens becoming absorbed, as is observed in blind horses, whose eyes are so much perished as to be scarcely discernible.

If the horse is in high condition he may lose four quarts of blood from a large orifice, which will give temporary relief; and if the inflammation is great a rowel may be made under his throat, to divert the redundancy of humours. A gentle dose of physic, consisting of six or eight drachms of aloes and one drachm of calomel, may be given; and, after the operation, he may take a bolus three times a-day, consisting of half a drachm of opium and one drachm of tartar, made into a proper consistence with a little treacle or honey. This mode may be pursued for five or six weeks, introducing in the course another dose of physic, and concluding with a third.

If the animal is out of condition, or of a very delicate habit, three or four diuretic balls may be substituted for the physic.

The horse, during this course, must be warmly clothed to assist the action of the medicine, and his stable kept very cool, yet not exposed to any current of air. His litter must be frequently changed, his gram reduced to half its usual quantity, and the water he drinks softened with two or three handfuls of bran. His exercise must be attended to, which should be twice a-day, unless the violence of the inflammation forbids.

In respect to local applications, I would recommend cloths dipped in cold spring water frequently applied over his eyes and forehead. His eyes may be frequently and gently washed with a solution of half a drachm of crude sal ammoniac, or one drachm of sugar of lead, in a bottle of cold spring water; after which a cloth dipped in the solution may be tied over his eyes to prevent the admission of light. In some very obstinate cases, salt powdered very fine and gently blown into the eye has been found to relieve.

It is very probable that the inflammation may be dispersed at the commencement of the above course; but I would recommend persevering in it as the best mode of preventing a return.

If, in opposition to every endeavour, a cataract succeeds, which is the last stage of this disease, I would recommend laying aside all further remedies, unless inflammation still exists, which will generally disappear on bleeding, purging, and local application*.

* A great deal has been said of extracting the cataract, couching, &c. I think there are too many obstacles to encounter; for, independent of the operation being much more difficult than in the human subject from the function of the retractor oculi, and the membrana nictitans, it seldom succeeds; and, even allowing the operation to be ever so successful, still the focal distance is removed, and glasses to remedy this defect cannot be employed, or even if they could, still the focal point could not be ascertained, and the animal, being deceived as to the true distance, will be always starting and stumbling, by which the remedy will be equal to the disease.

Gutta Serena, or Palsy of the Optic Nerve.

This disease but seldom occurs, and is generally produced by staggers, severe blows on the head, or any thing which can affect the brain. Its symptoms are, a peculiar transparent appearance of the centre of the eye, on account of which it is termed by farriers, glass eye.

The pupil, too, is very much expanded, from the nerves having lost the faculty of receiving the impression of light; the pupil is, therefore, continually dilated, endeavouring to perform its accustomed functions, thus, in a short time the pupil becomes preternaturally larger; but the most easy method of discovering this disease is the eye retaining its transparent appearance, and yet a total blindness existing.

One of the most perfect cases of this disease I ever saw was a horse of Mr. Coleman's; and, as the cure was also perfect, I shall relate the case, and the method pursued for his recovery. The horse reared up, and fell backwards, and in his fall the side of his head struck a stone building: the blow was so violent that he was with great difficulty recovered from the state of insensibility in which he lay; however, on his recovery from this state, a palsy of the nerve was discovered to be the consequence. He had been copiously bled, a purge was administered, spirit of turpentine was rubbed over his head, spine, and extremities, for the purpose of stimulating, salt was dissolved in sulphuric acid or oil of vitriol, the vapour of which was received up his nostrils, and, by persevering a few days in this mode of treatment the animal was perfectly recovered.

From the great success attending this mode of treatment in the above case, and from the rational principle on which it is founded, I would recommend it in every case of gutta serena, from whatever cause it may proceed.

Of the Worm in the Eye.

This wonderful phenomenon, or production in the animal economy of the horse I will not presume to explain, for I have witnessed but one case, which was on my first arrival; and being under some fear, from the description I had received of the ferociousness of the animal, I would not venture to operate unless he was previously thrown. In consequence of this I was not successful, although I made two very extensive incisions immediately over the worm as he moved on the surface. From the position of

the horse's head on the ground, I ought to have foreseen the impossibility of the worm escaping with the watery humour, which is the object of incision; for when the head is confined to the ground, the water naturally gravitates to the posterior chamber of the eye, consequently neither water nor worm can escape by incising in that posture. It will be needless to add, that the successful mode of operation is to insert the lancet while the horse is standing. If possible, the incision should be made while the worm is floating on the surface of the eye, and a little beneath it, by which it will immediately pass out with the water. Some care is required not to make the incision too extensive, as the crystalline lens may also escape, which would cause immediate blindness.

I have heard that mercurial applications to the eye will destroy the worm, which being absorbed, the vision will not be impaired. However extraordinary this mode of cure may appear, it is not so much so as the disease; and I conceive it worthy of trial, as the texture of the eye would not be so much deranged as by incising.

I have been informed by many gentlemen, that weakness in the loins frequently succeeds the extraction of the worm, which I believe; but I very much doubt whether the one is a consequence of the other. It is possible that a relaxation of the nervous system may, however remotely, cause the worm in the eye, as it is a disease confined to hot climates; and as I firmly believe the weakness in the loins to be some paralytic affection of the spinal marrow or nerves, so I imagine it very probable that a horse, having had a worm in the eye from a relaxed system, will also be very subject to weakness in the loins. This does not argue any particular connexion between these complaints, or that one is the consequence of the other; it only advances that the same habitual or remote cause may produce both. This is, however, entirely hypothesis, which I have presumed to venture, and which, at all events, I conceive much more probable than that extracting the worm from the eye occasions a weakness in the loins.

A CASE OF VENTRAL HERNIA.

By Mr. S. G. Holmes, *Ash.*

In July last I was requested by Mr. Collard, of Minster, to attend a yearling colt with ventral hernia.

It was situated posteriorly to the umbilicus, and was about three inches in circumference. The protruded intestine would have filled a half-pint measure.

I determined to operate on it after the method of Mr. Simonds, which I accordingly did, and had no difficulty in returning the intestine.

All appeared to be going on well for a fortnight, at the end of which time the last suture sloughed away, and the intestine came down as before. I operated upon it again in the same manner, and again unsuccessfully. I then despaired of effecting a cure, and was upon the point of recommending my patient to be destroyed, when, upon turning over the pages of the 14th volume of THE VETERINARIAN, my eye lighted upon the paper of Mr. Tombs, in which he recommends the insertion of skewers through the integument, and the application of a ligature over them, which method I immediately adopted, and am happy to say with complete success.

A WORM IN THE SCROTUM.

By Mr. KING, *Stanmore.*

OBSERVING in THE VETERINARIAN for the last month that Mr. Mead, of Leighton Buzzard, speaks of having discovered a worm in the scrotum of a three-year old colt during the operation of castration, I thought I would send you a similar case which I some years ago met with. It is the only one which has occurred in my practice, and I think I can safely say that upwards of two thousand horses and colts have passed from under my hands. By some chance, handling *one* of the testicles of a yearling after removal (and I have often since wished that notice had been taken of the other), two worms were discovered lying between the epidydimis and the testicle, about an inch and a half long, looking very like young lumbrici. I was more fortunate than Mr. Mead, as mine were preserved, and they are to be seen now, I believe, in the Museum of the Veterinary College.

In my case they appeared to have been stationary, and the testicle exhibited every usual characteristic of a healthy gland.

Although it is an occurrence not often met with, yet I am induced to think it may more frequently take place than we are aware of; for I can easily conceive that the pressure which the contained parts of the scrotum receive from the clams, may, on the opening being made through the integument, cause the unobserved expulsion of a small worm along with the fluid which generally, more or less, surrounds the testicle of the young animal, and which is usually from that pressure thrown out with a jet.

CASE OF ACUTE INFLAMMATION OF THE KIDNEYS, WITH LAMENESS OF THE RIGHT HINDER PASTERN JOINT.

By Herr Körber, *of Merseburg.*

On the 9th of August, Herr P.'s coachman drove out in the cool of the morning with the empty carriage. Hardly had he driven a quarter of a mile when he perceived that one of the horses (a grey mare, six years old, and well bred) went with its hinder parts stretched out and trailing after it, and was covered with foam. He immediately turned round, and proceeding at a foot's pace, reached my house, and begged me to examine the animal. He also, in reply to my farther inquiries, stated that the animal had not appeared quite so lively as usual that morning, but that she had consumed her usual quantity of fodder, and on the road had plentifully voided some well-balled dung. No escape of urine had been observed.

I found the pulse to be 48, small and hard, and the breathing 14 or 15 in a minute. The eyes were inflamed, as were also the mucous membranes, wherever they were visible; the mouth was dry and hot; the body was warmer than is natural, and covered with perspiration; the ears and feet were cold; the animal occasionally drew up her hind leg and beat the ground with it, flinched when the parts near the kidneys were touched, and seemed excited and disturbed: the portion of the back between the hip bones was stiff, and apparently immoveable. While I was examining it, a period of about ten minutes, the animal staled twice, and voided each time a small quantity of reddish fluid. It refused all fodder, but drank of some water that stood near.

Before doing any thing in this case I returned to my house to finish some business which I had left undone, and it might be an hour before I returned to my patient. During that time it had got considerably worse: the pulse was now 60, and the breathing 30 in a minute. The animal was much more uneasy, and looked anxiously about, and testified a desire to lie down. In these attempts the hinder legs were brought under the belly, and prepared to make the bed requisite to enable the animal to lie down; but as soon as the part of the back between the hip bones had to move the animal sprung quickly up, and shot forward with such violence that nothing but the support of the wall and stall maintained its equilibrium. After repeated attempts to lie down the animal suddenly fell, and then lay for some time tolerably quiet. In addition to these symptoms the right thigh appeared lame, and

the region of the kidneys still more painful, both on the right and left side. In the course of the day the animal endeavoured repeatedly to urine without voiding any thing. On examining the rectum, I found the bladder to be empty. Throughout the whole course of the disease the dung was regularly voided in moist solid balls.

As the symptoms above narrated plainly shewed that the disease was inflammation of the kidneys, I subtracted eight pounds of blood from the animal, and administered Glauber's salts ℥viij with cream of tartar and linseed of each ℥ij, made into an electuary, in doses of a table-spoonful every hour. In the course of the morning I had the regions about the kidneys repeatedly bathed with vinegar, and, in the afternoon, put on a mustard plaster, which I suffered to remain there for twelve hours.

On the following morning all the inflammatory symptoms were considerably diminished, but the stiffness of the back between the hip-bones remained the same; no escape of urine had taken place, the bladder still continued empty; but the animal appeared rather more lively, and its appetite was a little increased.

I continued to give the same medicine, with the exception of the Glauber's salts, and every hour caused a mucilaginous clyster to be administered, and another mustard plaster to be laid on the regions of the kidneys.

On the third day nearly all traces of fever were vanished, the motion of the portion of the back between the hip-bones was more free, the lameness of the right hind leg diminished, the animal tolerably lively, and ate with some degree of appetite; but the bladder still continued empty, and no evacuation of urine took place. We gave some green meat and a bran mash, and administered an electuary composed of sal ammoniac and linseed powder. I also caused a mucilaginous clyster to be given every three hours, and the regions about the kidneys washed with vinegar. In the evening of this day a slight evacuation of thick milky urine took place, which increased in the course of the night, and on the following day the secretion and evacuation of urine was restored nearly to its natural state, and the animal to health. The lameness, which had evidently been merely a symptom attendant on the disease, had also vanished. At night I merely gave sal ammoniac and gentian.

On inquiring into the probable causes of this disease, I traced it very distinctly to the eating of some hay got in about four weeks before. This hay had been grown in the spring on a meadow that had been flooded, and was very luxuriant. The grasses of which it consisted were good, and had been well mown, and brought in tolerably dry. In the loft, however, the trusses were

packed very closely together, and, some days before the animal was taken ill, the hay began to sweat, and a grey coat of mould had formed over the surface, and, when the hay was moved, a thick bluish vapour attended by an aromatic smell was perceptible. The whole of the hay was used as fodder, and even the portions covered with mildew were consumed by the horses, and this, together with the sweat of the unpurified hay, was, doubtless, the cause of the disease.

Magazin für die gesammte Thierhielkunde, 1838, *p.* 435.

ON THE POISONING OF SHEEP WITH ARSENIC.

By Mr. C. LAUDER.

[Communicated by Professor DICK, Edinburgh.]

Respected Sir, November 23, 1843.

I SEE plainly that, however well men may mean, still in the course of their lives they will do what they frequently regret afterwards; and such is my case just now, so far as relates to the trouble to which I put your respected self and your worthy friend Dr. Fyffe; for, after all, the best counsel in Edinburgh informs the person who lost the cattle that he need never attempt to pursue the proprietor of the sheep-bath, as it will be throwing good money away on bad, the case not being an actionable one. If you recollect, I promised you an account of the post-mortem appearances. The fourth day after the bath had been applied another bullock died. The first one, having licked himself, died in six hours, and only exhibited inflamed stomach, but I did not see him; and on removing the skin, the cellular tissue, wherever the bath had been made use of, was full of extravasated blood, and of the darkest shade of red.

From the lips to the anus the alimentary canal was highly inflamed. The paunch had already parted with many and large patches of the secreting coat, and the rest of it peeled off the same as if it had been long macerated. The omentum was discoloured and the texture destroyed, as also the texture of the kidneys. The peritoneum inflamed, and containing a large quantity of serum. The liver gangrenous. The larynx, trachea, bronchi, and parenchyma, much inflamed; and, what appeared to me as being remarkable, was, the substance of the lungs, instead of being filled with blood, deeply dyed as it was, was nearly dry. The pleura was inflamed, and the cavity of the chest contained a large quan-

tity of serum, as also did the pericardium. The heart was of a bleached appearance.

This is all I can say of the animal just now alluded to; but two days after (Sunday) I got an active young lad to assist me, and examined the brain of another of them, and found it highly vascular—gorged full of blood—with extravasation of blood into the ventricles; at once accounting for the staggering gait, &c., shewn by almost the whole of them—those that lived as well as those that died.

One word more. Such was the preference given by the poison, that it seemed not to have allowed a single secreting surface or organ to escape its baneful effects: even the bursæ of the joints were so much affected, that when they were able to go to water the limbs were rigid.

Symptoms.—Restlessness at first—dreadful excoriation of skin—swelling of the neck, back, &c., where the wash had been used—frequent rigors—staggered when moved in the stall—complete loathing of food—the purging was a fœtid, black, oily-looking excrement—occasional fits of abdominal pain—eyes beautifully clear and watchful—horns (of those that were horned) not only warm, but hot.

I may say, to the very last, breathing, in some little disturbed, in others accelerated, as in peripneumony, or deep and heavy, as in pleuritis—pulse from 66 to 146. Some of them recovered after the pulse had stood long at 140. The scurf, skin, and hair, peeled off with the slightest friction; and so alarmed were the animals lest they should be touched, that the lifting of the hand quickly when near them caused a crouching motion that was painful to look upon.

As to Treatment.—I washed them with warmish water, dried them gently, and soaked the parts with oleum dulce. I exhibited diluents, thin gruel and linseed tea, and gave tinct. opii where pain was shewn, or where purging went to great excess. They were fomented with hot water for the relief of internal pain; prepared chalk was mixed with their drink; and so on.

The greater part of my duty, however, consisted in seeing that the animals were judiciously managed, and taking care that nothing improper was done.

I beg leave to state that, when my prepared chalk was all used and I could not obtain a fresh supply, I had recourse to common earth from the field. This I stirred up in the fluid which they drank, or had poured into them; and from it I conceive I derived great benefit, for in an hour or two after its exhibition the colour and character of the fæces changed from very black and fœtid to something approaching to what was natural; and from the time I

adopted its use (which I did as a *dernier resort*, and knowing it to be an absorbent), the animals certainly began to recover; at least all, and even more, than I then considered could possibly have survived.

The loss was eight out of thirty-two.

The symptoms and post-mortem appearances above-described being correct and unexaggerated, we may rely on their being those of arsenic absorbed by the system, through the medium of the skin; at least such was my opinion at the time, and, since then, you are aware that there has not been any cause for changing our opinion.

My letter has run out to such a length that I can only bid you good-by, and assure you of the affection and gratitude of your old pupil.

C. L.

CONTRIBUTIONS TO ZOOLOGICAL PATHOLOGY.

By JAMES MERCER, *M.D. Fellow of the Royal College of Surgeons, and Lecturer on Anatomy, Edinburgh.*

PART I.—*On the Morbid Appearances seen in the Skeleton of a trained Tiger, as explanatory of the Mode of taming these Animals.*

THE fame which several daring individuals have obtained within the last few years for their power and influence in overcoming the feelings and passions of the most ferocious animals of the desert and of rendering them subject to their wills and the caprice of their fancy, have given rise to much wonder and speculation in the minds of the curious, as to how this "lion-taming influence" has been obtained.

Many conjectures have been started as to how this can be accomplished. Some contend that it is on the same principle as that which was pursued by the celebrated Irish Whisperer; or that which is adopted by the natives of the South American Continent in the breaking-in and taming of their wild horses, by whispering into their ears and insufflation of air into their nostrils; others that it is the result of emasculation or spaying in the respective sexes, by reason of which the animal feelings and propensities are entirely overcome, and, with these, the ferocious tastes and appetites of the animals. A third set contend that it is produced by powerful narcotism, following full feeding previous to the public appearance of "the Lion

Kings;" a fourth class—philanthropists—contending with vigour, that it is consequent on uniform kindness and gentle treatment between trainer and animal, so that the one becomes the pet of the fancy of the other; whilst a fifth stoutly declares it to be produced by physical force and the unsparing and fearless use of the rod. Most of these opinions, however, rest on mere conjecture, and without the slightest shadow of truth for their support; and therefore, like all such speculations, they must remain *in statu quo* in the minds of their supporters, to be set aside or verified according to the opportunities which they may individually possess. If there is any secret or mystery in the matter, we fear much that it must still remain with its possessors, as it is too much against the selfish appetites of human nature to expect that so profitable a source for cozening the public to the enriching advantage of the fool-hardy and daring few who practise it will ever be voluntarily confessed.

Like all other similar circumstances, therefore, we can only come to an approximative explanation by indirect and negative means; and my only object in forwarding you the present communication, is to point out the results obtained by dissection of one of these trained animals; and also to shew that any thing but uniform kindness and gentleness had been shewn it, and that, whilst it had been "cribbed, cabined, and confined" for the gratification of the wonder-seeking public, its life had been, we fear, one continued course of pain and suffering.

During the past summer a celebrated lion-tamer visited this city with his collection of trained animals. About two months previous to his arrival here one of his royal Bengal tigers had been severely bitten through the paw by the lioness, with which he had been confined in the same caravan. This gave rise to considerable constitutional irritation. The wound did not heal, and partly from this condition, and from exposure to cold during their travelling, the animal exhibited on his arrival all the symptoms of severe pneumonia in a far stage of advancement. He was sent, for greater convenience, to the Zoological Gardens, where, in company with Professor Dick, I had an opportunity of observing him. Bleeding, cathartics, sedatives, and every other means were used, but all without avail, and he died in about three days after being seen. The skin was immediately removed by the knacker of the establishment, and with no sparing hand. The integument, penis with its sheath and the testicles were swept away, so that I was unable to satisfy myself fully as to whether or not he had been emasculated; but from the testimony of Professor Dick, I understand that he had not been so.

On being brought to my anatomical rooms for preparation, I found that he measured from the snout to the tip of the tail nine

feet four inches, and from the top of the withers to the ground about three feet six inches. He was in most excellent condition; the surface of the body was loaded with fat to a considerable thickness, and for development of muscle, nothing could excel its beauty, strength, and symmetry. On removing the viscera of the thorax the immediate cause of death was seen. Both lungs were extensively diseased. One was almost solidified by hepatization, while the other was run through with small abscesses in every direction. The viscera of the abdomen and pelvis were perfectly healthy.

On examining the mouth, the laniary teeth were very much destroyed, especially those in the lower jaw. This had evidently been effected by means of strong mechanical force, applied from without; the tips of the teeth were all chiselled off from without inwards, and several of them, especially the left inferior laniary, shewed that they had been recently chipped down, a large portion of the latter tooth having been fractured down to the bone in the alveolar socket, was still kept dangling in its place by the adherent gum. The periosteum covering the facial bones, from the orbit to the point of the muzzle, was much thickened and very irregular on its surface; and on looking into the nose the same nodulated appearance was also found on the Schneiderian membrane lining its external walls. These roughened and nodulated appearances were found to depend on an extensive effusion of osseous paste on the surface of these bones, the outer layer of which was soft and capable of being cut into with a knife. The entire skeleton was afterwards subjected to careful maceration, and especially the skull, when, after a careful removal of the soft parts, a most extraordinary appearance was seen in connexion with the entire osseous structure, especially the larger and more exposed bones of the skeleton.

Though the animal was aged, the bones had all the spongy appearance of the youthful state. The surfaces of the long and flat bones were very rough; their fibres opened out; they appeared to have been more than usually vascular, and, in structure, were much softer and more cartilaginous than I have ever found them. It is well known that in animals which have been domesticated from a state of nature, and have been confined to a uniform though artificial regimen and mode of life, the osseous system, above all others, shews the influence of this change, by becoming softened, and afterwards bent and twisted, in consequence thereof. Indeed, some of the best marked instances of "mollitis osseum" that I have seen have occurred in animals under the above-mentioned circumstances, and especially in the monkey tribe. That part of the appearances seen in the present instance did depend on the artificial mode of life which the animal maintained, cannot be

doubted; but something more than this must have been in operation. Wherever there was a projecting point on the skeleton, that part had more the appearance of a rough nodulated coralline, than the usual muscular impressions that are there seen. They were not the result of domestication, but of often-repeated and long-continued injuries inflicted on the enduring and patient animal.

The surface of the bones of the muzzle was still more changed in appearance. From the edge of the orbit on either side to the point of the muzzle above, and from the incisor edge of the symphisis menti backwards to the edge of the masseter muscles, there was one continuous mass of effused and organized callus. This consisted of several layers, imposed on each other in a very irregular manner, and giving this part of the face more the appearance of a madrepore than of a smooth bone; and, what was strange, the bulk of the exostosis was situated around the exit of the superior and inferior maxillary nerves. On the right side especially the terminations of both these nerves were completely obscured at their exit by irregular knobs of callus, and the branches that proceeded to the whiskers and lips were hid in small canals of adventitious bone. On the right side of the lower jaw there was a cloaca the size of a pistol bullet, and out of which had been exfoliated a portion of the bone forming the outer crust of the alveolar socket for the laniary tooth. Indeed, the cavities for all the laniary teeth presented considerable evidences of the morbid action that existed without, having extended itself to their very sockets—circumstances which I doubt not would give rise to a considerable degree of loss of power in these teeth, even though the animal had been enraged, and had attempted to immolate his master. The entire substance of the superior and intermaxillary bones shewed the same evidence of disease. The cavities in the interior of the former were almost filled up, and the whole of their nasal surfaces were nearly as rough with effused callus as their exterior. Altogether, the entire muzzle presented evidences of most extensive morbid action having been present, and that for a considerable time.

The dorsal surface of the metacarpal and first row of phalangeal bones of both paws were also covered with numerous ossific points, evidently produced by the same causes as those operating on the cranial; and at all the other projecting points in the osseous structure of the anterior extremities the same appearances were observed.

From all these circumstances, therefore, we are constrained to the conviction, that had "the rod been spared, the child would have been spoiled;" and whatever other means may have been adopted to curb the impetuous passions and feelings of the animal, still those of physical force must have been used as an extensive and

primary agent. How far this cruel mode of training is justifiable, we leave to the feelings of society individually. It may be said in one respect as a palliative for such, that, in those animals, though age may overtake them, their eyes become dim, and their force abated, they are well taken care off. Though they become gaunt and lean and feeble, every thing is provided for them, and, when exhausted, they may drag their wearied limbs to the corner of an elegant caravan—but not to the haunt from which they once went forth in the pride of their strength, and when their voices scattered horror through the desert—there to die a lingering and painful domesticated death. Better, we think, would it be for them did they fall by the javelin of the hunter in a state of freedom than thus drain to the dregs a most miserable existence, entirely to please the appetites of a wonder-seeking public. "Merciful, truly merciful," it has been well observed, "is the law that subjects the brute creation to accumulated chances of premature death, and well would it be for all of them if the term of their natural though limited existence could always be obtained. The scenes of carnage which the economy of nature presents, the warfare of species with species, and the never-ceasing destruction of life which thus takes place, could alone prove the antidotes to the continued perpetuation of this refined misery and protracted suffering. Death would then come unlooked for; up to the last moments of existence, the enjoyments of being would be experienced, and every instinct obeyed; death would come unlooked-for, and its bitterness would pass in a moment."

ON LARYNGITIS.

By C. PERCIVALL, *Esq.*, *V.S.*, *Royal Horse Infirmary, Woolwich.*

A BAY gelding, five years old, was admitted into the infirmary stables at this place on the 22d of October, 1840, with the above disease in a very marked form. A few days prior to his admission I was requested to visit him by the gentleman on whose farm he had been at grass during the summer, having been attacked shortly after he was brought into the stable. At first sight there did not appear to be much amiss; but upon giving him a handful of corn or a little hay, he appeared to have great difficulty in breathing, soreness and tenderness about the throat, and evident uneasiness in swallowing. I ordered him to be bled, the throat to be blistered, and to have some laxative medicine, which was done under the super-

intendence of a practitioner on the spot. The horse having from time to time become worse, he was placed under my hands.

At the time of his admission, the respiration was difficult and painful in the extreme, the nostrils expanded, the pulse 50, great soreness of the throat, difficulty in swallowing and the head projecting forwards, with rigidity of the muscles of the neck. He was bled somewhat copiously, had the throat and trachea blistered, a rowel inserted in the chest, and laxative medicine, together with occasional fomentation to the throat, with but little abatement of the symptoms.

On the afternoon of the 3d of November the disease assumed a most formidable and alarming character, threatening the poor animal with suffocation, who was down and unable to rise, sweating profusely, pulse 90, accompanied with a sonorous noise in breathing distinctly audible the length of the infirmary square, a distance of between seventy and eighty yards, and, to all appearance, in the last agonies of death. At this time I fortunately reached home, when my assistant immediately came to make me acquainted with the poor animal's sufferings, adding, he was all but dead from suffocation. I lost no time in visiting my patient, and on making an opening into the trachea, the relief was instantly apparent. The sonorous breathing subsided, shortly after which the animal was upon his legs again.

Towards the evening there was a discharge of frothy mucus mixed with blood from both nostrils, the respiration comparatively free and easy, and the roaring noise not audible at half the distance; but great soreness of the throat, and incapability of swallowing even a little water. The blister was repeated to the throat.

Nov. 4th.—Pulse 50. Breathes with more freedom, and in every respect better.

5th.—Pulse 40. The noise in breathing has quite subsided; feeds well, and drinks with perfect freedom; free from pain, and doing well.

6th.—Pulse 40. Respiration somewhat more difficult, accompanied with a wheezing noise and evidently not so well again. Repeat the bleeding, and blister to the throat.

7th.—Pulse the same. Respiration more difficult; discharge of mucus from both nostrils; soreness of throat, and difficulty in swallowing. The tube was removed from the trachea, cleaned, and re-inserted. Towards the evening the breathing became more tranquil, and he, to all appearance, was much better again.

8th.—Pulse 45. Breathes with more freedom. In attempting to drink there was great difficulty in swallowing. Portions of masticated food dropped from the near nostril into the pail, and part of the water returned by the same passage. There was a discharge

of brownish mucus from both nostrils, and the breath was very offensive, proceeding from a collection of food in the mouth or pharynx.

9*th.*—Much better.

11*th.*—Feeds well; much better.

12*th.*—Pulse regular; respiration rather difficult, with a return of the wheezing as before, but in a much slighter degree; feeds well, but still manifests soreness of the throat and difficulty in swallowing water. The tube was removed this morning, the horse breathing freely through the opening in the trachea. There was a discharge of mucus from the near nostril.

13*th.*—Better.

14*th.*—Discharge from near nostril the same. In drinking, a small quantity of the water returns through the nostrils.

15*th.*—Better.

16*th and* 17*th.*—Feeds well; considerably better.

18*th.*—The opening in the trachea having granulated and filled up considerably, there is but a very trifling degree of air passing through it.

19*th.*—The opening in the trachea quite closed; the respiration carried on in the regular way with but very trifling noise; feeds well, and in good spirits.

25*th.*—Much better; feeds well. Improves daily in condition, and the breathing but little disturbed.

Dec. 26*th.*—Discharged perfectly well.

FRACTURE OF THE ACETABULUM.

By W. Percivall.

September 25*th*, 1843.—I was called to a five-year-old blood mare, who, in the act of being mounted, took fright at some beer-cans, made a sudden start, and slipped down on her off side upon some rough granite pavement. I found her, expressing much pain, standing (in a box about a hundred yards from the place of accident, into which she had been led) with the off hind limb extended, and rather abducted, and resting upon the toe of the hoof, which was turned outwards. Upon the prominence of the round bone of the same side was a patch of dirt. When moved, which she was made most unwillingly to do, she walked with her hind quarters curved to the near side, leaving the affected limb stretched outward until compelled to move it, and then she did so by lifting the toe, and momentarily replacing it upon the ground, and finishing by

describing with it, in dragging it after her, a sort of segment of a circle. The position and motion of the limb were altogether different from that occasioned by dislocation of the patella.

Placing my left hand upon the tuberosity of the ischium, and with my right grasping the stifle, I found I could with the latter move the femur inward and outward, when the muscles were not in action, with ease; there was evidently a sensation of looseness, or mobility rather, of the bone, such as fracture would impart to it; and, while I was giving the bone these lateral movements, I more than once thought I could perceive a crepitus. I next had the limb lifted and brought forward by an assistant, in the manner in which a farrier does to clinch up the nails of the hind shoe; and while thus held, suddenly let fall upon the ground. This repeated more than once produced sounds like crepitus. Afterwards I had the limb lifted and carried as much as possible backwards, and then, as before, let suddenly drop: this, more than any thing that had been done before, elicited crepitus; in fact, there no longer existed any doubt about the existence of a fracture, and the case was pronounced to be "fracture of the femur;" and the mare, in consequence of commencing to express a great deal of pain by heaving at the flanks, anxious countenance, sweating, trembling, &c., was recommended, without any further delay, to be shot.

Post-mortem.—The acetabulum, from the blow received upon the round bone, had, it was discovered, been broken into four pieces,—three large and one small. Its upper portion, constituting more than a third, remained unbroken off the pelvis; the lateral portions, about equal in size, and neither amounting quite to a third, were both loose; the inferior portion was inconsiderable, and altogether detached. The fracture had proceeded in a radiated direction, apparently from the central part of the cup, or rather from the hollow into which the ligamentum teres is implanted, to different points in the circumferent border. The fractured parts, though retracted at a distance from each other, maintained their relative situations; and the ligamentum teres, which remained whole, still held the femur attached to the unbroken-off portion of the acetabulum. There were found besides two large and several small pieces of fractured ischium. The blood extravasated from the ruptured bloodvessels around the injured parts, which was in a state of imperfect coagulation, did not, I should say, exceed a pint.

A CASE OF CHRONIC INDIGESTION IN A COW CURED WITH EMETIC.

By Herr Rehrs, *of Leyden.*

A cow had suffered under a severe and dangerous attack of chronic indigestion for more than three weeks. This appeared to have been brought on by eating a great quantity of raspberry branches: the animal immediately after swelled to an enormous size, and lost all appetite and the power of rumination; the milk also diminished very much. The owner sent for a quack in the neighbourhood, who prescribed for her, but without success. A veterinary surgeon of some celebrity was then consulted, and under his treatment violent purging was induced, the swelling of the belly diminished, and the animal recovered its appetite; but as soon as it began to eat every bad symptom returned with increased violence. At this period I was called in. The cow had but little appetite, rumination had entirely ceased, she voided dry dark brown dung, the belly was puffed to an immense size, and the back strangely curved; the circulation and breathing were somewhat quickened, but in other respects regular; the secretion of milk had wholly ceased; the hair stood up roughly, and the skin was close and immoveable.

Repeated observations had shewn me the beneficial effects of the rad. hellebor. nigr. on flatulence in cows, and consequently I resolved without delay to test its efficacy in the present case. I therefore prescribed

Rad. hellebor. nigr.	ʒvj
Aloes socot.	ʒij
Sulph.	ʒvj
Aq. comm.	℔ij

to be divided into four doses, and given to the animal in the course of two days.

A slow and often interrupted rumination came on, the flanks became less distended, the appetite improved, the dung was softer, and was voided more frequently. I repeated the medicine with this exception, that in the place of aloes I gave pulv. rad. gentian. The ruminating process still continued to be very imperfect, and frequently, for whole days, was not visible at all. The appetite had returned to its natural state, although the cow still continued to be very much swollen. I now had recourse to emetic tartar, and gave this in conjunction with nitre in a decoction of linseed. No sensible results were produced; the rumination still remained imperfect, and the flanks distended.

In this desperate state of things, many would have had recourse to incisions into the flank; but I never saw this attended with any really beneficial consequences, and therefore resolved still to adhere to a therapeutic course of treatment.

The idea crossed my mind of using emetics, in order thus to act upon the stomach, and force the impediments contained in it upwards, and thus produce rumination, or that which would in all probability precede it, vomiting. With this intention I gave

Rad. veratr. alb. .....℈iv
Aq. comm.....℥vj, in one dose.

Soon after the administration of this medicine the animal began to nod its head, a symptom which frequently attends indigestion in cattle, and one which I consider indicative of a disposition to rumination; this did not, however, come on, but the animal appeared uneasy, and saliva ran from its mouth. About an hour after the administration of the medicine I had the cow led out of the stall, and the motion was followed almost immediately by vomiting, and that to such an excess, that three stable-pailsfull of vomited matter were taken up, consisting for the most part of hard stalks, from four to six inches long, and but little mixed with fluidity. Tremblings, cold sweat, exhaustion, and an irregular singular state of the pulse, accompanied this vomiting, which lasted about three quarters of an hour. The animal remained very weak for a long time, and shewed no sign of appetite at first; the pulse continued for many hours to be irregular and intermittent. Twelve hours afterwards all the functions began to resume their natural office. Rumination commenced; dung was voided intermixed with hard stalks; and the patient appeared calm. The farther treatment consisted merely of bitter aromatic drugs and small doses of tart. stibiatus; and, in a short time, the animal was perfectly recovered.

Magazin für die Gesammte Thierheilkunde, 1840, *p.* 73.

TWO CASES OF ŒSOPHAGOTOMY.

By Mr. Charles Tennant, *Maybole, Ayrshire.*

On the 5th of August, 1843, I was requested to examine a bull, a year old, at Milton, near Maybole, by the owner, Mr. Allen, who told me that he did not expect that I should arrive in time to see him alive, although the distance was only about three miles. However, being anxious to ascertain, if possible, what might be

the cause of the urgent symptoms described by the owner, I lost no time in seeing him. Upon examination, I found some hard foreign body lodged about half way down the œsophagus, and the animal exhibiting every symptom of choking.

Upon making inquiry into the history of the case, I was informed that, about a week before, the bull shewed precisely the same symptoms for a short period, but ultimately got rid of the tendency to choking. As the bull was at grass, we could not conceive how any of the common obstructives (such as a turnip or potatoe) could have found their way to him, or him to them. I was, therefore, more inclined to think it was the end of a bone which he had picked up, and, having recourse with no effect to the ordinary means for removing such obstructions, I concluded that the only thing I could do was to cut down upon it and remove it, as it had been there upwards of forty-eight hours. So, having got him properly secured, I commenced the operation by making an incision about six inches long, and cautiously dissecting down upon the œsophagus. Having thus laid it open, I found to my surprise not a bone, but one of those hair-balls sometimes seen in the stomach of ruminants, and which must have come there while ruminating. During the operation the bull lost very little blood; and, having sponged out the wound, I carefully brought the edges of the œsophagus together, which were much tumefied and inflamed, by three sutures. Then, having brought the integuments together by the same means, we unloosed our patient, who immediately rose, and appeared nothing the worse.

Having put him into an empty stable for the night, I observed on the next morning a considerable degree of swelling about the wound, and, upon giving him a little tepid water, a quantity of it escaped by the wound.

Next day I had him brought to my own premises, in order that I might have him more immediately under my care. I continued to give him nothing but thin gruel till about the 10th, when he again shewed symptoms of choking. We were then under the necessity of removing the stitches of the skin. I found a large quantity of food from the stomach lodged between the edges of the external opening and that of the œsophagus, as well as in the œsophagus, which, on being removed, was always followed by a like quantity from the same place.

As the wound had a very unhealthy appearance, and the bull was in full condition, I thought it would be much better to have him destroyed, the beef being little the worse.

On the evening of the 11th October, being on my way to visit a horse four miles distant, I was asked by a farmer to look at a

year-old filly, which that day had been sent home to him from grass, said to be unwell, and not able to swallow any thing. On examination I found a tumour nearly half way down the œsophagus, feeling as hard as wood, and about the size of a large cocoa-nut.

All that I could learn from the history of the case, was, that the grazier had observed her coughing a great deal during the last eight days. I immediately got some thin gruel prepared for her, which she eagerly attempted to drink, but could not swallow any of it, for it was not able to pass the tumour.

As no fever existed, I was of opinion it was not a growth, as the owner thought, but some foreign body she had picked up, but what the nature of it might be I could not hazard an opinion; and it being now dark, and no assistance at hand, I told the owner to bring her to me on next morning, which he accordingly did. Having in the morning procured assistance, we tried all the usual remedies that are had recourse to in similar cases, such as the introduction of the hand, the probang, &c. But where the hand was small enough to go down, the arm was too short to reach the object; and as for the probang, I might as well have tried to push it through a stone wall.

Nothing being now left for me to do but to perform œsophagotomy, I lost no time in securing her properly, and immediately proceeded to cut down upon the tumour; but before reaching the œsophagus, a large quantity of greenish matter, of a very offensive smell, escaped, which had collected external to the tumour.

On opening the œsophagus, which appeared greatly distended, I exposed a quantity of well masticated grass, firmly impacted within it, which on being all removed weighed upwards of a pound. Having sponged out the wound, I brought the edges of the œsophagus together by stitches, as likewise the skin. I let her get up, and then applied a compress and bandage, and turned her into a loose box, where she could have nothing to eat.

In order to disturb the wound as little as possible, I let her have nothing but gruel injections for three days, when I allowed her a little tepid water to drink, which mostly escaped by the wound, along with a large quantity of very unhealthy matter.

I then thought it would be better to remove the stitches and examine the state of the wound, which I did, and found it to present a very sloughy appearance; so having sponged it out, I continued to dress it with digestive ointment until the tenth day, still supporting her with gruel injections. I now discovered that the mucous membrane of the œsophagus was ruptured on the opposite side, and separated from the muscular coat, which I believe must have been done by the great distention of the membrane

previous to the operation. All hope of success being now gone, I got her destroyed with the owner's consent. The post-mortem examination fully verified the diagnosis, as the mucous coat of the œsophagus was found to be ruptured, and separated from the muscular about an inch and a half.

A CASE OF NEPHRITIS.

By JOHN TOMBS, *Esq., Pershore.*

March 17*th*, 1843.—My services were required to a cart-colt, three years old, belonging to a farmer living four miles hence. He was taken ill on the 12th inst., and had been treated by a neighbouring farmer, fond of dabbling in veterinary matters. He had bled him thrice to the amount of two gallons, and clystered, and given him repeated doses of nitre, gum arabic, and spermaceti, in a decoction of marshmallows.

I found him with a strong pulse of 90—countenance dejected—tunica conjunctiva flushed—walking round and round the stable—sometimes standing still in one corner of the stable, where he invariably voided his fæces. He is frequently staling small quantities of urine, which is very thick and pale-coloured—he suffers great pain previous to and after urinating—lies down often, and looks back occasionally—eats now and then voraciously—he neither walks stiff, nor evinces pain when pressed on the loins. I believe the ancients used to say that these were concomitant symptoms in inflammation of the kidneys, but it is an indisputable fact that they rarely exist in this disease. I bled him until I altered the character of the pulse. The bowels being slightly constipated, a laxative was given, enemas repeated, and linseed tea—the loins stimulated with a mustard embrocation.

18*th*.—Pulse 100, in great agony prior to and after voiding his urine—continually lying down and getting up again, and pacing round the stable. I ordered a sheep's-skin to be put on the loins reeking hot from the sheep's back. The bowels having responded to the medicine, gum acacia, opium, linseed tea, and enemas, were administered.

19*th*.—I found my patient in agonizing pain, and bordering on syncope, from the effects of the sheep's-skin. It had caused exceedingly laborious breathing and intense perspiration. I had it instantly removed, and waited until the breathing had become more tranquil, and the effects of the sheep's-skin had nearly ceased. The

pulse was 120, and hard, considering the great depletions he has undergone—the countenance haggard—he paws and walks about as before—the appetite is entirely gone. Continue opiates and enemas. I despaired of my patient, and communicated my sentiments to the owner accordingly.

20*th*.—He died this morning. On dissection I found all parts of the body healthy but the kidneys, which were in a putrid state. Half the right kidney was in a state of suppuration. The cause of the complaint is not exactly known, but it is supposed to have originated from an injury or strain, as the colt got out of his pasture the day before he was observed to be ill. In reference to the treatment adopted by the-would-be-practitioner, it would have been more judicious to have bled freely, and omitted the nitre in his decoctions; the disease might then have been combatted by me when called in.

AN INTRODUCTORY LECTURE ON SURGERY.

Delivered by the late SIR ASTLEY COOPER, *Bart.*

[Among our loose papers we found this lecture. It appeared, coming from a man so eminent in human medicine, and such a patron all his life of veterinary, too good to consign to the fire; we, therefore, publish it. It may serve as a refresher to minds long estranged from school, and a stimulus to such as are yet in leading-strings.]

SURGERY may be said to consist in the application of remedies to external disorders and in the performance of different operations. The science has two divisions;—*principles* and *practice*. The principles are the rules laid down by surgeons of experience for the proper practice of their profession; and they are grounded on observation of disease in the living body, examination into changes caused by it in the dead, and on experiments on live animals. By the first we become acquainted with the symptoms, the causes, and the remedies; by the second, with the nature of the alterations in the structures in which it has been seated, and how undergone, teaching us whether the disease is curable or incurable; by the third, we are enabled to watch and trace the means Nature adopts for the cure of disease, the process by which parts are restored being the same in man as in animals. But, as example is more edifying and impressive than precept, let us explain all this.

A person receives a wound, the immediate effect of which is hemorrhage. The bleeding is arrested; next, inflammation arises. Coagulable lymph is thrown out and covers the surface, as is evinced by the adhesion to it of any lint that may have been applied. Supposing this lymph to have been removed, or to have failed in uniting the wound by what is called *the first intention*, the wound remaining open, and the inflammation continuing, *pus* or matter becomes secreted, and there now become visible, when the matter is wiped off, little processes of flesh we call *granulations* springing up, and, finally, the skin stretches or shoots out and covers them: and thus the wound is healed. It signifies not what the part is; the process is the same in all. If there be any exception, it is in the case of bloodvessels. Knowing this, then, what does the surgeon do when called to a case of wound? He does all in his power to bring the edges of the wound together, and retain them in contact, in order that they may be glued and united. Suppose the surgeon be not called until twenty-four hours after the accident; still, if he knows his business, he will bring the borders of the wound in contact, and, providing matter have not been formed, they will be glued by the adhesive inflammation. But if pus appear, then he encourages this, the *suppurative* process, by applying poultices; and when the granulations arise, he makes use of some unctuous substance to anoint and cover them, and all still does well. In the treatment of a wound, therefore, you have two objects in view: the first is to attempt union by adhesion; the second, to encourage the granulative process. This applies to wounds either in or out of the body, unless there is any extraneous substance within them, or there is much contusion or bruise. As to ligatures, they are very seldom used—indeed, ought hardly ever to be adopted. The principles deducible from these three modes of practice are sure guides. When a man begins to theorize in surgery, he talks nonsense.

THE PRACTICE of surgery consists in the method of applying remedies. In the first place, *neatness* is required in their application; this being a point your patients can judge of, although they know nothing about the *modus operandi* of your remedies. Adroitness is also requisite. And no surgeon should think of attempting the performance of an operation unless he feels he has perfect command of himself: his mind should be prepared so as to be ready to act on any emergency or unexpected occurrence that may arise. It is said, a surgeon should possess a lion's heart, an eagle's eye, and a lady's hand. Let every thing that may be necessary be prepared before you commence any operation. Ascertain whether your patient is the subject of any visceral or organic disease, or any constitutional disorder; for, if he is, the opera-

tion is not likely to turn out satisfactory, or, indeed, may be truly hazardous, and most unwisely or improperly undertaken. If the lungs or liver were, e. g., to be diseased, though the disease may not amount to much in itself, yet such sympathies occur under the operation that the patient seldom goes on well. A quality you should also acquire is that of *gentleness:* don't pull parts about rudely or violently—they will not bear it. Whenever, in fine, you are going to perform an operation, always make the case your own: place yourself in the patient's situation, and him or her in your's, and act accordingly.

THE STUDIES of a person about to educate himself as a surgeon should consist, first and foremost, of *anatomy.* From it arise two eminent advantages—it teaches you to perform operations with expertness; but the main thing it teaches you is the detection and discrimination of disease. The reason why one surgeon is skilful, another not, is owing to this knowledge of discriminating disease, not on account of devising or applying remedies: when the disease is once ascertained, they are soon discovered. The anatomical subjects calling for your especial attention are the *bones* and *muscles:* every process of bone must be well known, not merely by sight, but by feel in the dark; for then you are likely to recognize them by the feel in the living body. The joints, likewise, on account of dislocations and of disease attacking them, should be attentively studied. Of the muscles you want but to know few well; the *abdominal,* by reason of hernia, you should carefully dissect. Also, you should take care to learn perfectly the course of the large muscles of the limbs, and especially such as mark the course of arteries. You should be as familiar with the arteries as with your alphabet: the larger nerves you must dissect also. The organs of sense must likewise be known; in particular the eye. The male organs of generation are of great importance, as concerned in hernia, strictures, diseases of the testicles, &c. With respect to the viscera and brain, and nerves in general, a knowledge of them is of more consequence to the physician than the surgeon. Don't *hurry* through your dissections. If a man would learn anatomy, he must sit down to one part, and learn that thoroughly. Don't think of acquiring anatomy from demonstrations alone: dissect for yourselves; demonstrations will furnish you with general ideas,—but you are not to be calculating anatomists.

Physiology you must learn, because it teaches you the healthy functions of parts, and these must be known before the disordered ones can be recognized or appreciated. Moreover, I think a man ought to understand medicine to make a good surgeon. As local disease often produces constitutional disorder, and *vice versâ,* so

the sciences of medicine and surgery go hand in hand, and that person will make the best surgeon and physician who possesses a knowledge of both.

I strongly recommend pupils to take notes of cases. I do not think anatomy and surgery can be learnt from books alone. Study, along with them, "the Book of Nature:" the time for much reading is after you have left the hospital, when your mind is stored with many observations. The best work on anatomy, I think, is Fife's. There is also a good work published by Messrs. John and Charles Bell. The London Dissector I recommend. Such authors as have taken to write on particular parts of surgery are the safest guides. Mr. Hunter's work on the venereal disease is a standard. Mr. Samuel Cooper has published an excellent epitome of surgery. With all these, however, I strongly recommend *my* pupils to pay their court to NATURE.

STRICTURE OF THE RECTUM, CONSTIPATION, COLIC, MELANOSIS, MEGRIMS IN A MARE.

By W. PERCIVALL, *M.R.C.S. and V.S.*

THIS five-headed case of which I am about to render an account, I am induced to believe will be found to possess in several respects more than ordinary interest. The subject, a grey mare in her fifteenth year, was attacked on the 14th of the present month, November, at eight o'clock, P.M., with symptoms of "gripes." She had been littered down for the night, but was no sooner released from the confinement of her rack-chain, than she lay down and commenced rolling over in her stall. She was at once removed into a box, where she continued to manifest some uneasiness, but not of a character to excite any alarm. She had an antispasmodic ball given her, and, on account of her having passed but a single knob of dung, this was followed by the administration of a simple enema; after which she was walked out for a quarter of an hour. At ten o'clock, P.M. her disquietude had increased. She was now seen to stamp and strike her belly with her hind feet, and otherwise express occasional sharp (griping) pains; her pulse was quick and thready; her mouth cold and dry; her legs extremely cold. She had an antispasmodic cathartic drink* administered and another simple enema, and had her belly and legs well rubbed, and the latter flannel bandaged.

* Containing aloes Barbad. ʒiss; tinc. opii, spir. æth. nit. āā ʒij.

Nov. 15*th, one o'clock,* A.M.—Evincing more pain. Has commenced blowing, and the pulse is beating firm and 70 in the minute. Abstracted sixteen pounds of blood, and exhibited *per anum* the fumes of tobacco. Either from the blood-letting or the tobacco enema she experienced relief, for, during the remainder of the night, she evinced no return of griping pains.

Ten o'clock, A.M.—Is standing tranquil, but has a countenance betokening dull pain somewhere. Her abdomen is neither tense nor tumefied, nor tender to pressure. She has passed a few balls of dung, which are not particularly hard, and are coated with mucus. Her pulse is now small (not thready), and 90; her breathing somewhat disturbed; her legs warm. She took six ounces more of the gripe decoction, having before taken twelve, and every ounce containing a drachm of Barbadoes aloes, and another enema; and then was walked out again. While at exercise she passed several balls of dung, neither hard nor dark-coloured, but, as before, slimy, and encased in mucous envelopes. On her return to the stable she had a warm bran-mash offered her; this, however, she refused, as she had from the first every kind of food; the only sustenance she takes being occasional draughts of water.

Six o'clock, P.M.—She has remained free from any *acute* pain, but still continues to express, in her countenance and manner, uneasiness, like dull pains somewhere. Her bowels have not acted; I therefore ordered her an aloetic enema; also a repetition of the mustard blister to the belly, and that she commence taking every six hours calomel ʒj, c. opii gr. v, terebinth. vulg., et farin.

Ten o'clock, P.M.—The mare began to get restless and uneasy. She had a simple enema administered, which brought away a small dung-ball, such as she has several times expelled during her illness. At eleven o'clock, P.M., being unrelieved by the simple enema, one of tobacco smoke was given. This produced such violent straining on her part, that the consequence was *prolapsus recti* to a considerable extent; during which, all at once, she staggered and fell on her side as though overcome by the effects of the tobacco. She lay in this posture in a state of apparent stupor for about a quarter of an hour; then, recovering herself, she turned her head and looked pitifully at her side, as much as to say "there it is I feel my pains again."

Nov. 16*th, ten o'clock,* A.M.—Within the last two hours the pains had increased so much that, on account of her violent blowing and the acceleration of the pulse, it was deemed advisable to bleed her again. She bore the abstraction of fourteen pounds, not, however, without at last shewing symptoms of faintness by staggering, &c.; and though from this she seemed to recover while

having her nose and eyes and face sponged with water cold from the pump in order to refresh her, she began straining afresh through her rectum, trying to void more dung, and while so doing had another staggering fit, and fell backwards against the door. In a minute, however, she was up again, and apparently had recovered her strength once more. She then lay down, but speedily rose again and commenced blowing, manifesting altogether more uneasiness than she had done even from the commencement.

Four o'clock, A.M.—From this time I ordered the calomel ball to be given every five hours (instead of every six), considering her in most imminent danger.

Nine o'clock.—She has, after experiencing a great deal of pain or uneasiness, become once again comparatively tranquil. She has lain quiet for an hour upon her near side. As soon as she rises repeat the mustard embrocation to her belly.

Seven o'clock, P M.—She has not been in any violent pain during the day: she is nothing better for it, however, this evening. The disease is evidently going on, and will, unless we can get her bowels to act freely, for certain prove the death of her. Repeat the mustard embrocation to her belly, and let her have another simple enema. The injection brought away another ball of dung or two, but there is no sign of purgation. As she has refused all solid food, some cold gruel has been made for her, and of this she sparingly drinks.

Nov. 17*th.*—She has passed the night in comparative quietude, not having experienced any paroxysm of pain until seven o'clock this morning, when she was seized afresh with "blowing" and other symptoms of pain, lying down and rising, and looking back and groaning, &c. At length she lay down against the boarded skirting of the box, made two or three ineffectual efforts to rise, and, at last, rather suddenly, stretched herself out, and, without any struggling, expired.

ON EXAMINATION OF HER BODY, three hours after death, the following disclosures were made:—

STOMACH full of liquid matters, scenting strongly of the antispasmodic medicine that had been given, with the villous coat intensely reddened, and covered with mucous secretion.

INTESTINES:—duodenum, like the stomach, highly reddened, shewing signs of inflammation externally as well as internally, but which disappeared upon the jejunum.

Both *jejunum* and *ileum*, but the latter most, marked by the contractions (with intervals of distended gut between them) which spasms ordinarily occasion; shewing that, so far as they are concerned, the case was one of common colic. *Cæcum* and flexures

of the *colon* full of liquid fæces, proving that, could a passage for them have been obtained, profuse catharsis must have speedily ensued. Rectal division of the colon and rectum itself, for the extent of several feet, filled with knobs of dung, not hard in consistence, but looking as if they were packed or wedged in their cells or recesses; and this long line of solid dung, caused, as it appeared, by a partial stricture about three feet removed from the anus, no doubt proved the impediment to the action of the bowels. The stricture itself occupied a space of about six inches, and consisted of contraction and thickening of the coats of the gut, with a rugose condition of the lining membrane.

THE BLADDER shewed reddening and alteration of structure internally, and its muscular coat thickened and strongly fibred from some former inflammation about it. The mare for some years past had been known to have an irritable bladder.

FOUR MELANOTIC TUMOURS were discovered upon the psoæ muscles, embedded in cellular membrane between them and the peritoneum. The largest was oblong, and about the size of a goose-egg; another was smaller and flattened; the two remaining were round and of the magnitude of horse-chestnuts. They had the usual uniform black aspect inside and outside, and left an inky stain upon the knives used in making sections of them. When we came to examine the anus, we found it encircled by puffy swellings which had not been observed before, but which were now found to be melanotic.

THE BRAIN became an object of some interest in our *post-mortem* inquiries, from the circumstance of the mare having been, some four or five years before her death, so subject to attacks of megrims, that on one occasion even her death was apprehended; and when she recovered from her supposed predisposition to relapses, advice was given to send her for sale. On referring to my case-book, I find she was admitted into the infirmary for megrims in May 1838, and in July, and again in October, in 1839; since which she has remained free from any relapse—has been in perfect health, indeed. The substance of the brain was remarkably firm, and everywhere, when cut, shewed red spots, indicating, if not actual inflammation, a highly vascular state of the organ. What, however, most attracted our notice, from its singularity—for I never myself saw an instance of it before—was the formation of a serous abscess within the substance of the pineal gland; this body was nearly double its usual size, and, on being cut into, emitted with considerable force an aqueous fluid, which, from the drop that remained behind, appeared of the nature of serum. Whether or not there be on record any case of the like description

I cannot say; nor could I take upon myself to assert that the megrims were caused by the tumour, though in the present case there would appear to be strong grounds for such an opinion.

The last two months have brought under my notice many such cases as that of Capt. R——'s charger (published last month) and the one I now send—so far as relates to the "colic" and "constipation" parts of it. I at first supposed their occurrence might be owing to some endemic or local causes; I suspected the forage, the water, &c. On inquiring further, however, I learned that similar cases had appeared in other parts of the country, and am therefore led to believe that the disease may be or have been *epidemic* among horses. Will any of the good readers of THE VETERINARIAN inform us thereof?

A LETTER FROM DR. BROMET, OF THE FIRST LIFE GUARDS, TO MR. PERCIVALL.

I HAVE been much amused and instructed, since I last saw you, by assisting at the Scientific Congress of France. I had the honour of reading a paper at one of the meetings. I attended particularly the discussions on the medical sciences, and on literature and the fine arts.

You will, no doubt, likewise derive some pleasure and profit from the questions that were discussed on your own peculiar art: with this intent, principally, I send you an account of them, and you are heartily welcome to use your pleasure with regard to them. I should, indeed, rejoice to be informed that the British Association has followed the example of their much more methodical French scientific brethren by admitting veterinary science as one of the subjects of discussion.

In the course of the next year I hope to turn my horses' heads towards Rome and Naples, assisting the French Congress at Montpelier, and travelling thence to the Congress of Milan.

The following were the veterinary subjects that were discussed on the eleventh scientific Congress of France, held in last September at Angers:—

"What are the best means of improving the different races of the domestic animals for their several destinations?

"What are the principal epidemic diseases that have occurred in the departments of the Maine and Loire during the last twenty years?

"What is the poisonous substance by means of which mouldy bread occasions the death of horses?

"What is the nature of glanders in horses, whether considered as to its causes, symptoms, organic lesions, and treatment, and its quality of being communicated by contagion to other animals, not excepting man?"

THE CATCHING AND BREAKING IN OF HORSES IN THE TEXAS.

[Extracted from Blackwood's Edinburgh Magazine, November 1843.]

THE Mustangs are small horses, rarely above fourteen hands high, and are descended from the Spanish breed, introduced by the original conquerors of the country. During the three centuries that have elapsed since the conquest of Mexico, they have increased and multiplied to an extraordinary extent, and are to be found in vast droves in the Texian prairies, although they are now beginning to become somewhat scarcer. They are taken with the *lasso*, concerning which instrument or weapon I will here say a word or two, notwithstanding that it has been often described.

The lasso is usually from twenty to thirty feet long, very flexible, and composed of strips of twisted ox-hide. One end is fastened to the saddle, and the other, which forms a running noose, held in the hand of the hunter, who, thus equipped, rides out into the prairie. When he discovers a troop of wild horses, he manœuvres to get to windward of them, and then to approach as near them as possible. If he is an experienced hand, the horses seldom or never escape him; and as soon as he finds himself within twenty or thirty feet of them, he throws the noose with unerring aim over the neck of the one that he has selected for his prey. This done, he turns his own horse sharp round, gives him the spur, and gallops away, dragging his unfortunate captive after him, breathless, and with his windpipe so compressed by the noose that he is unable to make the smallest resistance, but, after a few yards, falls headlong to the ground, and lies motionless, and almost lifeless. Sometimes, indeed, he is badly hurt or disabled. From this day forward, the horse which has been thus caught never forgets the lasso: the mere sight of it makes him tremble in every limb; and, however wild he may be, it is sufficient to shew it to him, or lay it on his neck, in order to render him as tame and docile as a lamb.

The horse being taken, next comes the breaking in, which is effected in a no less brutal manner than his capture. The eyes of

the unfortunate animal are covered with a bandage; a tremendous bit, a pound or more in weight, is put into his mouth. The horse-breaker then puts on a pair of spurs six inches long, and with rowels like penknives, and taking off the winkers, and jumping on his back, urges him to his very utmost speed. If the horse tries to rear, or turns restive, one pull, and not a very hard one either, at the instrument of torture they call a bit, is sufficient to tear his mouth to shreds, and cause the blood to flow in streams. I have seen the horses' teeth broken by means of these barbarous bits. The poor beast whinnies and groans with pain and terror: but there is no help for him,—the spurs are at his flanks, and on he goes full gallop, until he is ready to sink from exhaustion and fatigue. He then has a quarter of an hour's rest allowed him; but scarcely does he begin to recover breath, which has been ridden and spurred out of his body, when he is again mounted, and has to go through the same violent process as before. If he breaks down during this rude trial, he is either knocked on the head or driven away as useless; but if he holds out, he is marked with a hot iron, and left to graze on the prairie. Henceforward there is no particular difficulty in catching him when wanted; the wildness of the horse is completely punished out of him, but for it is substituted the most confirmed vice and malice that it is possible to conceive. These mustangs are unquestionably the most deceitful and spiteful of all the equine race. They seem to be perpetually looking out for an opportunity of playing their master a trick; and very soon after I got possession of mine, I was nearly paying for him in a way that I had certainly not calculated upon.

We were going to Bolivar, and had to cross the river Brazos: I was the last but one to get into the boat, and was leading my horse carelessly by the bridle. Just as I was about to step in, a sudden jerk, and a cry of "mind your beast," made me jump on one side; and lucky it was that I did so. My mustang had suddenly sprung back, reared up, and then thrown himself forward upon me with such force and fury, that, as I got out of his way, his fore feet went completely through the bottom of the boat. I never in my life saw an animal in such a paroxysm of rage. He curled his lips until his whole range of teeth was visible—his eyes literally shot fire; while the foam flew from his mouth, and he gave a wild screaming neigh that had something quite diabolical in its sound.

I was standing perfectly thunderstruck at this scene, when one of the party took a lasso, and very quietly laid it over the animal's neck. The effect was really magical. With closed mouth, drooping ears, head low, there stood the mustang, as meek and docile as

any old jackass. The change was so sudden and comical, that we all burst into laughter; although, when I came to reflect on the danger I had run, it required all my love of horses to prevent me from shooting the brute upon the spot.

After this, my mustang behaved exceedingly well, cantering freely along, and not attempting to play any tricks, until a few days afterwards, when having left the remainder of the party a couple of hundred yards, the devil by which he was possessed began to wake up. The mustangs belonging to the plantation were grazing some three-quarters of a mile off; and no sooner did my beast catch sight of them, than he commenced practising every species of jump and leap that it is possible for a horse to execute, and many of a nature so extraordinary, that I should have thought no brute on four legs would have been able to accomplish them. He shied, reared, pranced, leaped forwards, backwards, and sideways; in short, played such infernal pranks, that, although a practised rider, I found it no easy matter to keep my seat. I began heartily to regret that I brought no lasso with me, which would have tamed him at once, and that, contrary to Mr. Neal's advice, I had put on my American bit instead of a Mexican one. Without these auxiliaries all my horsemanship was useless. The brute galloped like a mad creature some five hundred yards, caring nothing for my efforts to stop him; and then, finding himself close to the troop of mustangs, he stopped suddenly short, threw his head between his fore-legs, and his hind feet into the air, with such vicious violence, that I was pitched clean out of the saddle. Before I well knew where I was, I had the satisfaction of seeing him put his fore-feet on the bridle, pull bit and bridoon out of his mouth, and then, with a neigh of exultation, spring into the midst of the herd of mustangs.

I got up out of the long grass in a towering passion. One of the negroes who was nearest to me came galloping to my assistance, and begged me to let the beast run for awhile, and that, when Anthony the huntsman came, he would soon catch him. I was too angry to listen to reason, and I ordered him to get off his horse, and let me mount. The black begged and prayed me not to ride after the brute; and Mr. Neal, who was some distance off, shouted to me, as loud as he could, for heaven's sake to stop—for I did not know what it was to chase a wild horse in a Texican prairie, and that I must not fancy myself in the meadows of Louisiana or Florida. I paid no attention to all this—I was in too great a rage at the trick the beast had played me, and, jumping on the negro's horse, I galloped away like mad.

My rebellious steed was grazing quietly with his companions, and he allowed me to come within a couple of hundred paces of

him; but just as I had prepared the lasso, which was fastened to the negro's saddle-bow, he gave a start, and galloped off some distance farther, and I after him. Again he made a pause, and munched a mouthful of grass, then started for another half mile. This time I had great hope of catching him, for he let me come within a hundred yards; but, just as I was creeping up to him, away he went with one of his shrill neighs. When I galloped fast, he went faster; when I rode slowly, he slackened his pace. At least ten times did he let me approach him within a couple of hundred yards, without being at all nearer getting hold of him. It was certainly high time to desist from such a mad chase, but I never dreamed of giving up whenever I embarked in any thing; indeed, the longer the affair lasted, the more obstinate I got. I rode after the beast, who kept letting me come nearer and nearer, and then darted off again with his loud laughing neigh. It was this abominable neigh that made me so savage. There was something spiteful and triumphant in it, as though the animal knew he was making a fool of me, and exulted in so doing.

At last, however, I got so sick of my horse-hunt, that I determined to make a last trial, and if that failed to turn back. The runaway had stopped near one of the islands of trees, and was grazing quite close to its edge. I thought that if I were to creep round to the other side of the island, and then steal across it, through the trees, I should be able to throw the lasso over his head, or, at any rate, to drive him back to the house. This plan I put in execution, and then rode round the island, then through it, lasso in hand, as softly as if I had been riding over eggs. To my consternation, however, on arriving at the edge of the trees, and at the exact spot where, only a few minutes before, I had seen the mustang grazing, no signs of him were to be perceived. I made the circuit of the island, but in vain; the animal had disappeared. With a hearty curse, I put spurs to my horse, and started off to ride back to the plantation.

THE EXCISION OF A LARGE MELANOTIC TUMOUR BETWEEN THE SACRUM AND RECTUM OF A MARE.

By M. LEBLANC.

A DRAUGHT mare, of a clear grey colour, and nine or ten years old, had, during the last six years at least, melanotic tumours about the anus, the vulva, and the base of the tail. The presence of these tumours, which are so frequent in some horses, oftenest occurs

in those of a grey or white colour, and does not at first disturb the proprietor of the mare, for it interferes very little with her work.

During the two last months that preceded the operation these superficial melanotic tumours began to soften, and, at length, became ulcerated. They secreted a black purulent fluid, of a very disagreeable smell. The excrement was evacuated with considerable difficulty. It was often necessary to soften it by means of injections, and they often failed. It was necessary mechanically to abstract one or more of the hardened masses before the bowels could be evacuated. The mare soon began to lose her appetite, and became exceedingly poor. All these circumstances led the proprietor to consult me.

I saw her on the 5th of November, 1842; she was then in the following state:—She had possessed an excellent constitution, and more than usual strength; but now was become weak and staggering—she was poor and tucked up. At the inferior surface of the base of the tail, round the anus, at the superior commissure of the edges of the vulva, there existed an immense quantity of agglomerated melanotic tumours, some in a crude state, others softened, and some ulcerated. They formed a mass exteriorly of the size of two fists at least, and which kept the tail elevated. The margin of the anus, which was distorted a little to the left, was only apparent when we separated the most salient of the tumours. It was not more elastic and much less extended than in its natural state.

By the simple exterior examination in feeling the tumour and endeavouring to compress it with the fingers, it was easy to perceive that the principal melanotic mass was very deep, and that it penetrated in the direction of the rectum, between that organ and the sacrum. In order to judge better of the size of the tumour, I introduced my hand into the rectum, but I could not reach it; I could introduce only the index and the middle finger, which did not touch the extremity of the tumour. These circumstances were discouraging, but, in spite of them, I advised that an excision of the tumour should be attempted. I knew that I had much to fear, for all the horses that presented so great a quantity of melanosis at the exterior had ordinarily a thorough melanotic disposition to overcome. There was, however, no other course to be pursued, for the horse could not live longer in this state, and could be of no use to the proprietor.

The proprietor having consented to the operation, the mare was conducted to my infirmary. After being prepared by a severe regimen during two days, she was operated on at eight o'clock in the morning. She was cast on her right side. I lifted her hinder quarters, and placed a thick bed of straw under her

haunches. This rendered the operation more easy, and gave more freedom to the manipulations of the operator. I caused the tail to be turned over on the croup, and she was kept in that position during the whole of the operation. I surrounded the apparent portion of the melanotic mass by an incision through the sound skin, and taking care to adapt it to the margin of the anus. The concealed portion of the mass extending a little below the incision, I dissected to the very limits of the tumour in the whole circumference of the mass. I then seized the tumour towards the middle part of it with a strong double crotchet. In pulling strongly with the crotchet from the left to the right, and from before backwards, I was able to execute a slight movement backward and to the right of the mass, which I dissected as deeply as I could on the left, below the anus and the rectum, which was fortunately separated from the mass by a very loose cellular tissue.

After having grasped the tumour anew by means of the crotchet, I brought it down as low as possible, and continued the dissection in that region. The cellular tissue, which was united to the sub-sacral surface, was serrated, and hard, and cracked under the bistoury.

I was often obliged to divide the tumour in points that were in immediate contact with the bone. I suspended for a moment the attempt to excise the melanotic isolated parts with a cutting instrument in order to continue the dissection more deeply, for I came, as on the left side, to a chasm of considerable depth. By manipulations analagous to the preceding, I dissected away the melanotic mass from its right and inferior portion.

This first part of the operation being terminated, and we may almost say without effusion of blood, for we had only two small arteries to tie, I endeavoured to determine by the touch what was the exact depth to which the tumour penetrated, by introducing my fingers into the incisions. I assured myself that the mass extended into the basin seven or eight centimetres beyond the bottom of the incisions already made. In order to obtain a complete excision of the tumour, I applied the *airigne* (a sharp hook) to the inferior part of the mass, which I thus raised as much as possible, in order to detach it completely from the rectum, and commenced dissecting towards that region. I also had to avoid the peritoneum. While acting thus, I, from time to time, made incisions from the left to the right, always with a view of being able to separate the tumour from the rectum, which, as I have already stated, had been pushed a little to the left by the tumour. I shall here repeat, that the disposition of the cellular tissue which united the tumour to the intestine, and which tissue was very flabby, did not permit me to reach the anterior extremity of the tumour.

I continued the dissection from below upwards to the left, and then towards the superior part, where I was forced to leave some portions affixed to the bones. I then endeavoured to lower the mass, in order to terminate the incision. This portion of the operation was far from being the most difficult: the mass had now become more moveable and more easily displaced; and, besides, in operations on the tumour were no longer impeded by the tail. I was enabled to depress the soft parts, which yielded to the strong pressure which I exercised while bearing upon the tumour. After having freed the posterior extremity of the tumour by dissection, I took hold of and reversed it, but then I found that the action of my bistoury was impeded. I substituted a strong flattened hook for the *airigne*, in such a manner as to be enabled to depress the mass and thus continue the dissection, and was successful. I finished the incision by the dissection of the posterior part of the right side of the tumour. The operation was terminated by my taking off, either with scissors or a bistoury, those portions of the mass which I had detached from the tumour during the process of dissection. I then plugged up the wound with dry tow, which was kept in its place by a suture of lint. Some slight hemorrhage took place, but this was stopped at once by the tow.

I had only recourse to torsion, in order to close two arteries of about the size of a crow-quill. Notwithstanding the adherence of the tumour to the sub-sacral region, I was enabled to avoid the principal part of the arteries which abound there; I should not, however, have succeeded in this, had I not preferred leaving some parts of the mass in different places, instead of dissecting them out cleanly at once; and when once the chief part of it was got away, it was easy to cut off these portions without injury to the sub-sacral vessel.

Had my object merely been the excision of the tumour, if I had not had to avoid the rectum and peritoneum, it would have been easy for me to have commenced the dissection at the upper part of the mass and continued it downwards, for the tumour would have been displaced, and drawn downwards without difficulty: but I thought it most prudent to avoid all risk of cutting the intestine, even though, in order to do so, I was compelled to go a roundabout way to work. Circular dissection certainly has its advantage, as it renders the latter part of the operation comparatively easy, and the tumour more moveable.

I took off the dressings on the following morning, and placed fresh pledgets of tow. This was repeated every day for a week, after which the wound was left naked. At the expiration of five-and-twenty days it was completely closed. The mare was harnessed full ten days before the wound was fairly cicatrized.

For a few days after the operation the animal suffered slightly from fever, but this disappeared as soon as suppuration was fairly established. The mare was in her usual health and took her ordinary feeds at the end of the fortnight.

The pus which flowed from the wound for the first few days was black, but it soon became white. The black hue arose evidently from my having left some melanotic portions of the tumour, which were brought away by the suppuration. This circumstance did not, however, prevent the cicatrization from being complete.

I must now recur to a case which struck me at the time as being very curious, and of great practical interest.

A mare was brought to me having several melanotic tumours about the tail, some of which were soft, and others ulcerated. I amputated the tail. When the operation was terminated, I perceived that a deep tumour had been divided by the knife, which formed a portion of the stump. The stump of the tail was already very short, and therefore I did not amputate it any further, but contented myself with cauterizing the part in the same manner as if I had wished to stop hemorrhage. The scar came off, and I then perceived a secretion of black pus, arising doubtless from the parts of the divided melanosis. Black spots were also perceptible on the stump and vestiges of the melanosis, but these spots were separated by red fleshy pimples. As the wound gradually cicatrized, these pimples spread and increased, while the black spots diminished. The pus became gradually lighter and lighter, and, at last, quite white. This fact, which was so palpable, shewed me plainly that the tumours usually designated melanosis were formed of a tissue in which the melanotic matter resides. The flakes of this tissue are so close together, that it is scarcely possible to detect the melanotic matter, or get any portion of it. There is always a melanotic matter found in every animal frame in the cells of the tissue, the same as fat is in the adipose tissues. The same may be observed with regard to tubercles, encephaloïds, and scirrhous formations, before the softening and ulceration of these morbid productions.

These productions should, therefore, only be considered as inorganic when they arrive at a state of ulceration, which is, in fact, their death and decomposition. It appears to me quite evident that they possess a species of life while they are in a state of *crudity*, so to speak, and it is wrong to consider them as inorganic during the period of their development.

In this case of melanosis of the tail which I have just mentioned, the melanotic tissue of the portions which I had neglected to excise ceased to secrete the melanotic matter, and secreted pus instead; which contributed to the formation of a scar which was

likely to become durable and solid, and was so, in fact, in this mare.

It is not, however, always so in cases of scirrhous or encephalous tissues. When, in operating on such, they are not completely excised, they become purulent or ulcerate, and thus prevent the wound from healing properly. This point in practical pathology is, in my opinion, exceedingly important, and worthy of being carefully studied.

It may easily be supposed that I do not mean to assert that, by excising a melanotic tumour from some part of the body, we effectually prevent a similar morbid formation from ever appearing there: on the contrary, there is great chance of some of the neighbouring parts becoming affected in a like manner; for it is well known that an isolated melanotic tumour rarely appears in an animal without announcing a species of melanotic predisposition, under the influence of which the whole body sometimes becomes farcied with melanotic formations. I merely wished to shew that it was possible to excise a portion of the melanotic tumour, and that it would occasionally happen that the parts left behind would decay of themselves, either by suppuration, by cicatrization, or by second intention.

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EFFECTS OF MEDICINE ON HORSES.

By Mr. PERCIVALL.

LEAD.

As an external medicament, no substance has been held in greater estimation, or been more generally used, than lead; and though surgeons of the present day ascribe less efficacy to it than did Goulard and his followers, yet it is still a frequent and favourite application to inflamed or swollen parts, and one that is believed to be productive of a great deal of benefit. Many veterinary surgeons are likewise in the habit of employing "Goulard lotion," as it is commonly called—the *liquor plumbi diacetatis dilutus* of the present London Pharmacopœia—but with what amount of efficacy seems rather doubtful. Professor Coleman declared it to be, for horses, in any strength, no better than so much cold water. And I must confess, though I use it, I have my misgivings, myself, about its local operation. It has one decided advantage—it has the appearance of being, and is by the public considered to be, *medicinal*.

What, perhaps, has tended to confirm its topical efficacy in human medicine has been its known power of producing even deleterious effects when administered in very small quantities as an internal medicine: nay, the very effluvia of the mineral arising from surfaces recently painted is sufficient to excite in some persons very unpleasant effects or sensations; and we all know how generally unhealthy is the aspect of men employed in painters' work. This has deterred surgeons from prescribing lead to the degree or extent they otherwise might have done; and though they do so on occasions, in some diseases, with manifest advantage, every now and then it has happened that very unexpected and alarming symptoms have followed its exhibition. In respect to horses, I have given the ACETAS PLUMBI—the *sugar of lead*, as we call it—both in glanders and in periodic ophthalmia: in neither disease, however, with any visible benefit. Its exhibition was as follows:—

To the first, a glandered horse, it was administered for several days in half-ounce doses morning and evening, without producing any effect, either on the disease or state of health of the animal.

To the second horse, having periodic ophthalmia, it was given in ounce doses twice a-day for five days, without any noticeable result.

To the third horse, glandered, it was given on the first day, in the dose of an ounce morning and evening; on the second, this dose was doubled; and on the third and fourth days, the two-ounce doses were continued morning and evening. On the fifth day, the horse refused his food, and had an intermittent pulse; therefore the medicine was omitted. On the sixth day, however, the same doses were repeated; which on the seventh day produced such alarming return of the symptoms of nausea, dejection, and derangement of the pulse, that the medicine was from this time discontinued altogether.

In neither case did any symptoms of colic or palsy present themselves.

ZINC,

Another of the metals which, in veterinary medicine, has been more used as an external than an internal remedy: indeed, zinc has hardly yet found a place in our pharmacopœia as a medicine. I have notes by me giving some account of the exhibition of the *sulphate of zinc;* I have, myself, since administered in considerable doses the *oxide.*

Sept. 2d, 1804.—Two horses, in good condition, though having chronic discharges from the nostrils, commenced with taking doses of

half an ounce of the sulphate three times a-day, which they continued until the 14th, without manifesting any change either in appetite, pulse, or general appearance. The dose was now augmented to an ounce thrice a-day, and at the expiration of four days from this, both horses manifested nausea, and appeared salivated, and refused their food. The medicine was discontinued for three days, and then resumed; it having been remarked in the interval that large quantities of urine had been voided. Two days afterwards, the disease in the nose having shewn a tendency to spread, one horse was destroyed. His stomach displayed inflammation upon its vascular lining; but there was no other disease. To the other, the doses were still farther augmented, but without any novel result.

April 1*st*, 1813, a brown gelding came under my care for treatment for glanders. He was but three years old, and looked well in health and fine in his coat, although he had two distinct ulcerations inside his off nostril; his submaxillary glands enlarged on the same side; with corded absorbents and two or three ulcerations upon the off shoulder. He feeds well and his bowels act regularly.

Let him take, morning and evening, half an ounce of the oxide of zinc, in ball, and have his swollen glands blistered, and his ulcers dressed with solut. cupri sulphat.

3*d*.—Increase the dose to one ounce twice a-day.

5*th*.—Let him take his ball thrice a-day: there being as yet no visible alteration, excepting that the ulcers in the nose are spreading. Apply to them red precipitate powder.

9*th*.—The medicine is not producing any effect. A fresh ulcer is visible in the nose. Let him take two ounces morning and evening.

10*th*.—Some knotty tumefactions are to be felt upon his quarters, and his hind legs have taken to swell.

11*th*.—The ulceration inside the off nostril is rapidly spreading, though its appearance has been improved by the red precipitate. Two small ulcers, however, are now discoverable upon the *near* side of the septum. Continue balls.

13*th*.—The hind legs are so much swollen that exercise is deemed requisite. The appetite, however, continues good; and there is no perceptible loss of flesh. Augment the ball to three ounces of zinc twice a-day.

14*th*.—The disease keeps extending, but tardily. On this account the medicine was discontinued altogether, and the horse—after an interval—made the subject of a fresh experiment, the zinc having taken no effect whatever upon him.

ON THE POPULAR ERROR RESPECTING THE POISONING OF SHEEP BY MEANS OF GOBES (BEZOARS) IN THE ABOMASUM.

By M. T. Durand, *à Orbec.*

[In his work on "Sheep," the Editor of this Journal gave an account of the strange superstition which prevailed on the continent respecting the presence of bezoars in the fourth stomach of these animals. They were, by a great proportion of agriculturists, considered to be produced by some magical and diabolical art, and scattered over the pasture; and, being eagerly sought after and swallowed by the sheep, produced gradual wasting and ultimate death. In the "Memoirs" of the Society of Calvados, 1837, a curious account is given of the prevalence of this superstition even at the present day.—Y.]

On the 26th of Sepember, 1842, M. Lemercier sent for me, because he had lost a dozen sheep which he believed to have been *gobés*. He conducted me to his stable, and there, in fact, he shewed me a dozen sheep that had died during the night and the early part of that day. He told me that he had previously lost ten, and that on opening them he had found *gobés* in them all. He gave me half a dozen of these fearful productions, which he had preserved. He was very much disturbed about the matter, and feared that he should lose the whole of his flock, for he had ten more still ailing. We visited the fold. I asked the shepherd to shew me the animals that were ill. He replied that he had left them in one of the yards, for they were unable to follow their companions, but that all that were in the field were apparently well; and I believe that they were so, for they had every appearance of health and strength.

We at length saw those that were ill. Some of them were on their legs, but the head was drooping and buried between the legs. Others were lying at their full length. They were unable to rise, and it was sufficiently evident that they had not a great while to live.

After carefully examining them I found that they had been very lately cut, both the males and the females. The commencement of gangrene was evident at every wound caused by the operation. I also learned that all that were dead or sick had been castrated within the last five days. Among them I saw a ewe that had not been castrated; she fed well, but she had received a wound from a

stone on the left hock. A portion of the wound had a very unhealthy aspect; and, indeed, gangrene had commenced there. I said little to the proprietor, but I watched him, and endeavoured to discover whether some one had not preceded me. He at length acknowledged to me that he had called in the gelder, and another person whom he was unwilling to name; that these individuals had assured him that his flock was *gobed*, and that he was very likely to lose them all. That which confirmed him in this belief was a *gobé* that had been shewn to him, and that had been found in opening a bull of his that had died. At length I heard that it was the knacker who had had the care of this animal, and who was persuading him that he would probably lose all his sheep.

We proceeded to open the dead animals. They were all of this year, and some of them had not been shorn. They appeared to have been strong and of a good constitution. In all of them there was evident peritonitis, with effusion of a yellow liquid, sometimes, indeed, tinged with blood. The wounds inflicted in the act of castration were in a gangrenous state in all of them except one. We found from one to five *gobés* in the stomach of each of them. They varied from the size of a pea to that of a large filberd. Some were round and very small, others were ovoid or flattened. They enclosed a small portion of wool or hay, or bits of straw. Some contained small stones of the size of an oat grain. All of them were situated in the abomasum. I took possession of them all.

Not one of these animals had any disease of the chest.

Being thoroughly persuaded that the main or only cause of their death was castration—the atmosphere being at that time cold and humid—I, however, remarked one circumstance which induced me to commit this memoir to writing. After they were castrated, these sheep were separated from the flock, and placed in a stable. Their litter consisted of green brake (*pteris aquilina*), and it was with this plant that the beds were renewed. Was there any thing venemous or injurious in this plant?—I do not know. I have since known of some lambs being cut by the same gelder, belonging to the farm-fold of another farmer. Straw was given to them for a bed, and none of them died. This is an experiment which should be made; it would be interesting both to the veterinary practitioner and to the agriculturist.

My task ought not to finish here. It was necessary to prove to the farmer that these *gobés* were not the cause of the death of the sheep. I engaged him to come to my house on the morrow in order to prove to him that there was no poison in these *gobés*. I delivered them to his charge, and desired him to bring them with

him. My friend, M. Granval, pharmacien at Granval, assisted me in conducting the operations, which were all made in the presence of the farmer.

First we exposed three of the *gobés* on a shovel brought to a white heat, and there was not the slightest vapour of garlick. We then exposed others to various preparations of iron, and copper, and mercury, but there was not the slightest change of colour or precipitate. We then, in order to convince this man, who scarcely seemed to understand the purport or result of our proceedings, beat up one of these *gobés* with arsenic. The smell of garlick was then plain enough. We afterwards made the same experiment with verdigris and corrosive sublimate, and the result of the second experiment was altogether different from that of the first, but there was no poison from the *gobé*, unless we produced it by the addition of these substances. He began now to be convinced, and returned home disabused of his error.

Mém. de la Soc. du Calvados, 1842.

PONY AGAINST COACH.

THE match in which Burke, of trotting notoriety, undertook for a wager, at the rate of three to one, to drive his pony Bobby, twelve and a half hands high and nine years old, from Bedford to London and from London to Bedford in one day, and from Bedford to London back again on the following day—keeping the usual time of the coach, five hours and a half, each journey—was fixed to come off on Monday and Tuesday last. Burke undertook to drive, and it was stipulated that he should not use a whip. Rather to the surprise of some of those who regarded the performance of the match not only as impossible, but cruel, it was discovered that the little animal was not to work alone, but that Burke was to have as many leaders as he chose, in succession, to assist him in drawing the vehicle—thus, in fact, saving the pony from much of the labour of draught, and confining its exertions to merely going over the ground, a distance each way of fifty-two miles; that is to say, 104 miles on the first day, and 52 miles on the second, in all, 156 miles—a herculean task for a much more powerful creature.

The start took place from the Swan Inn, Bedford, with the coach. The pony in the shafts of a light gig, and preceded by a leader, which was changed four times, viz. at Shefford, Welwyn, Barnet, and Finchley. The pony reached the George and Blue Boar, Holborn, twenty minutes before the coach, apparently fresh and full of play. At two o'clock the journey back was commenced,

Burke considering, from the appearance of the pony, that it was any odds in his favour. The shortest cut, through Gray's Inn-lane and across Mount Pleasant, was taken to Islington, and a match cart was on this occasion substituted for the gig. At Finchley, Barnet, and Welwyn, the leaders were again changed; and at the latter place the pony was taken out and put in the stable, where he staled, and drank two quarts of gruel with good appetite. He renewed his labours, apparently with undiminished vigour, and so passed through Hitchin, when the backers against time began to apprehend certain loss. Unfortunately, however, after passing through Hitchin, and within about three miles of Shefford, the poor little creature faltered, and Burke, as he had promised if the animal got fatigued, pulled up, saying it was all over. At first his friends were incredulous, but he said that, from the symptoms that exhibited themselves, it was unlikely he could succeed, and he would rather lose his money than his pet. The animal was then walked to Shefford and placed in a loose box. Mr. Powell, a veterinary surgeon, was sent for, and, on examining the poor little creature, foretold its speedy death. The lungs, he said, were congested from the speed at which he came through a foggy and foul atmosphere, such as Monday presented, added to the labour of going over a road interspersed with heavy hills, and covered almost from one end to the other with rough gravel. Another veterinary surgeon concurred in this opinion, and, although attempts were made to bleed him, at ten minutes before eight the pony was no more. On being subsequently opened the cause of death was sufficiently evident; but from the soundness of the intestines and viscera, both surgeons agreed that if the air had been clear and bracing, instead of muggy and oppressive, the task, however great, might have been accomplished. When the pony was at Shefford, he was only eight and a half miles from Bedford, and had one hour and eight minutes to complete the distance.

We have received several letters, complaining, and not unjustly, of the inhumanity of the match at this season of the year, and with the roads in so dreadful a state; and others stating that, from the manner in which the leaders were attached to the harness of the pony, much inconvenience accrued, by the fresh horse dragging the poor animal that was fatigued faster than his own powers would justify. Other letters insinuate that the animal could have completed his labours, but was poisoned. With respect to the latter charge it is utterly without foundation; but with regard to the former we can offer no apology, although we are persuaded that Burke had a perfect assurance, from former experience, that his little favourite would have pulled him through. We do not believe any very large sums were won or lost.

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LECTURES ON HORSES.

By WILLIAM PERCIVALL, *M.R.C.S., Veterinary Surgeon First Life Guards.*

THE ACT OF STANDING.

IT might appear that the quadruped, with his four legs as props of support, was sustained *mechanically* in the standing posture, after the manner of a four-legged stool or form; and, nicely poised as his body is between them, and advantageously placed as the legs evidently are for its support, at first sight the animal structure is not unlikely to impart a notion of the kind. As anatomists, however, we know that the limbs, from the circumstance of their being made with joints in them would, were they not themselves sustained by some superadded power, bend and give way under the superincumbent weight, and let the body down; we know also that the faculty they possess of supporting the body is essentially a *vital* one, the dead animal losing the property of standing. It is from the operation of the living muscles on the bones that the animal derives the power of standing, as well as of moving; therefore it is that, when we speak of "the *act* of standing," we are correctly expressing ourselves, it being in a physiological point of view as much an act as walking, or trotting, or galloping is. Each limb is kept in a state of extension underneath the body by muscles, either themselves constituting part of it, or running from the body to be inserted into it; and though their actions or contractions come greatly short of what would be required for producing motion, still there can be no entire cessation of them without the animal falling. Some horses take their rest standing—never lie down. In these the muscles sustaining the limbs must be in

continual action; and on this account it seems to me that such horses can never profoundly sleep, for if they did they would fall, the same as we see horses with lethargic affections occasionally doing. I have seen lethargic horses repeatedly fall from sleeping standing, even while they have been in harness. From which it would appear that a degree of consciousness is required even to sustain the standing posture; and, therefore, it is, I repeat, that it seems to me that horses who never lie down, although they may, and apparently do, sufficiently take their rest, yet never can sleep soundly or perfectly.

The act we have been considering I shall denominate *the standing posture*, to distinguish it from two other acts of standing, one of which I shall call *the natural standing position*, the other *the artificial standing position.*

THE STANDING POSTURE is that into which the horse throws himself for ease or repose, and in which one of the limbs continues in a state of flexion or absolute rest, and this almost invariably a hind one, while the remaining three are maintained in a state of extension; the fore legs being commonly directed backward, as when the horse is said to be "standing over," that being the position—and not the straight one—which to them appears to confer the greatest ease. In some rare instances horses—such as are "stilty before"—will stand with their fore legs advanced or stretched forward underneath them. It is by no means uncommon to find horses (that are not lame) standing, from habit, with one fore leg advanced in this manner, while the other is receded rather; and when this is done it is always the hind leg of the opposite side that is flexed; the animal from time to time reversing this position of his limbs, unless it be that his foot is pointed from pain or uneasiness, and then the same leg is kept in advance. So, under ordinary circumstances, first one hind limb is thrown into flexion, then the other, and in this manner are both recruited by rest: the fore limbs obtaining their repose, standing, by being carried backward out of the perpendicular, and by the dependency of the head and neck, which brings the scapulæ more upright, and throws all the weight possible upon the posterior parts of the leg where the elastic supporters are placed. When we were examining the fetlock joint, we found that the sesamoid bones supported a proportion of the superincumbent weight, and that this proportion was greater or less, depending on the construction of this joint and of the pasterns: we now find that it will be greater when the animal is standing over at rest than when his limbs are placed perpendicularly under him; and this is the reason of his placing himself in this posture. In this position the *suspensory ligaments* will be called into greater action, and consequently there will be a less demand

for muscular force. The dependent position of the head shews the same thing: the muscles of the neck having to sustain the weight of it at the end of a long lever, become in a great measure relieved of their burthen by the stretching of the neck, calling into action the elastic ligamentous cords running from the withers to the poll. In the standing posture, therefore, Nature prompts the animal to ease himself as much as he can by imposing more burthen upon the ligamentous powers and less on the muscular; and these last experience occasional relief by alternation of their states from extension to flexion, from contraction to relaxation.

The posture of repose—that which the wearied horse instinctively assumes when left to himself—is to be distinguished from any attitude into which he may throw himself in a state of watchfulness, or excitement, or alarm; and this again is different from any artificial or unnatural position in which he may be placed by riding-masters or horse-dealers, or in which he may have been taught to place himself. The instant the animal's attention becomes attracted, the same instant may he be said to rouse himself from his dormant or listless repose, and assume more or less animation, simultaneously changing the standing posture for the natural standing position: beyond this, through the interference of art, the position may be changed again to what we call the artificial standing; and thus the three acts of standing become exemplified in the same individual. The riding-master teaches the horse to "stand upon all four of his legs," in order to be ready, at a moment's notice, to spring from the standing position into any movement or pace required of him; the horse-dealer teaches the animal to stand with his fore and hind limbs stretched out in such manner as to "make the most of himself" before a purchaser; and it is pleasing to behold with what sagacity horses who have been long or frequently in dealers' hands will acquire this artificial standing; equally so is it to see how military horses ranged in their ranks will stand on the *qui vive*, ready for a brisk and sudden movement at the sound of the trumpet.

THE ACTS OF REARING AND KICKING.

Though the limbs are the transporting agents of the body, it is not mere motion of them that will effect progression, or motion merely of any one or two, or even three of them, without the other, that will produce it: all must move, and in moving change places, otherwise the animal will remain in the same situation. The movements in progression are for the most part the result of the *alternate* action of the four feet; when the two fore legs are elevated into the air, the two hind remaining fixtures upon the

ground, and the horse in this manner erecting himself upon the latter, the act is denominated *rearing:* when, on the contrary, the hind legs are thrown into the air, the body being erected upon the fore feet in the opposite direction, the act is called *kicking*. But neither in kicking nor rearing is there any locomotion—any progression or retrogression. In rearing, the fore feet, through the agency of the shoulders and fetlocks, spring off the ground, and are then lifted with the body into the air, the erection being effected through the contractions of powerful muscles running upon the back, loins, croup, and haunches, the hip-joints operating as fulcra or turning points. Some of the muscles or powers employed being between the fulcra and resistance, while others—those operating upon the hind quarters—are placed behind the fulcra, the levers, on whose principles the movement of rearing is effected, become those of the first and third description.

By persons in general, or, at least, by such as are unacquainted with the *manège*, rearing is often regarded as a vice in a horse. This, however, is a very erroneous view to take of the act. We ought to take quite the contrary, and regard a horse so made that rearing becomes, as it were, natural to him, and who consequently performs and repeats the act with every facility, as, by proper management, convertible into an excellent hackney or charger, or hunter even, rearing being a component part of the act of leaping. I do not mean to assert that rearing, carried to excess or resorted to by the animal to shew resistance, may not prove a vice, and a troublesome and dangerous one; it is but seldom, however, that it turns out such; it is mostly controllable, and may, in proper hands, be turned to most useful account. Indeed, rearing constitutes so fundamental a part of many of the horse's school-taught movements, that without it, either natural or acquired, the hopes of the riding-master in his education are disappointed: he can make nothing of his pupil but a common labour horse, fitter to drive, probably, than to ride. Horses require strength of loins and haunches to rear readily and sustain themselves upon their hind quarters. Short-legged compact horses generally rear and spring with more promptitude than others. Of all horses, thorough-breds are commonly the most untoward learners of the manege, on account of their deficiency in rearing powers; though I have known some notable exceptions to this. Were the riding-school art and practice carried far enough, there appears no good reason why a horse might not be taught to walk upon his hind legs and sit upon his haunches like a dog. Girard mentions, indeed, the instance of a stallion who, at the sight of the mare he was about to cover, was in the habit, of his own accord, of walking for some distance in this manner in his approach to her.

KICKING is the act the reverse of rearing: instead of the fore-quarters being raised, the hind ones are elevated. The muscles employed in kicking are much the same as produce rearing, the difference being, that the fore-quarters are now the fixed and turning points, the hind the moving parts. The shoulders become the fulcra, the hind-quarters the resistance, the power lying intermediately. Although kicking, like rearing, must be viewed, abstractedly, as a manifestation of power, yet it is a manifestation of a most dangerous kind, and one that cannot too early or too effectually be suppressed. From the circumstance of the act being much facilitated and enforced by the abasement of the head at the time—that having the effect of extending the muscles and so enabling them to act with more energy and effect—we learn that the elevation of the head is one of the best counteractions we can adopt in horses disposed to this dangerous vice: we see this well exemplified in dealers' and breakers' establishments; the moment any signs of kicking are evinced, the same moment the head is seized, and thrust up to the highest pitch.

THE ACT OF LEAPING.

THE LEAP is either a sudden spring into the air, in which the feet quit the ground simultaneously, or else it is an act compounded of an imperfect rear and kick in quick or slow succession, according to the manner in which it is performed. The leap can hardly be regarded as an act of progression: commonly, it being in a forward direction, undoubtedly progress is made by it; but it is possible for it to amount to no more than a jump or a bound off and upon the same ground, as is the case when a horse is said to "buck" in his leaping, *i. e.* to come down upon or near to the spot from which he arose.

BORELLI commences his chapter "*de saltu*" with the proposition, that *no leap is made without the joints of the feet being first flexed**, and instances man as with straightened limbs being incapable of leaping. Brutes and insects, however, from having their joints already flexed, can leap at pleasure†. Horses with their flexed fetlocks and angular haunches and shoulders are ever ready to spring off the grounnd, and the more lengthy and angular these parts are, the greater the animal's power of jumping‡. We see this well exemplified in the deer kind, and in rabbits and hares, and especially in kangaroos, but most beautifully of all in many

* Saltus non fit, nisi priùs articuli pedum inflectantur.

† Bruta et insecta aliqua, quæ omnium pedum aut saltem postumorum articulos semper inflexos retinent, possunt ad libitum saltare.

‡ Quò longiores sunt vectes extremi crurum, saltus majores fiunt

of the insect tribe*. Horses take leaps with most facility and effect when cantered or galloped at them at a moderate rate, because in that pace they are already prepared to jump, the leap itself being, in fact, but an extraordinary effort of spring and stride made after the manner of, or thrown into, the gallop. The effort made by the extensor muscles to effect the bound into the air is succeeded in the air by a contraction of the flexors: both the fore and hind limbs are in the air drawn up towards the belly, in order that the leap be effectually cleared. No sooner, however, does the descent commence than the fore limbs become spread out forwards and the hind ones let down, wide apart, to receive the body at the landing, and by their yielding position to ward off or mitigate as much as possible the concussion consequent on coming to the ground.

Lecoq has happily represented the directing power of the head and neck in the leap:—"The elevation of the neck governs the direction of the leap. If the animal, in order to clear an obstacle, wishes to leap high, he erects his head, and by this simple movement, the fore quarters pressing back upon the hind, a vertical direction is given to the spring. If, on the other hand, he only desires, as in the gallop, to leap in a direction forward, the neck levels itself on a line with the ground, and the head, stretching forward to the utmost, carries the centre of gravity along with it, and thus aids the projection; the hind quarters propelling the body, raised from the ground to a height only sufficient to enable the limbs to clear the leap."

It will be seen from what has been said, that a horse will take a leap after two different modes: he will, as the phrases go, take it either "standing" or "flying." "A standing leap" is taken, without any preparatory run, from the ground the animal is actually standing upon. Finding it a difficult matter to spring up from the ground with all four feet at once out of a state of rest, he first rears to the height required to clear the leap, and then, with a sort of kick, flings his hind feet after; the leap altogether being, as I observed before, a compound of a short rear and a short imperfect kick. "The flying leap," properly so called, is that taken at a gallop, nothing further being required to produce it than to elevate the head and throw extra spring into the stride, the impetus of the pace, which, if but moderate and the horse fresh, he much augments as he approaches the leap, being sufficient to take the animal over: it is the easiest, and commonly the safest, leap both for horse and rider. To shew the powers of leap-

* Hinc est, quod locustæ, grilli, et pulices longos saltus efficiunt, quia nempe eorum pedes posteriores valde prolixi sunt, ut æquent aut superent longitudinem ejusdam animalculi. Contra in hominibus et quadrupedibus.

ing horses possess, some have been known to jump over bars or fences higher than themselves; and Nimrod—the late Mr. Apperley—relates an instance in which a hunter cleared seven yards of space*. Ponies, in general, for their size, are better leapers than large horses: this appears to arise from greater concentration of power combined with the less weight they have to move. Thorough-bred horses are seldom clever leapers; a circumstance owing, apparently, to their deficiency in rearing powers.

CONTRIBUTIONS TO ZOOLOGICAL PATHOLOGY.

By JAMES MERCER, *M.D., Fellow of the Royal College of Surgeons, and Lecturer on Anatomy, Edinburgh.*

PART II. — *On Sudden Death by Suffocation, consequent on "Primitive Œdema Glottidis."*

IN the last Number of THE VETERINARIAN, a very interesting case of "laryngitis" in the horse is recorded by Mr. C. Percivall, of the Royal Horse Infirmary, Woolwich, and which, under his judicious and excellent treatment, was restored to a state of perfect health. As these cases are, fortunately, not of very frequent occurrence in the lower animals, and especially where an opportunity is afforded for examining into the necroscopic appearances, I have considered the subjoined case of sufficient interest to be placed on record,—partly as explanatory of the case above alluded to, but chiefly to direct the attention of the veterinary practitioner to the fact, that sudden death may occur from circumstances independent of the usually received causes, connected immediately with the nervous or vascular systems.

The term "œdema glottidis," is that which is usually applied to the variety of inflammation of the laryngeal apparatus, in which the submucous tissue of the dermo-mucous folds bounding the anterior slit of the larynx becomes infiltrated with serous fluid, to a greater or less extent, while the surrounding surface of the mucous membrane may be comparatively free from or exhibit no signs of the existence of inflammation. Its approach is commonly very insidious, preceded either by catarrhal inflammation of the facial or pharyngeal cavities, or tracheitis; and in man it most frequently results from the spreading inflammation attending ulcer-

* I saw an account the other day in the "Sporting Magazine" of a horse in a steeple-chase making "a jump of twenty-two feet."

ation, especially the syphilitic form, of the tonsils and mucous membrane of the pharynx. In these latter cases it is dependent on the existence of a previous disease, and is, therefore, merely a concomitant or secondary affection, while in the case under consideration, it existed alone, as the primary form of disease. The structure and arrangement of the folds of the dermo-mucous membrane seen at the anterior chink of the larynx, differs a little in the horse from that which we find in the feline tribe of animals. In the horse, the investing membrane of the tongue at its base, after covering the free portion of the epiglottic fibro-cartilage, expands on either side, in the form of a large depression, to become the covering of the side of the pharynx, while in the mesial plane, and from either edge of the base of the epiglottis, a large and comparatively loose fold extends backwards and upwards to the apex of each arytenoid cartilage, forming, as in man, the aryteno-epiglottidean folds. Between the edges of these folds the anterior aperture of the larynx is situated. In the depressions on either side of the folds there are an immense number of mucous follicles opening on the free surface, and evidently serving the purpose of tonsils; and even in the rounded external edge of the aryteno-epiglottidean folds several large crypts are seen, especially towards the base of the tongue. Between these duplications of the mucous membrane a very considerable quantity of loose, reticulated, and very vascular cellular tissue is situated; and when a comparison is made with the other parts forming and bounding the rima glottidis, it will at once be seen, that here the sub-mucous tissue is more loose than in any of them, and consequently that it is the point in which the immediate effects of increased vascular action will be most speedily produced.

In the feline tribe, these folds that stretch from the sides of the epiglottis upwards and backwards do not proceed exactly to the apices of the arytenoid cartilages, but, before reaching them, pass downward along the external sides of the cricoid cartilage, and around the bases of the arytenoids, where they again become united in the mesial plane, above the latter cartilages. They are much more prominent and distinct in this class of animals than in the solidungulæ; their cellular tissue is more abundant superiorly and posteriorly; and what is of importance, within the laryngeal surfaces of their free edges several small granular masses are situated, composed of pyriform mucous follicles, whose apertures all open towards the larynx. Around these glands there are an abundance of bloodvessels, which, when injected artificially, form a complete scarlet surface. From the prominence of the folds in these animals; from the looseness of their contained cellular tissue, and the abundance of their bloodvessels, it may therefore be

supposed that œdema of their structure is more likely to occur in them than in the solidungulæ or graminivora; but as there is a striking analogy in all these classes in this respect, if so rapidly a fatal termination of life can occur in the one from such a cause, it will also happen in the others.

Having thus premised these few statements in reference to the normal structure, I shall now give the particulars of the case in point.

In the month of July last, one of the American spotted cats, the jaguar (felis onca) belonging to the Zoological Gardens of this city, was, to the surprise of the keeper, found dead in her apartment in the morning, having been shut up the previous evening after having had her food put beside her, and left in a state of perfect health. She was about four years of age, three of which had been spent in the establishment, without having been at all complaining. On the evening before her death she was fed at her usual time, on cow-flesh, cut into small pieces and placed on the floor of her den, which, it must be observed, was dusted over with saw-dust. She took her food well, though rapidly and greedily, but without the slightest apparent difficulty in respiration or deglutition. During her meal she was closed up for the night, and in the morning she was found dead and rigid on the floor, with her head tossed upwards and backwards, and her limbs spasmodically stretched out and rigid. Though there was a slight degree of warmth in the carcass, yet it was evident that she had been dead for several hours.

In the afternoon of the same day a post-mortem examination took place, in which I was kindly assisted by Professor Dick, who is at all times ready to lend his valuable assistance and extensive experience in unravelling cases of doubt and difficulty, and on which he brings to bear the resources of a well-stored mind, aided by the consummate tact of a most skilful anatomist and practical pathologist. All the essentially vital organs of the body were most minutely examined, but without eliciting any real cause that could, in the slightest degree, account for the suddenness of her death.

The brain and its membranes, however, were more congested than usual; the cavities of the pleuræ contained a small quantity of fluid, such as is often at a post-mortem appearance; the lungs were more congested than usual, but from the existence of several cicatrised cavities of long duration in both of them, with a considerable degree of concomitant grey hepatization, this active hyperenial state was not so great as it might have been. The bronchial tubes contained a small quantity of frothy fluid, slightly tinged with blood, and their lining membrane, and that of the

mouth and nose generally, was slightly changed from its bright red colour to that of modena. On collation of all these circumstances, we were led to suppose that it might have been possible that she had been choked from accidental impaction of the anterior aperture of the larynx by a portion of her food of the previous evening; and, accordingly, the entire structure of the mouth, pharynx, and larynx were carefully removed. On exposing the laryngeal apparatus, by division of the upper wall of the pharynx, no such impaction, however, was seen, but the immediate cause of death was at once exposed in the impervious state of the chink of the windpipe, from the extensive œdema of the aryteno-epiglottidean folds. These were swollen to such an extent, that they completely overlapped each other, forming a most perfect valvular mechanism. Their surface was smooth, glistening, and transparent, with here and there a few asteroid vascular spots; and, on water being allowed to subside on them, not a drop was found to pass between their edges into the cavity of the larynx. On puncturing them, a considerable quantity of pure serum exuded from the apertures, which, after a little time, emptied the folds so much as to cause them to be thrown into a corrugated state. The mucous membrane anterior to the folds was comparatively healthy, being only changed slightly in its colour; and beneath them, the membrane of the ventricle of the larynx had, at its upper part, somewhat the appearance of inflammatory infarction of its vessels, though from the œdematous state above this was less shewn. It was, therefore, a most distinct and perfect case of sudden tumefaction of the loose cellular tissue of these folds of mucous membrane, and closing so perfectly the anterior opening of the windpipe as to cause cessation of respiration, asphyxia, and all its sequences on the heart and nervous systems.

What could have been the cause of this disease is difficult to say. The animal had previously been in the best state of health; she was most carefully attended to, both in regard to diet, cleanliness, and ventilation; and the only cause that we had to attribute was that she might have by an accidentally hurried and deep inspiration during her rapid feeding, and when in the act of swallowing, carried some of the light particles of saw-dust into the larynx, which, at first, producing severe spasmodic coughing, had become discharged, though the irritation induced by their presence had been sufficient to give rise to the perilous tumefaction above described. Every search was made in the larynx, trachea, and its ramifications, but none of these particles could be found. It was probable, however, that their presence in the larynx was very short, and that they had been ejected after a few severe fits of coughing, which could easily be done from their small size and

lightness of structure. This should, therefore, act as a warning to all keepers of valuable animals, that the greatest care should be observed by them in feeding their animals from off a floor covered with saw-dust; for the greediness with which certain animals, especially the feline tribe, devour their food, will, under many circumstances, give rise to a sudden inhalation of the particles, and which may be followed by a fatal termination as rapid in its course as in the case we have just related.

In a medico-legal point of view we are inclined to look upon the above case as being one of very considerable importance to the veterinarian. It points out to him the necessity, in all cases of sudden death, of making a most minute and careful examination of every part and every organ of the body, previous to the forming of his opinion as to the cause of such death.

It has occurred, and it may occur again, where a valuable animal changing owners has suddenly died, though in a state of perfect health previous to being sold, and when, from an imperfect examination having been made, improper damages have been awarded. These cases of sudden death are too frequently looked upon as being the result of natural causes, or, in other words, from the previous existence and influence of some morbid state of one or other of those organs essentially necessary to life. Diseases of the nervous system, especially apoplexy; rupture of some of the cavities of the heart, or of an aneurismal tumour in connexion with some of its larger vessels; cardiac syncope, produced by chronic disease of its lining membrane and valves; hemorrhage on some of the larger internal surfaces, or from some sudden effects produced by the previous operation of latent diseases,—by the existence of one or other of the most important pathological appearances which usually accompany any of the above diseases, an opinion is too often, and perhaps too hastily, formed, as to the immediate cause of death in the case under investigation, and thus an improper verdict might be given in the case, if it happened to be brought under the scrutiny of the law; and though I should not attach so much importance to cases of sudden death as to suppose that, in the majority of instances, asphyxia was the immediate cause, yet I should think it of such importance as to form one of those essential conditions that may give rise to a sudden cessation of life without the existence of any previous disease.

THE ANCIENT HISTORY OF THE OX.

REMARKS ON EARLY MATURITY, BREEDING FROM THE NEAREST AFFINITIES, AND CROSSES.

By Mr. W. F. KARKEEK, *V.S., Truro.*

[Continued from p. 189, vol. xvi.]

IT is a very common opinion amongst breeders, that the system of breeding from the nearest affinities tends to communicate *early maturity*. Bakewell is said by this system to have established the new Leicester sheep, and the improved breed of long-horned cattle—Charles Colling, the short-horns—and Tomkins the improved Herefords. Professor Low, in his "Illustrations of the Breeds of the Domestic Animals of the British Isles," alluding to the system of breeding by Bakewell, says—"that he adopted the practice of breeding from animals without relation to their affinities of blood, in a degree, perhaps, never before attempted. The effect of which was that he not only gave a permanent uniformity of character to his breed, but a delicacy of temperament and form to the progeny—diminishing thereby the size of the horns, and producing a tendency to arrive at premature age. The animals getting soon old, arrive quickly at maturity of bone and muscle, which is the very end aimed at by the breeder." That breeding from the nearest affinities will have the effect of *establishing a permanency of character in a breed*, I have not the slightest doubt. Every circumstance concurs in proving that there were originally but one species of each of our domesticated animals created, suited to a particular locality; but these, in consequence of multiplying and spreading over the different parts of the globe, where they are found at present, have undergone considerable alterations from their original type, the influence of climate, food, and mode of living. This is one of the causes that have tended to produce such a diversity amongst animals of the same kind. Another cause arises from accidental varieties, which at first was not so conspicuous, and produce only individual varieties; but which afterwards became more specific, because they were rendered more permanent by the continual action of the same cause; such as continually breeding in the same family or blood, by which either excellencies or defects, beauties or deformities, more speedily and surely pass from parents to progeny. It, however, by no means follows that breeding from the nearest affinities should produce that peculiar character which Professor Low would lead us to suppose, since the qualities perpetuated must altogether depend on the selection at the com-

mencement. If the breeder's object be to perpetuate cats without tails, or a Lord Monboddo's breed of men with tails, the surest method of accomplishing either of these praiseworthy objects would be, after having procured sire and dam with these peculiar characters, to continue breeding in the same blood as closely as possible. We have sufficient example of these in the different polled varieties of cattle. Neither clime or soil has had any thing to do in effecting the variety, being entirely accidental, and the direct consequence of fashion in breeding. About eighty years ago the greatest part of the Galloway breed were horned, and there were but a few polled ones among them; since that period they have continually increased, in consequence of this variety having been found to attain a greater size and to be of a more docile disposition, and the breeders have accordingly selected them for their breeding animals. Now and then a stunted horned animal is produced; but these are always slaughtered, and thus the occasional attempt of this variety to breed back is prevented.

It is scarcely more than half a century ago when no fashion prevailed so much amongst cattle breeders as those with long horns. At that period the Dishley breed was considered the most valuable one in the kingdom, for neither the modern Hereford nor the improved short horns were called into existence; whilst at the present time there does not exist, as I have been informed, a single cow or bull of this breed on the Dishley estate, where Bakewell's experiments were instituted and executed at so much labour and expense. At the sale of this gentleman's stock after his death, this breed fetched the most extraordinary prices, both males and females varying little from 200 guineas each either way. So much for fashion: for at the late exhibition of cattle at the Great Derby Meeting of the Royal Agricultural Society, the long-horned cattle had no distinguishing place like the short horns, the Herefords, or the Devons, and could only compete with any breed or cross whatsoever.

From some observations which I have lately made, I have reason to believe that early maturity, and that peculiar delicacy of temperament which Professor Low alludes to, is entirely the result of breeding from animals in a fattening condition. The history of the short horns and the improved Leicester sheep, both artificial breeds, will in some measure confirm this.

The bull Hubback, the sire of the short-horned race, possessed that disposition of acquiring fat to such a degree, that he was only used as a bull for a short time, and his dam, in consequence of her extraordinary aptitude to acquire fat, never bred again.

The quality of the flesh, hide, and hair of these animals, is supposed to have been seldom equalled. Petrarch, Bolingbroke, Favourite, and Comet, from the same stock, inherited the same

qualities; so much so, that Bolingbroke, the best bull Mr. Collings ever possessed, with several others, ceased to breed from the same cause.

In the new Leicester breed of sheep we have another example. Bakewell's system at the commencement consisted in selecting sheep which appeared to have the greatest propensity to fatten, and possessing those peculiarities which he considered would produce the largest proportion of valuable meat and the smallest quantity of bone and offal.

Much has been said, from time to time, of Bakewell's system of breeding, and the general opinion is, that its chief merit consisted in his superior judgment in the selecting and breeding from the nearest affinities; and, when others, who have attempted to breed in the same manner and from the same stock, failed, the cause of failure has been attributed to the want of proper judgment in selecting those that were perfect, by which unions were made that caused a degeneracy instead of improvement. I believe, however, that the reason why the breed failed so frequently after being taken from his flock—for this is an acknowledged fact—was more to be attributed to a difference in the system of *rearing* instead of *breeding*. Mr. Bakewell had only one object in view, and that was to obtain an exuberant growth of fat and muscle; and this he did obtain by giving an abundant supply of food, such as milk, or grain, &c., from the time the animal was weaned, accompanied with warm and comfortable lodging, so that it was no wonder that the same stock should suffer a deterioration when attempted to be bred under ordinary management.

Again, in the improved Herefords we have another example. This beautiful breed of cattle, which fatten in an extraordinary manner at a very early age, owe their celebrity to two cows, called Mottle and Pigeon, which were the originators of the breed. This history is rather a singular one. Previous to the year 1769, size, adaptation to the dairy, and the purposes of labour, were the properties chiefly sought for by the breeders of Herefordshire. Mr. Tomkins, who was a young man then employed on a farm, and having the especial charge of the dairy, in consequence of his attention to his master's interests, and perhaps, what is still stronger, to the pretty face of the farmer's daughter, became his son-in-law. On his marriage he obtained the two cows just alluded to, which he selected in consequence of their extraordinary tendency to become fat, and from them originated the present superior breed.

These examples shew that, in every instance, our best modern breeds originated from breeding from fattening animals, or from those having a great disposition to fatten.

I will now attempt to shew why breeding in this manner will

produce that delicacy of structure and early maturity which characterize high-bred animals.

The tokens or signs by which breeders and graziers recognize early maturity, are smallness of bone, an expanded trunk, and a soft expansive integument, which extends to all high-bred animals that are used as food, whether in the ox, the sheep, the pig, the goat, or the rabbit, nay, even to the human species.

Professor Playfair, in his admirable lectures on the application of physiology to the rearing and feeding of cattle before the members of the Royal Agricultural Society, &c., delivered in December 1842, shewed that it was not necessary that because an animal fattened quickly and had an expanded chest he should also have a large lung: on the contrary, he plainly proved that animals that have large chests, such as the new Leicester sheep, have smaller lungs than the South Down sheep, that have narrow chests; and accordingly it is found that the Leicesters fatten quicker than the other breed.

I took some pains to ascertain the truth of the statement, since it was opposed to the generally received views, "that animals with large chests fattened best, because they had the largest lungs." In the course of this inquiry, I discovered a remarkable circumstance, which had not been stated before by any writer, that not only had animals possessing a great tendency to fatten smaller lungs than those not having this peculiarity, but that, in proportion as an animal became fat, the organs of nutrition, such as the lungs, liver, spleen, stomach, and intestines, &c., in fact, the offal of every description, became reduced in size.

I am exceedingly glad to find, from some remarks of Mr. Read, of Crediton, that he also became acquainted with the same circumstance, although he differs from Professor Playfair in the opinion that small lungs and livers are the best organs for the assimilation of fat. I am able, however, to prove, from repeated observations made on a great many cattle, chiefly of the Devon breed, and from some of the coarsest description to those of the far-famed quarterly stock, that those which exhibited the points that are recognized as tokens of a disposition to acquire early maturity, have the smallest offal of every description.

These points being allowed, the reader will immediately see the effect which is likely to be produced by breeding from fatted animals, since the diminutive structures are likely to be produced in the course of time in the race. Function in every case reacts on organization, and thus it is that those characters become fixed, particularly if the system of breeding from the nearest affinities is practised at the same time.

The tokens, then, by which farmers are enabled to recognize the disposition of an animal to arrive quickly to maturity are, after all, only the outward and visible signs of the inward structure of the nutritive organs; and accordingly it has been found that "the order of the aptitude of animals to fatten depends on the comparative smallness of their lungs. The *pig* first, the *sheep* second, the *ox* third, and lastly the *horse**," the lungs of the horse being larger in proportion to his size than that of the other three.

It is by breeding in this manner, that is, from animals in a fattening condition, that I believe the greatest improvements have been effected from time to time; and again, by pursuing this system too far, it has been found that many of our best bred cows and bulls have ceased to breed.

Nothing is more common to hear, nowaday, respecting the cattle that have such a wonderful propensity to fatten, that they have ceased to breed. This is the effect of over refinement in breeding,—pushing the fattening qualities too far, without paying sufficient attention to the muscular development of the animal.

An instance was related to me a short time since of a breeder of North Devons. He found the good qualities of his breed gradually disappearing one after another. His stock was getting smaller, more tender and more easily affected by change of food and weather. Beside this, he had great difficulty in getting his cows pregnant; so that, instead of producing annually a number of calves, as he used to do, he had difficulty in rearing any, bull calves in particular.

This, perhaps, is the most difficult point which a breeder can come to; for the nearer you approach perfection, the more difficult will be the selection, and the greater the chance of retrograding. However, he decided upon introducing fresh blood; and his first attempt was to put some of his cows to a neighbour's bull of the same breed, but of a larger description than his own, and the result answered his most sanguine expectation. His neighbour had cultivated with success a breed of Devons that possessed the milching properties to a much greater degree than is generally the case with that beautiful breed, and this, in my opinion, is a great error which many breeders of other breeds than this most commonly fall into; for however desirable it may be to possess a breed that will readily fatten and come quickly to maturity, yet, if these qualities are obtained at the expense of hardiness of constitution and a difficulty of propagating their race, it becomes a loss instead of a gain. This is a point I believe generally acknowledged, that in

* Journal Royal Agricultural Society, p. 258, v. iv.

proportion as the fattening properties of a breed becomes increased, its value for the dairy, and its certainty in breeding, become proportionably diminished.

The improvement effected by the farmer in the instance just related is the opposite to what is frequently done. In most crosses the improvement gained by putting a high bred male to an indifferently bred female is owing to the diminution of the nutritive organs in the progeny. In the cross of the Chinese pig with a coarse long-sided Irish sow, or a Leicester ram with a flock of pure Cotswold* ewes, or a short-horned bull with a coarse Devon cow—in each of these cases there is an improvement effected in the external forms, and in the capacity for feeding and fattening in the progeny, and in each case will the lungs be found to partake of the smallness of the improved breed. But in the change of "blood" effected by the farmer, the change of structure which took place, in consequence of putting his high-bred cows to a bull of a stronger and larger kind, the nutritive organs of the progeny which were the result of the experiment became increased in size, by which means he obtained an increase of health and strength of constitution at the sacrifice of a little fat. The crossing of the common Devon cow with the short-horned bull has lately been pursued to a great extent in Cornwall. This breed is generally inclined to coarseness, and the cross very considerably fines down the asperities, increases the aptitude to fatten, and improves the weight and quality of this kind at the same time. The cross invariably proves, at three years old, one-third larger than the Devon of the same age. The second cross proves more valuable than the first, and the third more so than the second.

It is a common error to imagine that the second or third cross is not so valuable as the first. If a well-bred bull is employed, you may continue to breed *ad infinitum*, until the progeny assume all the characteristics of the short-horns.

There is a question frequently agitated among farmers, viz. at what point will a mixed breed be considered as capable of sustaining its own excellence, without having recourse to the pure blood whence it derived its first principle of improvement. Suppose, for instance, that, from the union of a short-horn bull and Devon cow—both high-bred animals—a half-bred progeny is produced, that is, containing half of the father and half of the mother;—it will be easy to draw up a scale by which we may readily determine the degree of pure blood that any generation, however distant, may possess. Supposing the progeny, being a heifer, is

* The long-woolled sheep of Mr. Large, that have successively carried off all the prizes of the Royal Agricultural Society, are supposed to be a combination of the Leicesters and the old Cotswold.

put to another thorough-bred Durham, the result will be three parts Durham blood. We carry it on to another generation, and the progeny will be $\frac{7}{8}$ pure blood; the fourth generation will be $\frac{15}{16}$. I believe that of the general herd of cattle which are sold as pure short-horns, numbers are sold that do not possess $\frac{15}{16}$ of pure blood.

[To be continued.]

ENZOOTIC DISEASE IN DOGS—PNEUMONIA, WITH ALTERATION OF THE BLOOD—THE GOOD EFFECTS OF QUINQUINA WINE, AND AN ANALEPTIC REGIMEN.

By Professor RENAULT.

ALTHOUGH we cannot attach the same importance to the study of the diseases of dogs as we do to that of the diseases of horses, sheep, and cattle, it is, nevertheless, not without considerable value, since veterinary surgeons are very frequently called in to attend on valuable or pet dogs. Sporting dogs are generally those for which their skill is required, being most valuable in every sense of the word. The owners of large kennels, or packs of sporting dogs, are often compelled to have recourse to the veterinary surgeon when the outbreak of some epidemic threatens the destruction of the greater part of these animals. Unfortunately, however, the canine epidemics have been hitherto so little studied, that even the very first landmarks are wanting to guide the veterinarian along this scarcely trodden path. He is, consequently, compelled to study while he should be acting, and thus is not only liable to mistake, but, while watching the disease in order to observe some symptom that may give him a clue to its character, he loses much valuable time, and finds it impossible to save his patients, especially as the epidemics usually run their course in an incredibly short period. These considerations, as well as their interest in a pathological point of view, have induced me to publish the following case, which is, I believe, without parallel in the annals of veterinary medicine.

On the 10th of January, 1834, M. Schikler, having been informed that an enzootic had prevailed among his pack for several days, and that, out of seventy-two valuable dogs, four were already dead, and fifty-seven attacked by the disease, hastened to send to us for advice. The animals were at Glatigny, about three miles from

Versailles, and thither I proceeded, accompanied by M. Maillet, a pupil of some standing in our school.

We found the dogs divided into three classes, and lodged in different compartments of the kennel. In the first were seven dogs stretched on the straw in a dying state. The second compartment contained twenty-five dogs that were seriously ill, although not so bad as the others, they being able to stand. The last division comprised twenty-eight dogs, which had only been recently attacked. Just outside the kennel were four dogs that had died on the previous day, and which we immediately opened; but before stating the post-mortem appearances, we found that we must relate the facts which we gathered from the statement of the master of the hounds, and from our own observations relative to the symptoms and progress of the disease.

Symptoms and Progress.—The first signs of illness were languor and loss of spirit. The mucous membranes of the mouth and eyes became pallid and yellow—the eyes were moist and inflamed—a slight but frequent cough tormented the patient—the pulsations of the heart became accelerated and violent in most of the patients, but slow and feeble in a few—the pulse was unchanged, but the appetite the same as usual. Such were the symptoms presented by the twenty-eight dogs last attacked.

Within four or five days after the first appearance of the disease, the cough became more frequent, and took on all the characters of quinsy. It was very sonorous at first, but, after a lapse of eighteen or twenty-four hours, it became feeble, and ceased to be so frequent. The respiration was accelerated in some, while in others it was natural. The eyes became hourly deeper and deeper sunk in the head, and the discharge from them increased in like proportion. In many of the animals there was a discharge from the mouth. In some the pulse was hard and bounding; in others it was low and almost imperceptible; and in the greater number it was unequal and irregular, and seldom more rapid than is natural. The appetite was always good; there was a tightness about the belly, and the fæces were hard, seldom passed, and mixed with blood. During the paroxysms of the cough the animals endeavoured to stand up, but at other times they lay on their side which pressed least on the lungs: those, however, which were very bad could not rise to cough. At this epoch the palpitations of the heart were quick and violent, and the animals became weaker, and wasted away rapidly. The respiration also became painful, the extremities cold, and at last the animal expired without a struggle. The seven dogs which we saw first were in this desperate condition. One only of them had a purulent discharge from the right nostril.

Post-mortem Appearances.—Six out of eleven dogs which

we found dead were opened, and all presented, as nearly as possible, the same appearances, which were as follow:—Immediately after death a small quantity of black blood flowed from the nostrils, and the belly began to swell. There was a general paleness and flaccidity throughout the muscular substance. The digestive canal was perfectly healthy in most of the animals, but in two there were ecchymoses irregularly dispersed throughout the mucous membrane of the stomach. I attributed the redness which was observable in the longitudinal folds of the rectum to the hardness of the fæces. The spleen was soft and very much tumefied, and the black blood which it contained escaped on the slightest pressure. There was nothing worthy of remark in any other of the alimentary canals.

The lungs were spotted with ecchymoses to a greater or less degree in all. Several parts of the pulmonary lobes were choked with blood, and the lower part of one or both lobes was hepatized, and a clear suppuration flowed from them. With this exception the remainder of the respiratory passages were free from disease.

There were some remarkable lesions about the heart. In nearly all of the animals we examined the blood which it contained was black and nearly liquid. In the ventricles and under the auriculo-ventricular valves, and beneath the fleshy bands, were hard clots of pure fibrine, from which the utmost pressure could not obtain one single drop of blood or serosity. These fibrinous masses were exactly the same colour as the valves, and adhered so firmly to them, that it was almost impossible to detach them. This separation of the constituent elements of the blood must have taken place some time before death, since it is impossible to conceive that such a degree of fibrinous organization could have taken place in animals which were opened within three hours after their death. There were numerous ecchymoses, some of them very large, in the serosity, and even in the thickness of the heart.

In the first dog which I opened I observed some lesions of the respiratory passages, which appeared to me to account for the cough that I spoke of when enumerating the symptoms. In the tracheal mucous membrane and in the chief bronchial passages there were a number of little excrescences about the size of peas, and of a reddish hue. On closely examining these singular productions, numerous small white filaments were perceptible, which could be detached with the point of a scalpel. We examined several of these filaments with a microscope, and became convinced that they were neither more nor less than *entozoa*, belonging to the genus *filaria*, and bearing a close resemblance to the small worms which are sometimes found in purulent cysts developed under the mucous membrane of the right cavity of the stomach in horses.

Mr. Schikler's pack consisted of seventy-two dogs, fifty-nine of

which were English, and had been brought over about two months before, and thirteen French, which had been in his possession about ten months. The English dogs varied from two to five years old. They had not been hunted much in their own country, and had been accustomed to be fed on horseflesh; but since their arrival here they had been subjected to the regimen which M. Schikler deems most conducive to health, and which consisted of one pound of barley-bread per diem for each dog. Three times in the week this was soaked in a kind of soup formed from boiling paunches, and on the other days the bread was cut in pieces, and given alone. I saw some of this bread, and found it to be doughy and moist. Within a fortnight after the arrival of these dogs they were hunted for three long consecutive days, and the weather was very cold and wet. On the last of these days they crossed the Seine twice, and that when heated and almost worn out by a six hours' course. Two days after this the pack was removed from the usual kennel, which is well boarded and drained, to Glatigny. There the dogs were lodged for a time in an extremely damp building, badly ventilated, and where they were obliged to lie upon the ground, or with only a little straw to keep them warm. Within two or three days after this removal, some of the dogs were observed to be dull and to cough; the eyes became inflamed, &c. They were, consequently, removed to a drier and better ventilated habitation, and there we found them. It was on the 7th of January that this latter removal took place, and at that time all the dogs shewed, more or less, symptoms of disease, but none had died. The first which died had been ill only twenty-four hours, and fell a victim to the disease on the 9th. This animal's appetite remained good up to the very last moment. On the 10th, two more died, and several others were reduced to the last extremity; and then it was that M. Schikler sent to our school for advice. The animals had not, however, been left entirely without treatment: those which coughed most had been bled. Milk had been given to them all, and good warm beds, but without effect. In the animals which had been bled, the blood flowed freely as soon as the vein was opened: it appeared very liquid, and did not coagulate, but soon became decomposed.

Lastly, I must remark, that only one out of the thirteen French dogs had been taken ill, while not one of the English ones had escaped.

Nature and Seat of the Disease.—I have already stated, that in all the animals we opened one or both of the pulmonary lobes was the seat of a sero-purulent infiltration, and in nearly all numerous ecchymoses were observable on the lungs and in the bronchia and larynx. Taking into consideration these lesions, and the frequent and obstinate cough that appeared with the disease, and ceased

not until death, it will be evident that the principal seat of the disease was in the lungs and the respiratory passages. But there were other symptoms attending this malady, which are never observable in bronchitis or pneumonia. The extreme weakness and prostration of all those attacked—the infiltration and yellow hue of the conjunctiva—the violent and rapid palpitations of the heart, contrasted with the slowness, irregularity, and inequality of the pulse—the presence of the appetite, even up to the moment of death—the fluidity and want of plasticity in the blood drawn from the veins of the patients—the discharge of blood from the nostrils immediately after death—the hueless softness of the flesh—the numerous ecchymoses found on different organs, and, above all, the clots of fibrine deposited under the fleshy columns and the valves of the heart—the size of the spleen, its softness and the fluidity and black colour of the matter it contained,—all these appearances struck me as being the characteristics of an *alteration of the blood.* In fact, there is a striking analogy between the appearances, lesions, and symptoms here detailed, and those attendant on what we term alteration of the blood in horses. I, therefore, considered this disease to be pneumonia combined with alteration of the blood.

Causes.—I have already stated that, on their arrival in France, the English dogs had undergone an immediate and total change of diet, and from being fed entirely on animal food they were, without any intermediate transition, at once brought to live on barley bread. I have not the least doubt that this change from animal to vegetable food was the cause of the impoverishment of the blood. As for the pneumonia, that is easily accounted for, if we recall to mind that the dogs were hunted for three consecutive days, swam twice across the Seine in the month of January, and, besides this, they were removed from a well-ventilated boarded kennel to a damp place, where they lay on the bare ground.

The state of the blood at the time of the appearance of pneumonia will account for its extreme gravity, as well as for the non-success of the antiphlogistic mode of combating it. Five animals died on the day of my arrival, and six more during the night and the following morning, although they had been bled repeatedly. In all the others the disease continued to make rapid progress, although they had likewise been phlebotomized.

TREATMENT.—I set to work by dividing the animals into two classes; the one composed of those that were only beginning to take on the disease, and the other of those which were seriously ill.

For the animals of the first class I prescribed a slight bleeding, and small doses of quinquina wine, morning and night.

For those of the second class, I prescribed general bleedings,

blistering of the chest, scarification of the blisters produced, a seton and vesicatory ointment, and that the whole of the chest should be kept from the influence of the cold air. I ordered two small glasses of quinquina wine to be given morning and night.

Emollient clysters were administered morning and night, and the animals were made to inspire the steam of warm water at a moderate temperature. I desired, also, that they might be fed on a hash composed of beef tea and bread and meat cut up in it, and that this might be given to them in small quantities, and frequently. The kennel was likewise kept at a proper degree of heat.

Having written these directions, I left M. Maillet behind to see that they were properly carried into effect, and took my departure.

I shall not enter into all the details, which were punctually transmitted to me by M. Maillet, but content myself with saying, that at the time we commenced the course of treatment I have recommended eleven animals were dead, six in a desperate state, twenty-five seriously ill, and the rest evidently more or less affected. From that time not one dog died; and so rapid was the amendment, that before midnight M. Maillet began to entertain hopes with regard to six of the dogs which in the morning had seemed at death's door, while the others were considerably better.

M. Maillet quitted Glatigny on the evening of the 13th, after having, up to that time, rigorously enforced the system which I prescribed. At the time of his departure, all the dogs seemed in a fair way to recovery; many of those in the first class had ceased to cough; the mucous membranes had regained their roseate hue, the extremities their natural heat, and the setons began to suppurate.

On the 29th of January, M. Schikler sent his huntsman to me, to inform me that all the dogs were perfectly well, with the exception of seven or eight that had been the worst, and still remained weak, although in a state of convalescence.

From the observations which M. Maillet made on the immediate effects of the treatment, he was led to attribute its chief success to the quinquina wine. The rapidity with which the administration of this medicine was followed by good results, and several analogous observations made with regard to its success when employed in horse treatment, make me very much inclined to believe M. Maillet to be perfectly right.

Recueil de Méd. Vét. et Prat., 1835, p. 1.

DEATH OF A POINTER DOG, CAUSED BY TÆNIA IN THE STOMACH.

By Mr. R. READ, *V.S., Crediton.*

ON December 29th of last year, the Rev. Wm. Wellington requested my advice respecting his dog, that was continually sick, and had rapidly fallen away in flesh, and all this in the space of five or six days, his health previously being very good. I advised that a laxative dose should be given, and if he was no better on the morrow, to send him to my infirmary. Accordingly on the next evening he was sent in a cart. The following symptoms presented themselves:—An incomplete hemiplegia of the right side—amaurosis—a glossy appearance of both eyes—the back over the lumbar region raised—insensibility to sound—disrelish for all food. His position was that of sitting on his haunches, with his eyes fixed—the bowels unopened—cold ears and extremities—abdomen tightly contracted—spasmodic retraction of the head, with convulsive twitches.

Autopsy.—In about one hour after death, and ten after his arrival, we opened him. The intestines, lungs, liver, bladder, in fact, all the contents both of the chest and abdomen, were in a most marked state of health, with the exception of the stomach, in which all the mischief lay. On cutting it open, about 6 oz. of highly-coloured serum escaped, and with it 2 or 3 oz. of dark coagulated blood. Detached and mixed with the same were two *tape-worms,* measuring about twenty inches each. About three parts of the stomach were in a high state of sanguineous congestion, which produced a rupture of the vessels, with effusion into the stomach of the dog. This was quite sufficient to account for the symptoms evinced. When tape-worms are found in the intestines, they are most generally embedded in a quantity of mucus; but nothing of the kind was in the dog's stomach, neither were there any to be found throughout the intestines. This is an interesting case, and shews what a train of symptoms follow from gastric irritation.

A PECULIAR AFFECTION IN THE HORSE, CHARACTERIZED BY THE COAGULATION AND TRANSFORMATION OF THE BLOOD INTO FIBRINOUS CLOTS.

By M. RAYNAL, *M. V. 1st Lancers.*

THE Essay which, bearing this incomplete title, M. Damalix and myself venture to lay before the public, merits, under more relations than one, the attention of veterinary surgeons and medical men. It is not only destined to enrich science with one of those extraordinary cases of which nature is sparing, but, seriously considered, it will serve, as we hope, in proper time and place, to clear up some portion of the obscurity of pathology—to furnish some more exact date in physiology, and to destroy some errors generally admitted as truths, while it may serve to convince those who yet entertain some doubt of the primitive lesions of the circulatory fluid.

The subject of this case is a saddle-mare, twelve years old, of a nervous temperament and constitution.

It was about two years ago that she was first attacked, without any known cause, with an affection, the symptoms of which were so vague, that M. Damalix was unable to recognize either its nature or its seat: it yielded, however, to an antiphlogistic and revulsive course of medicine.

From that time until the end of 1839 she appeared to enjoy perfect health, except that the cavalier who rode her found it impossible to make her go in a straight line, or to turn to the right: she was therefore ordered to be discharged. During the interval of five months which necessarily intervened, she was fed highly, and submitted only to very moderate exercise. Towards the middle of March she was become so fat, that we recommended half of her hay and oats to be taken away, and its place supplied with mashes and gruel. At the end of that month—fifteen days since the first change in her keep and treatment—she had lost so much flesh, that the man who fed her took notice of it. Her skin, likewise, was dry, and adherent to the parts beneath. All these circumstances were attributed to the regimen which we had adopted in order to diminish her state of plethora; and we were the more confirmed in this opinion by the officers who had ridden her on the two preceding weeks not perceiving that any thing was amiss with her. However, from this time, she became a subject of observation with us.

On the 4th of the following month we perceived that there was a superficial glandular swelling, of the size of a nut, on her right side, accompanied by a general state of lowness of spirits and exhaustion, which formed a remarkable contrast with her former vigorous habit.

5th.—M. Damalix and myself examined her, and we were convinced that the symptoms that she exhibited proceeded from a state of serious disease, the nature and seat of which we could not determine.

The following were her present symptoms:—General loss of spirit—the head carried low and resting upon the manger—the eyes almost closed, and weeping, the conjunctiva of a yellowish white, with the capillary vessels well marked—the pituitary membrane of a paler colour, and covered with small reddish points—the mouth hot and clammy, without any redness of the tongue—the food taken with indifference, and very slowly masticated—slight constipation—the pulse small and quick—a peculiar expression of the countenance, with a slow and staggering gait.

Diagnosis.—We were inclined to anticipate the development of acute mange, or gangrenous coryza.

Treatment.—We abstracted four pounds of blood from the jugular. There was nothing amiss in the jet or character of the blood as it flowed. We administered a strong aloetic drink, in order to produce some general disturbance of the system.

Physical Characters of the Blood.—The blood, as it coagulated, exhibited such peculiar characters and changes that we will record them, day by day, unto the close of the disease.

Being received into the proper vessel, it coagulated in about nine minutes. The black clot was three times larger than the white. Twenty-four hours after it had been drawn from the vein, the quantity of serum was about half as great as we generally observe it to be. It very nearly equalled the size of the white clot. The red clot—*le caillot cruorique*—which offered a certain degree of resistance an hour after its coagulation, was insensibly changed into a black, broken-down mass, without any peculiar smell, four-and-twenty hours after it had been in the vase. The white clot had preserved its natural consistence: it was only somewhat whiter, and more elastic. The line of demarcation between the white clot and the *cruorique* one was well marked; but on the surface of the cruor, and the superior part of it, and to the extent of a quarter of an inch, it presented a deep green-grass colour, which insensibly mingled with the brown tint of the clot.

Independent of the diminution in quantity of the serous part of the blood, that, too, had acquired a greenish yellow tinge, and a viscidity like the synovial fluid. It separated itself more slowly

than in its natural state from the other constituent parts of the blood. After twelve hours only, it had gained upon the superior part of the white clot so much as to form a layer two lines in thickness in about twenty-four hours. At this period it was covered by a thin pellicle, easily to be taken off with a little precaution, slightly yellow on its superior surface, and covered inferiorly by a greasy matter of a green colour, which, in our opinion, might give to the serum the oleaginous appearance of which we have spoken. Beside this, as if it had been endowed with some corrosive property, it had indented the superficies of the white clot with small apertures, irregular in their form and their depth.

6*th.* The patient was in a state of depression, even more marked than on the preceding evening. The conjunctiva was of a deeper red, and the pituitary membrane presented the same colour, with petechial spots on its surface.

Diagnosis.—We are still more inclined to believe, that acute mange is at hand.

Treatment.—Again we bled to the extent of four pounds, and administered emollient injections; friction was also frequently applied. The purgative had not acted, although twenty-four hours had passed since the administration of it. The blood presented the same characters, except that the serum was somewhat less in quantity. Its colour was deeper, and its viscidity was greater.

7*th*, 8*th*, 9*th* and 10*th*. The prostration of strength increases—the animal is almost insensible to the objects by which she is surrounded. She resembled a horse violently attacked by vertigo or epilepsy. The pulse and the beatings of the heart have not varied from the beginning. The quantity of serum has diminished, but the viscidity has increased. The solid parts of the blood offer no change.

On the 11th of April, at half-past 11 o'clock at night, she died. During the course of that day we had observed a series of symptoms which betrayed great suffering. The countenance was anxious—the head was moved backwards and forwards, to the right and to the left; the limbs were approached, as nearly as possible, to the centre of gravity, and the back bowed as if in violent colicky pains, and then the animal would suddenly lie down, moaning sadly. Having lain down, she stretched out every limb, strangely stiffening them. There were frequent and convulsive yawnings—abundant and glutinous salivation—spasmodic closing of the jaws, alternating with violent grinding of the teeth—indisposition to feed—the mucous membranes becoming pallid—the pulse not to be felt—the beating of the heart 75.

In describing the morbid lesions, we will follow the course of the disease, commencing with the organs that were most affected.

Venous system.—The blood was coagulated so as to render the vessels almost completely opaque. This was principally observable in the posterior vena cava, the vena porta, and the mesenteric veins. About the mammæ and abdominal members, the obstruction appeared so complete, especially in the smaller ramifications of the vessels, that one would be inclined to suppose the circulation could not be carried on: notwithstanding this, however, there was no adhesion between the clot and the parietes of the vein, or, at least, the separation between them was easily effected. This has been since observed by M. Renault.

One circumstance that somewhat surprised us was, that the blood contained in the veins of the anterior part of the body was far from presenting any changes so considerable as these. The clots, as yet impregnated by their colouring matter, were not sufficiently large to oppose its free passage. The internal membrane did not present, at any point, the slightest trace of inflammation, except we regard as such the redness which was particularly observable on the parietes of the vena porta and the veins of the fore-limbs,—a redness which entirely disappeared if a small stream of water was poured upon it. In other places we also found on the inner face of these vessels, and principally in the mesenteric vein, and stretched over it as a kind of varnish, a thin layer of plastic matter, which was easily raised by the cutting edge of a bistoury. The internal membrane then offered the same characters as in a state of health. It had a glassy appearance, was soft to the touch, and had a general uniform aspect.

At the base of some of the valves, and in the very substance of them, we found some small points of the thickness of a pin's head, formed of a white material more or less easily *crushed,* and much resembling the concretions which Béclard has designated by the name of *phlébolités*—calculi of the veins. The clot which filled the interior of the vena cava was totally formed of a white substance, resisting, elastic, and separating into small filaments. At the place which corresponds with its passage through the diaphragm, the clot was covered by a marbled tint, which gradually assumed a brown colour; there it was less hard, and impregnated by its own colouring matter.

The Arterial System.—The left cavities of the heart were filled with black and frothy blood. The clots of blood possessed the same appearance and character as in the veins, but, instead of continuing throughout the whole extent of this canal, they were sometimes separated by intervals of spumy matter, or by brownish clots of blood, evidently of recent formation. The fibrinous concretions were neither to be found in the anterior aorta nor any of its divisions, nor in those of the posterior aorta, with the exception of

the three first intestinal portions of the splenic, gastric, hepatic, and lateral arteries, of the canal. The size of the arterial vessels was generally less than what it would have been in their natural state. Those of the great and small mesenteries had diminished at least one-half; the splenic artery was, however, an exception to this, for the superior portion of it had acquired, without exaggeration, the size of a man's thumb, while the hepatic and gastric arteries were manifestly shrunk.

The internal membranes of the arteries, as well as those of the veins, did not present the least mark of inflammation; but it was not so with the outer parts of these vessels. There a very important alteration was observable;—when cut long-ways, they fell back of themselves, and rolled up even to the very edge of the incision. The same effect was produced when they were flattened out and placed in a horizontal position. Their action was similar to that of the two ends of a narrow slip of paper, which had been rolled up from either extremity, and again resumed its curled position when freed from the power which held it extended. Those fibres of the membrane which, when examined separately, could be more easily divided from the others, presented the same peculiarity.

The size of the melt was enormous. It weighed eleven pounds. Its surface was marbled with brown, black, and violet. When cut in pieces and scraped with the back of a knife, a thick substance of the same colour exuded from it, odourless, and not easily dissolved in water. It appeared impregnated with a great deal of fatty matter, which swam upon the liquid in which it was immersed. The liver was very bulky and heavy, and of the colour of dead leaves. It was very hard, and yet might be easily broken: its granulous texture was revealed in all its rigour. It was, like the melt, imbued with a fatty matter, which floated on the surface of the water. This last characteristic is, however, often equally apparent in healthy animals; but, having found here so great a difference with regard to its general aspect, its colour, and its viscosity, we thought that, without the danger of erring much, we might venture to class this among the list of morbid lesions. The hepato-intestinal canal was diminished, and much smaller than the hepatic artery.

Nothing remarkable was apparent in the interior of the intestinal canal, if we except a liquid matter united with a small quantity of food imperfectly digested. The gastric mucous membrane appeared to be much paler than is natural in the healthy state. The heart, and the solids in general, were perfectly sound. The arteries and the pulmonary veins did not contain any clots of blood.

Peculiarities.—In two of the clots of blood, found near the crossing

of the aorta, there was a canal through the central part of nearly one inch in diameter, filled with bloody spume, through which flowed a small stream of aqueous fluid: in this state they represented a perfect vessel situated in the interior of another, through which the circulation was effected.

The Organization of the Clots of Blood.—When considered in a general point of view, and throughout the whole of the circulatory system, the clots of blood presented themselves under three different forms:—

1st, In the form of a jelly, slightly elastic; of a brownish hue, when seen by a refracted light, and having a shade of green on the surface. The jugulars are illustrations of this.

2d, Under the appearance of a tough, grey, stringy matter, covered here and there with blackish spots, of a more or less deep hue, produced by the hemorrhoids being only imperfectly re-absorbed (*vena-porta*).

3d, In the form of hard masses or concretions, of a blackish colour, elastic, and full of fibres (the posterior *vena cava*).

With respect to their texture, the fibrinous concretions comprised under the third class may be subdivided into three sorts:—

The first comprises those formed by successive layers from the circumference to the centre, (see the vena cava and mesenteric veins).

The second, the formation of which took place from the centre, and was continued externally to the circumference.

In the third were ranged the concretions resulting from the intermingling of the fibres, of which they were composed in every direction (splenitic hepatic lateral artery of the canon).

The clots of blood comprised in the two first classes are very similar, in point of structure, to those which are found in the jugular, at the extremity of a thrombus or its ligature. Like them, they are formed of a succession of thin circular layers, fitting one into another, in the central part of several of the clots of blood. When viewed lengthways, they presented continuous lines, the ends of which were interlaced.

Here terminates a very incomplete description of this curious alteration of the blood—curious in a triple sense of the word—as respects the study of the symptoms furnished by the blood, the morbid lesions produced, and the consequences which resulted from them. I say incomplete, because our readers will easily perceive that there are two things wanting which ought not to have been omitted, and without which the interests of science and of truth are not supported. Our minds being fully pre-occupied by the alterations and lesions which a long and scrupulous examination revealed to us, we forgot to give the attention to

the brain and its dependencies, and only discovered our omission when it was too late to remedy it. We regret this the more, as we should, doubtless, have here found a clue to that tendency which the animal had for bearing always to the right, when led in a direct line; we should also, probably, have discovered the cause of the strange pathological state of the envelops of the arteries. Chemistry, too, by bringing to light the intimate composition of the serous part of the blood, would, doubtless, have been able to enlighten us in our labours. Here, as in the other case, we can only express our regret that circumstances, over which we had no control, prevented us from calling to our aid the assistance of the erudite professor of chemistry at the school of Alfort.

AN ACCOUNT OF THE SUDDEN DEATH OF A VALUABLE BROOD MARE.

By Mr. JOHN SCOTT, *Kildare.*

Dear Sir,—I WISH to place the following case on record, in hope that, some effectual light being thrown on the subject, we may be able to save some of our patients that are similarly circumstanced. A valuable thorough-bred mare, Taglioni, about sixteen years old, and with her seventh foal, was, on the night or evening of the 3d inst., driven into a large, oblong, loose house or stable, where she had been accustomed to stand at night for two months, and where she stood perfectly safe in former seasons in like cases. She was never known to be in better health and spirits. It is supposed that she injured herself in some way, by getting cast or otherwise. She was found exceedingly ill on the morning of the 4th inst. following.

I saw her before ten o'clock, and found that it was a case of abortion, a portion of the amnion hanging from the vagina, like a bladder of water. I passed my hand into the womb, and felt the foal with the head turned backwards, and the fore-legs in like manner. I brought the legs, first one and then the other, without violence, into the vagina, and, by pulling rather strongly, assisted by the throes of the uterus, I took away the foal readily.

The mare appeared so well that I left her, ordering her to be kept short of hay and water. In less than an hour I was again with her, she having protruded the uterus, and I found her lying down in pain. With considerable trouble and perseverance I returned the swollen viscus, having bathed it with warm water. I then took away three quarts of blood, and gave four drachms of aloes.

The mare remained tolerably quiet all the remainder of the day, and when I left her at nine o'clock, P.M., the pulse appeared to be of its natural character. The mare drank some gruel, but ate scarcely any thing.

About two o'clock in the afternoon of the 5th, she appeared dull, which was attributed to sickness from the physic. I saw her at nine o'clock, P.M., and found the pulse quick, and difficult to be felt—the breathing increased and increasing, and the mare restless. I abstracted two quarts of blood, and gave three drachms of aloes. Two hours afterwards she became very bad, and the pulse was scarcely perceptible. I saw that the case was hopeless. She died about two o'clock, A.M., on the morning of the 6th.

On examination, I found the right lung engorged with black blood, and all the intestines inflamed, as was the peritoneum—the bladder was perfectly sound—the uterus black through its whole extent, but not the inflammation or mortification which I expected. The liver had a baked appearance, and could be easily torn. Part of it was yellow or clay-coloured—the kidneys were inflamed—the bowels full of wind and water: their contents, which were very considerable, were all softened, and, in the stomach, were fluid. I met with a case of this some time ago, which proved to be fatal. I could wish to glean the experience of others; but there are few cases of this nature reported in THE VETERINARIAN.

The herdsman, who took care of Taglioni last season said that he often heard her stamping her hind legs against the pavement for half an hour, or more, at a time. After drinking, she would paw and scrape, first one leg, and then the other, and often stamp violently with the hind foot.

Her last produce was a crooked-faced filly, and also somewhat deformed in the croup; but these deformities gradually disappeared,

I have taken THE VETERINARIAN from its commencement, and will continue to do so as long as it may be published, convinced that it has openly and honestly done its duty in the service of the biped and the quadruped. It may have injured dolts and puzzled quacks. So much the better. The gold is only known by its being tried.

A CASE OF ACUTE RHEUMATISM IN A HORSE.

By Mr. MONDAY, *Northwich.*

Dear Sir,—I ACKNOWLEDGE myself deeply indebted to you and Mr. Percivall for your very kind opinions on the case of paralysis, with regard to which I wrote to you. The result and particulars

I will forward at a future day. In the meantime I transmit a case of acute rheumatism.

This case of acute rheumatism is not inserted on account of the rarity of that disease, but more to shew the beneficial results of locally applying the stimulus of salt, in the form of concentrated brine, as obtained from the subterraneous caverns that abound in this neighbourhood; for in this vicinity the salt rock is obtained in great abundance, and, as most of your readers are aware, forms a considerable article in commerce.

The subject of this case was a fine draught horse, working at a country mill in this vicinity; but, from arrangements of the owner, it was requisite that his horses should draw timber occasionally, which exposed them to the vicissitudes of the atmosphere, and often during profuse perspiration, as most in the profession are aware. During the wet and damp of November last, this horse, with others, had been more than usually exposed to the inclemency of the weather at that time. While occupied in drawing timber through some of those long and heavy journeys which often fall to the lot of a timber-carrier's team, there can be no doubt the sudden changes to which they are liable are often, if not always, the cause of this malady.

The horse which I have in view returned from a long and laborious journey on the 15th of November last, when every kind and proper attendance was paid to him by his waggoner, who left him that evening to all appearance in good health.

On the following day, the 16th, he was worked a short time about home, had his regular diet, and in the evening appeared in perfect health; but on the following morning, the 17th, he found him heaving at the flanks, and, on attempting to move him, was no little surprised to find him almost a fixture. He had not eaten the whole of his overnight's feed.

This was soon made known to the master, who, on seeing him, thought it might probably be an old nail left in his foot, which was setting up suppuration there, he having had a case of this kind not long before; so from this notion he was made to limp to the blacksmith's, on almost three legs, for a removal of the shoe. An examination of the foot soon convinced them that the disease was not there. Shortly afterwards I was called to him, and found him with a strong bounding pulse, accelerated breathing, coat fixed, extensive lameness of the near hind leg, with other concomitant symptoms of acute rheumatism.

I immediately bled to the amount of x ℔s, and administered a brisk cathartic ball. Fomentations of hot brine were applied to the lame limb almost every hour.

18*th*.—Much better—lameness almost subdued—medicine operating well. Continue the fomentations of hot brine.

19*th*.—Lameness quite gone—the fæces almost of a regular consistence. Discontinue the brine, to which I attribute so early a cure.

THE USUAL COURSE OF RHEUMATISM IN THE HORSE.

M. TESSIN remarks that M. Bouley, one of the most experienced veterinary surgeons in Paris, assures him that the ordinary course of rheumatic inflammation in the horse is the very reverse of what is usually the case in the human subject. In the latter, as all know, the affection of the joints is primary, and that of the pleura, pericardium, or other internal part, is consecutive, or secondary; whereas, in the former, pleuritis is generally the primary, and the arthritis the secondary affection.

DEATH FROM HYDROPHOBIA.

BETWEEN four and five o'clock on Monday, Jan. 22, 1844, a lad named Enos Hayward, seventeen years of age, a stable-boy in the service of Mr. Warwinch, Carshalton, Surrey, was admitted into St. Thomas's Hospital, suffering under hydrophobia. He was brought to the above institution from Carshalton in a fly, and while being assisted to alight he was seized with a paroxysm of the disease, barking loudly like a dog, and attempting to bite the persons near him. So violent were his struggles, that it required the exertions of four strong men to carry him into George's ward, and he was obliged to be held down in bed by main force. During the intervals of the succession of attacks with which he was assailed, he was perfectly rational, and frequently remarked that the attendants need not be afraid, as he would not hurt any of them. He also said that he had no doubt he should be better by the morrow, and seemed to be totally unconscious of the fatal nature of the malady with which he was afflicted. Every possible attention was paid to him, but he expired about eleven o'clock on the same night.

He had been bitten about six weeks ago by a dog that had strayed into the stable-yard. The wound was very slight, and,

healing quickly, no further notice was taken of it. During Sunday last he complained of severe pains in the neck, and a peculiar uneasiness about the throat; and on Monday last unequivocal symptoms of the frightful disease under which he was suffering were indicated. He died in the evening of that day.

The circumstances that have already been stated were laid before the jury, and others that are dreadful to think of. At the time that this fellow was bitten he was in the act of tying a tin kettle to the tail of a dog. The bite was on the lower part of the left cheek. The dog was a sort of tan-terrier, and on the following day was again seen about the premises, when three dogs belonging to the yard set upon him, and broke three of his ribs, and otherwise mangled him; he, however, escaped into a neighbouring gentleman's grounds, where, a few days afterwards, it was found dead. One of the other dogs has since died, and the other two were kept tied up, but had shewn no symptoms of being in a rabid state. The Coroner recommended that, to prevent the possibility of any further mischief, they should be destroyed.

Mr. Depkeil, the house surgeon of the hospital, stated that when the deceased was brought in he was suffering from *tetanus*. Medicines were administered to him, but he continued to get worse. Between nine and ten o'clock he became excessively violent, and at ten minutes before eleven o'clock expired.

Coroner: Of what disease did he, in your opinion, die?—Witness: *Hydrophobia*—the symptoms were decidedly marked.

Coroner: You have, I believe, no cure for that malady?—Witness: None whatever.

By the suggestion of the Coroner, the jury returned a verdict that "the deceased died from hydrophobia."

DEATH FROM GLANDERS.

THE Paris *Moniteur* of Monday quotes the following in a letter from Carcassonne:—"M. Baslé, veterinary surgeon of the 9th Chasseurs, and who was married only three weeks ago, died on the 31st of December, of glanders, caught while attending a horse ill of that disease. It appears that the contagion of this cruel malady was communicated to the olfactory organs through the indiscreet zeal of M. Baslé, who, wishing to investigate all the symptoms of the animal, had the imprudence to smell and inhale the odour arising from the matter discharged from the horse's nostrils." The *Moniteur* is in error in supposing that deaths from

glanders are by any means uncommon. It is scarcely a year since there were two patients affected by this horrible disease in one of our metropolitan hospitals, and a third, in attending upon those originally affected, contracted the malady. All three died.

The Times.

THE VETERINARIAN, FEBRUARY 1, 1844.

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

A WORK has been lately introduced before the public, entitled "The Life of Sir Astley Cooper, Bart., interspersed with Sketches from his Note-books of distinguished contemporary Characters, by Bransby Blake Cooper, F.R.S." It contains much interesting as well as instructive matter; but its chief value arises from a habit which Sir Astley formed of recording the various scientific and important and interesting matters which took place around him during each successive day.

He was placed under the care of Mr. Cline, than whom there could be no one better qualified to train him to eminence in the medical profession. Mr. Cline had several pupils, among whom were Messrs. Taylor, Blaine, Cooper, and Coleman. A friendship was soon cemented between the two latter, which continued until both were far advanced in life.

Mr. Cooper formed a habit from which he derived considerable improvement as well as pleasure. At the close of each day its transactions were recorded, and some very free remarks were often made to the circumstances that had taken place. Occasionally, young Cooper used to make some very pleasant or stringent observations on what had occurred. In course of time, a little history of his comrades was composed. Mr. Bransby Cooper has collected many of these histories. Among others was one which must be highly interesting to the veterinary surgeon of the present day,—that of Edward Coleman:—

"Mr. Coleman," according to Mr. Cooper, "was born in the

month of June, A.D. 1765, in the county of Kent. His father was a respectable yeoman in Romney Marsh, and was what is there called one of the Lords of the Marsh, there being a peculiar court and laws in that district.

"This son, Edward, was placed as an apprentice to Mr. Kite, a surgeon, of Gravesend, and with him remained a period of seven years. Mr. Kite was an intelligent man, and had devoted much attention to the subject of asphyxia, both by reading and experiment; and Mr. Coleman thus imbibed an inclination to pursue this study, and make it the subject of farther experiment.

"In the year 1789 Mr. Coleman came to London. He was placed under the guidance of Mr. Cline, and lived in his family with Mr. Astley Cooper; with Mr. Taylor, who married Lady Lucy Stanhope, and was made Comptroller of the Customs by Mr. Pitt; and with Dr. Clarke, who, afterwards imbibing habits of intemperance, died almost destitute.

"Mr. Coleman had no sooner come to Mr. Cline's than he again engaged himself in studying the subject of asphyxia; and made so many experiments upon cats and dogs, and killed such numbers of these animals, that a friend of his once declared he had blocked up Houndsditch. These investigations led to the composition of an Essay on Suspended Animation, which gained for him the medal of the Humane Society. He also subsequently published a book upon the same subject, which procured for him a high reputation.

"Mr. Coleman and Mr. Astley Cooper attended John Hunter's lectures, walking together up to Leicester-square every evening of their delivery, and relieving the tediousness of so long a journey by discussing Mr. Hunter's opinions. Mr. Coleman had at this time a singular disease—a sympathy between the stomach and skin, which manifested itself by his ejecting the contents of his stomach whenever he exposed himself to cold air after dinner. No other effect followed.

"In the year 1791, Mr. Coleman quitted Mr. Cline's house; but he always kept up a social intercourse with his old master and his family, for all of whom he never failed to express his respect and affectionate regard.

"He now removed to Fenn-court, Fenchurch-street, and began

to practise as a surgeon, still attending St. Thomas's and Guy's Hospitals, and dissecting there.

"About 1792, he became acquainted with Sir Wathen Waller, Bart., then Mr. Phipps, one of the best oculists this metropolis has produced, and who attended the lectures of Mr. Cline. This acquaintance led him to study carefully the structure of the eye, and to make preparations of that organ, both human and comparative, and thus he was brought to know particularly the peculiarities of the organization of the eye of the horse.

"M. St. Bel dying in the year 1793, Mr. Coleman and Mr. Moorcroft, by the recommendation of Mr. Hunter and Mr. Cline, were appointed to the professorship at the Veterinary College, which M. St. Bel had held: Mr. Moorcroft going soon after to the East Indies, Mr. Coleman became sole professor. His acute and active mind was immediately devoted to the formation of a good course of lectures on the Anatomy, Physiology, and Pathology of the Horse.

"Mr. Coleman published a treatise on Shoeing. His preceptor, Mr. Cline, who was much attached to the study of the horse, and had perused Clark's work on Shoeing, instilled his principles into Mr. Coleman. These Mr. Coleman expanded and advocated, exposing the frog to pressure, leaving the foot in other respects much to itself; and, therefore, he advised shoeing with short shoes, and leaving the heels exposed. These speculative opinions, however, he improved upon as he proceeded in life; and he afterwards saw the necessity of thinning the sole and the crust, in order to allow of the elastic spring of the foot.

"In 1799, he began to publish his great work upon the Anatomy of the Foot of the Horse, illustrated by numerous and excellent plates. This work was completed in 1802. It did him great credit, and was of much use to the veterinary profession.

"His chief excellence, however, was in his general physiological views. The effects of a confined atmosphere in close stables—the influence of heat and cold upon the horse—the effects of different kinds and quantities of food—the form of the animal best constituted for action, and the uses of the different organizations, were the subjects upon which he chiefly distinguished himself.

"In teaching, as well as in the practice of his profession, he had the great advantage of being able to apply the principles of Mr. Hunter to veterinary science, and to give to the veterinary student those physiological views which were very imperfectly known either in our own or foreign countries.

"His reading was not extensive, and, therefore, his knowledge was in a great degree his own, excepting that he had learned human anatomy from Mr. Cline, and the principles of physiology and surgery from Mr. Hunter, and that he always possessed a remarkable facility in understanding and applying these matters to use.

"By his scientific researches and mental energies, the Veterinary College attained a degree of usefulness and celebrity which exceeded his most sanguine expectations.

"Under his fostering auspices the progress of the veterinary art was such, as to qualify its practitioners to hold commissions in the army; and he had himself the honour to be appointed Veterinary Surgeon-General to the British Cavalry, the duties of which post he performed with the most laudable fidelity, and with such advantage to his country, that the number of horses whose lives were saved by his means was immense.

"These scientific views, and the high character which he had acquired, made him thought worthy of being elected a Fellow of the Royal Society, and of several other scientific associations.

"In society he was a cheerful and delightful companion, and was on terms of intimacy with Jenner, Woodville, Cooke, Wells, Babington, Abernethy, Clarke and his brother Sir Charles Clarke, Sir F. Chantrey, Sir C. Bell, Sir B. Brodie, Mr. J. H. Green, and Drs. Bright, Paris, Crawford (the author of the work on Animal Heat), and many other choice spirits and intellectual persons. Whatever is a man's pursuit in life, it is knowledge and moral character which give him his real rank and position; and in proportion as he possesses these, so will he be welcomed in society, respected and beloved.

"In old age, Mr. Coleman became afflicted with the gout. His liver also was diseased—his stomach weakened—and he died at the Veterinary College, on July the 14th, 1839, in the seventy-third year of his age, after a life of great gratification and extensive

usefulness, respected by all, and most regretted by those who knew him most intimately.

"He left behind him three daughters, all married; in whose hearts the fondest and most grateful recollection of his parental affection and undeviating kindness will be ever cherished."

To the possession of similar dispositions and tastes alone can we attribute the extreme and remarkable degree of friendship which for so many years existed uninterruptedly between these two talented men, Cooper and Coleman.

Mr. Coleman had lost his wife in the year 1833. The following note, in reply to a letter of commiseration from Sir Astley, will express the mutual feeling which subsisted between them.

"I have to acknowledge the receipt of your kind letter, with many thanks: I shall leave it to my children, and grand-children, and great-grandchildren, as a rich legacy. What are the honours of F.R.S., Professor of the Royal Veterinary College, and Principal Veterinary Surgeon to the Army for thirty-seven years, when compared with the honour, the proud distinction, of being considered by Sir Astley Cooper, after more than forty years' intimacy, his best male friend? No honours have I ever received, or ever can receive, in my estimation, of equal value," &c.

Sir Astley's reply to the Committee of Management, appointed by the pupils, who, from esteem for their preceptor, had subscribed for the purpose of obtaining a bust of Mr. Coleman, though couched in official language, expresses the same feelings:—

"Sir Astley Cooper begs to express his warmest acknowledgments to your Committee for their kindness in presenting him with a bust of Professor Coleman, who has been his friend nearly sixty years. Sir Astley's respect for his talent, the goodness of his heart, and his usefulness as Veterinary Professor, has increased in proportion to the duration of his friendship."

Mr. Bransby Cooper very properly observes, "in no instance was the scientfic mind of Mr. Coleman rendered of more importance to his country than in the views which he took respecting the necessity of strict attention to the ventilation of stables. Thousands a year were saved to government in consequence of Mr. Coleman's annual visits to the stables of the cavalry depôts throughout Britain; and farcy, which, previously to his inter-

ference, had committed annually most extensive ravages, became nearly, or quite, erased from the government returns of the diseases with which the military horses in this country are usually affected."—p. 192.

"I have heard (says he) a cavalry officer mention a circumstance most illustrative of the beneficial effects of Mr. Coleman's views respecting ventilation. A stable in which many horses had died in rapid succession, although it had undergone the usual discipline of cleansing and whitewashing, was reported to Mr. Coleman as having some undiscoverable evil, probably arising from its situation. Mr. Coleman accordingly examined it, and, having ascertained that its defects arose from a malconstruction by which all proper ventilation was prevented, recommended Government immediately to make certain alterations, by means of which this would be remedied. This recommendation at first met with considerable opposition on account of the expense involved in the proposed improvements. His plan, however, was afterwards adopted; and it is a curious fact, that in the first year the expenses of government were repaid by the saving, in consequence of the entire absence of disease among the horses." Mr. Bransby Cooper adds, "I had the gratification of knowing Mr. Coleman intimately for many years. It was impossible not to love one so agreeable, kind-hearted, and replete with all those amiable qualities that endear man to man, and stamped him at once as a most fitting and congenial associate for my uncle, who was himself no less distinguished than his friend for the possession of similar traits of character."

"Mr. Coleman maintained some rather original ideas with respect to the causes of the phenomena usually attending catarrh, or what is commonly called a cold. He believed that it much more frequently originated from residing in heated and crowded rooms, and therefore inhaling an impure atmosphere, than from exposure to cold, draughts of air, or the other causes to which the symptoms are ordinarily attributed. He used to illustrate this opinion by referring to the example of the horse when labouring under the same complaint. 'Why,' he used to say, 'who ever heard of a horse taking cold when turned out? but, on the contrary, every

one knows that, if you put him into a close stable, you will give him a cough directly. The fact is also well known, that after this has occurred, there is no remedy so certain as turning him out to grass, for his cough will then leave him in six hours.' Half the young horses that die in London are sacrificed to the pernicious practice adopted by London stable-keepers, of excluding every breath of air from the interior of their stables, merely because they know that, by this means, the coats of the horses are much more easily kept in fine order, and that a great deal of trouble in grooming is consequently spared.

"It was carrying out this principle to its fullest extent," says Mr. Bransby Cooper, "that induced him to pay such strict attention to the ventilation of stables, the great public advantage derived from which I have already alluded to. I must acknowledge, however, that I have sometimes suffered from the Professor's extreme love of cold air; for if he ever could manage at his parties to have a window left open unperceived, he was delighted; and many a time, when I have dined with him, I have said, 'Pray, Mr. Coleman, have your ventilators shut, or I shall be blown out of the room;' at which he has laughed, and had the direction of the current changed by stealth, so as to play, perhaps, upon some other visitor less sensitive than myself.

"I was with my dear old friend twenty-four hours before his death: I call him my friend, for such he always was. He was pallid, and with every mark of approaching dissolution, excepting loss of spirits. He was lying on a bed, placed between two open windows, his head being without any cap or covering of any sort, while his grey locks were literally floating in the wind, for, although in July, it was cold and blowing weather. Acquainted as I was with his peculiar notions on this subject, I could not help saying, 'My dear sir, you must be cold, thus exposed;' and he said, 'No, I have plenty of clothes on my bed, a large fire in my room, and with this pure air passing freely to my lungs, I shall live a few hours longer; but to-day, I think, is my last. The scene of life, Bransby,' continued he, 'is drawing to a close; and although my career has been a most happy one, I feel much less regret than I expected in leaving it, for I have full confidence in

the mercy of God.' His enunciation proved prophetic, for in less than twenty-four hours he was no more."

[To Mr. Bransby Cooper we owe much for these long quotations. They are interesting to us as veterinary surgeons, and remind us of those to whom the welfare of our profession was once committed.—Y.]

To this we add, from the Journal of Sir Astley, an account of several of the examiners of the veterinary pupils. The list of them is highly creditable to our profession.

"Mr. CLINE possessed great judgment, both as a surgeon and a man. He was an excellent lecturer, particularly for those who were first embarking in their profession, for he was simple and exceedingly perspicuous. As an operator he was slow, cautious, and firm. His temper, until the last two years, was of the mildest and most equable kind. I never saw him in a passion but twice—once with a cowardly patient, who had repeatedly consented to an operation, and as often refused, and whom he, at last, forced to submit, while vacillating on the table; and at another time with a man who struck his dog, whom he collared, and would have punished if he had not been submissive. He was a man of great courage. To me he was always kind, until he became prejudiced against me during the last two years of his life. I would have gone round the world to have served him; but I never flattered him, nor subscribed to any of his opinions which I thought erroneous.

He was a great admirer of Mr. Hunter; and when he once had formed a good opinion of a man, all his doctrines were true with him, for he could not see a fault. His high opinion of Mr. Hunter shews his judgment, for almost all other of Mr. Hunter's contemporaries, although they praise him now, abused him while he lived.

In his family he was excellent—a good husband, son, and father. All were devoted to him, and he was attached to them. His family looked up to him almost as to a god, and could not bear him to be thought deteriorated even by age.

In ordinary conversation he was a most correct relator of facts,

and never argued hypothetically. His mode of reasoning on an opinion was always the statement of a fact which bore upon the question.

The wisest people, however, sometimes do the most foolish things. He devoted himself too much to politics. This was, at that time, the easily-besetting sin of many of his pupils, as well as himself."

"Mr. ABERNETHY was a man of talent; he was eloquent and amusing in his lectures. He was a good anatomist for teaching and reading, but not for work, as he never laboured. He would have made a good physician, but never was a perfect surgeon, and never would have been had he lived a thousand years. He was a very amusing companion. He was a most excellent private character—a good husband and father. He had a great memory, and generally got by heart what he had to say.

His blue pill and nonsense about the stomach did him harm. He ordered his patients to eat three ounces of food three times every day, and not to drink while they ate. A patient of his said to me, "I am a proselyte to his doctrines; but does he practise what he recommends?" I said, "I will give you a faithful account of his dinner to-day, for I dine with him at the Freemasons' Tavern." I sat next to him. He took turtle and punch, fish, venison, champagne, pastry, and cheese; and "now," said he, "waiter, give me a glass of brown stout." After this he took his wine moderately, as we all did. When I told this to the patient the next day, he said, "How could I be such a fool as to starve myself as I have done!"

"Dr. BABINGTON was the most disinterested of creatures and the most delightful of men; a good father, a good husband, a sincere friend, and a loveable companion. I never saw so good or so cheerful a man. He had learned physic as apothecary to Guy's Hospital. Birch said that they had spoiled a good apothecary in trying to make him a physician. Babington waited on him and asked him if he had said so, saying that he must answer for his impertinence. Birch, however, assured him that it was only said in *badinage*, and slunk out of it.

It is said that Babington lost a great number of children. He was subject to frequent headaches, which deprived him of the

power of pursuing his profession for a day or two at a time, and he told me that the disease was incurable, as far as he could learn from his own experience and that of others."

"MATTHEW BAILLIE was remarkable for his kindness to the whole profession, but especially to the junior members of it. He knew that his frown could chill their aspiring hopes, or a contemptuous word crush and destroy them. They had no fear of his seeing their patients without them, as no word of censure would escape his lips. He was not an assassin, who would proffer one hand in friendship, and stab in the back with the other. His integrity was as remarkable as his consideration and kindness. The candour of Baillie was another striking feature in his character.

He laid the foundation of the practice, for, before his time, it was chiefly empirical. It was his cultivation and knowledge of morbid anatomy, and numerous opportunities in practice, which gave to medicine the scientific character it now holds."

"Sir EVERARD HOME was a very industrious man; he had a good deal of genius, and great quickness. His papers in the *Philosophical Transactions* were numerous, and often very good. He might have had the hints from John Hunter, but he improved on them. He never did so unwise a thing as to burn John Hunter's papers, as it made the world believe that he did nothing himself. He was vain and overbearing until the latter part of his life, when he was humbled by disappointment. He was violent in his language, and was intemperate in his use of wine. His examinations at the College were good. He told a good story, and was a good classic. He was very stout, and was so full of blood, that he seemed as if a fountain would spring from the smallest wound. He was a good operator, slow but steady."

Sir Astley of himself.

"Sir Astley Cooper was a good anatomist, but never was a good operator where delicacy was required. He felt too much before he began ever to make a perfect operator. Quickness of perception was his forte; for he saw the nature of the disease in an instant, and often gave offence by pouncing at once upon his opinion. The same faculty made his prognosis good. He was a good anatomist of morbid as well as of natural structure. He had an excellent

and useful memory. In judgment he was very inferior to Mr. Cline in all the affairs of life, and hence was continually walking upon a mine ready to explode under his feet. His imagination was vivid, and always ready to run away with him if he did not control it."

Nine years afterwards he thus writes of himself:—"As an operator for stone, aneurism, hernia, and the removal of tumours, prior to his giddiness, he was excellent; but after that time he was always afraid of being seized with them while he operated. He never was fitted for a very delicate operation."

His merit consisted in the quickness with which he could decide upon the nature of a case, and the readiness with which he adapted his means of treatment. His diagnosis was really most remarkable. He obtained that decision from having made it a practice, when young, to see all the poor who would come to him; and thus he saw such a variety of disease as to make him as familiar with it as a parent with his child.

His principle in practice was never to suffer any one who consulted him to quit him without giving them satisfaction on the nature and proper treatment of their case.

He afterwards winds up his advice by the following remarks, which should be impressed upon the mind of every student. "For the benefit of the younger members of my profession," says he, "let me tell you that this degree of success may be always accomplished to a great extent. Be kind to every one, and most ready to oblige. Learn your profession well—be an excellent anatomist, and understand well the practice and duties of your profession. Bend the force of your mind to some useful object, and be not multifarious or vacillating in your pursuits. Deep science is desirable to the man of fortune—useful science to the physician and surgeon. Let your zeal and industry be unbounded. My own success depended upon my zeal and industry; but for this I take no credit, as it was given to me from above."

Mr. Bransby Cooper says, that one of his most striking and important features was his love and respect for truth, and which were so strong, that if once he detected any one deviating from it he could never afterwards be induced to place confidence in him. In his professional life this love of truth rendered him the most effec-

tual teacher of his day; for, as he related only what he himself positively knew, he spoke with a degree of confidence that, while it secured perspicuity, at the same time impressed upon his pupils the subject-matter of his discourse, and filled them with the conviction that he had communicated to them all he himself knew. His success as a teacher rendered him, probably, more useful to the public than even his other high professional qualifications; for through this means he sent forth a greater number of medical men into the world to practise their profession, perhaps, than ever any teacher before or since his time.

Sir Matthew Tierney says, that when he wanted a surgical opinion in the case of a person who could not afford to pay fees, Sir Astley Cooper was always ready; and, under these circumstances, his attention to his patients was marked by a kindness of manner even greater than usual.

SIR ASTLEY COOPER'S BEAUTIFUL DEFENCE OF HIS OPERATION OF TYING THE AORTA must not be suffered to pass unnoticed:—

"Sorry, indeed, should I be to sport with the life of a fellow-creature who might repose a confidence either in my surgical knowledge or in my humanity; but I should consider myself equally culpable if I did not make every possible effort to save a person whose death was rendered inevitable by a disease being suffered to continue, and which it was possible for surgery to relieve. In the performance of our duty, one feeling should direct us. We should consider the case as our own, and we should ask ourselves whether, placed under similar circumstances, we should choose to submit to the pain and danger we are about to inflict. Guided by this principle, and having collected all the evidence which applies to the case, we perform our duty without the reproaches of conscience, which must await those who unnecessarily subject their patients to pain and danger."

Bransby Cooper's Life of Sir Astley, vol. ii, p. 207.

Sir Astley's receipts from practice were, £5..5*s.* during the first year; the second, £26; the third, £64; the fourth, £96; the fifth, £100; the sixth, £200; the seventh, £400; the eighth, £610; and the ninth, the year he was appointed to the hospital, £1100; and in the year 1815 it amounted to twenty-one thousand pounds.

EFFECTS OF MEDICINE ON HORSES.

By Mr. PERCIVALL.

ARGENTUM—SILVER.

THE only form in which silver is employed medicinally is in combination with nitric acid. The metal is, by solution in the diluted acid, converted into a salt, denominated *nitrate of silver;* formerly known by the name of the *lapis infernalis,* nowadays commonly called *lunar caustic.*

From its instantaneous chemical action on the living fibre, forming with the albumen or fibrine contained therein a sort of caseous compound, and in this manner effecting complete destruction of the surfaces to which it is applied without causing any very great pain, and with little or no risk of constitutional irritation following, lunar caustic, in the hands of the scientific surgeon, becomes a most valuable agent. By it, in numerous instances, has the bite of the rabid dog been rendered harmless; by it, many an irritable sore is changed into a healthy one; many an indolent into a healing one; many an excrescence and luxuriance eroded down to a proper level. In the hands of the veterinary surgeon lunar caustic is capable of also being made very serviceable. I have on occasions, by slightly touching the orifice of the wound with it, closed an open joint, and corrected intractable and boggy ulcerations. I have also succeeded in healing the chancres of glanders by it; and it is undoubtedly a very useful application in certain conditions of the broken farcy-bud. In solution—from a scruple even as far as a drachm to an ounce—it makes an excellent collyrium in certain stages of conjunctival ophthalmia; and it is much more efficacious in this concentrated form than in the diluted state in which surgeons have been too much in the habit of employing it; the mucous membrane being capable of sustaining its action even better than the skin, in consequence of the coat of mucus upon it entering into chemical combination with the nitric acid of the silver, and thus disarming the caustic of much of its virulence. But lunar caustic is not so much used in veterinary medicine as it deserves to be. It was formerly a very expensive preparation; and that, I believe, proved a formidable bar to its introduction into the veterinary pharmacy.

As an internal remedy lunar caustic has attained a good deal of celebrity in human medicine. In cases of epilepsy, chorea, and such like nervous disorders, surgeons have conferred benefit, amounting in some rare instances to cure, when all other medical

means have proved abortive. There is, unfortunately, an objection to its long or continued use, which, by some medical men, is regarded of so serious a nature that they hardly dare resort to it at all—certainly not without forewarning their patients; and this is, that it has in several instances been known, after a long or continued exhibition, to cause discolouration—a sort of blueness—of the patient's skin, from some change it has apparently worked in the inter-cuticular tissue, the *rete mucosum*. I do not know that we have any reason to apprehend such discolourations being produced on our patients, or that it would signify much if such a thing were to happen. I have given the silver to one horse in considerable doses, and have persevered in it: with what effect will best appear from the case itself.

In the year 1818, a bay horse, five years old, was taken up from the strawyard in good condition in consequence of having the submaxillary glands on both sides in a state of tumefaction, and shewing ulceration of the membrane upon the septum in the off nostril. The case being regarded as one of pure sub-acute glanders, without any disturbance of the general health or appetite or spirits, and, having been desirous for some time back to give the lunar caustic a trial as an internal medicine, he was on the next day, the 23d of February, ordered to take argent. nitrat. gr. v, cum farinâ lini et theriac. morning and evening.

February 24*th*.—Double the dose morning and evening.

25*th*.—The near nostril has become ulcerated in a similar manner to the off. Let him take a scruple of the silver morning and evening.

26*th*.—Has not eaten so well as usual. Continue medicine.

27*th*.—Eats scarcely any hay, and his pulse has become accelerated. The excretions are regular. Continue the balls, and touch the ulcers with a weak solution of bi-chloride of mercury.

28*th*.—Appetite still indifferent. The nasal flux has a healthier aspect, and the ulcers have lost much of their foul character. Augment the dose to ℈iss morning and evening.

29*th*.—If any difference, his appetite has rather improved. Take ℈ij morning and evening, and have the ulcers dressed as before with the bichloride in a weak solution.

March 1*st*.—Failed in eating all his corn last night, but ate some hay: continued as yesterday.

2*d*.—He has almost recovered his wonted appetite, and his excretions remain of a normal character. The submaxillary tumefactions, from having been tense and fixed, have become loose and moveable. Let him take a drachm twice a-day.

3*d*.—His appetite is quite restored. The ulceration in the nose

is stationary. Dress the ulcers with solut. cupri sulph., and let him take the ball *thrice* to-day.

4*th.*—Appears to have regained all his good health and spirits. ʒij twice a-day.

5*th.*—The ulceration has extended a little. Let him take the ball thrice a-day. At night he refused his food, and appeared ill from the medicine; but in the morning of the

6*th.*—He had again recovered himself; and so the ball was continued thrice in the day.

7*th.*—Medicine as yesterday.

8*th.*—ʒiij twice a-day. One of the submaxillary glands diminishing.

9*th*, 10*th*, 11*th*, 12*th.*—His appetite continuing very good, and there being no perceptible alteration in his excretions or in himself, indeed in any way, on each of these days he took the ʒiij twice.

13*th.*—The glanders is making progress, but not rapidly. Try one ball of ʒvj to-day; given in the morning.

14*th*, 15*th*, 16*th.*—The ʒvj ball was repeated each day.

17*th.*—The disease rapidly advancing. Let him take to-day ʒxij of the silver.

18*th.*—The large dose of yesterday took him a little off his feed; but there are no symptoms present to-day indicative of any serious disturbance; and, as the glanders is now hurrying into the acute and last stage, it was deemed, under all circumstances, useless to push the experiment further, and, therefore, the patient was this day destroyed.

The Post-mortem Examination disclosed nothing occasioned by the medicine, save a blush upon the villous membrane of the stomach.

Antimonium—Antimony.

We need feel no surprise that a mineral so abundant and cheap as antimony should from very early times have found its way into veterinary practice; nor, indeed, from its universally acknowledged utility in human medicine, that it should have met with a good amount of laudation as a veterinary remedy. The common or crude antimony—the *sesqui-sulphuret* of the present pharmacopœia—is readily disengaged by fusion from the ore, and comes to us in lumps or cakes of inky blackness, bespattered, like granite, with sparks of metallic brilliancy. In this rude form antimony has been administered to horses and cattle very extensively; with what success, however, to us, even at the present day, seems very doubtful. The following experiment may serve to shew what its real or perceptible operation is on horses.

Two horses having nasal gleets of a character so ambiguous as to create suspicion, were, in the year 1804, at the request of Mr. Coleman, submitted by my father to the operation of crude antimony.

Sept. 12*th*, 13*th*, 14*th and* 15*th*.—Ounce doses of the antimony were given to each horse, morning and evening.

16*th*, 17*th*, 18*th and* 19*th*.—The ounce was administered thrice daily, without anywise affecting either of them.

From the 20*th* to the 25*th* inclusive, being the six following days, the horses took, each, two ounces thrice a-day, without effect.

On the 26*th* they commenced taking the enormous quantity of four ounces three times a-day, making to each three quarters of a pound daily; and these immense doses they continued receiving for seven successive days, there being evident during the time, copious diuresis, impairment of appetite, and loss of condition, and this to such an extent that in the end both horses became greatly reduced in *embonpoint*. The medicine was now discontinued, and little length of time afterwards elapsed before both of them had in a great measure recovered their former condition. From Sept. 12th to October 2d, a period of one-and-twenty days, each horse had administered to him eight pounds and three quarters of antimony.

Of the preparations of antimony, the only ones retained in the present pharmacopœia and all derived from the sesqui-sulphuret, are, the *oxy-sulphuret*, the *potassio-tartrate*, and the *antimonial* (or James's) *powder*.

OF THE OXY-SULPHURET OF ANTIMONY, the *precipitated sulphuret* of the former pharmacopœia, a preparation that has superseded in use the old favourite, *kermes mineral*, which is a hydro-sulphuret, I cannot say much about as a medicine. Indeed, I never exhibited it until pressed to do so by a gentleman—an amateur veterinarian—to whose solicitations I found myself compelled to submit. He presented me with a recipe for what he called *condition balls*, consisting of camphor, guaiacum, sulphur, and the oxy-sulphuret of antimony, which he assured me—and his assurances were of a nature that admitted of no sort of dispute—were most invaluable in their efficacy in promoting and sustaining horses' condition. And so I have given it, or rather seen it given, now for some years, but with what effect, the dose of the antimony being little more than a scruple, I am as much at a loss as ever I was to determine.

THE POTASSIO-TARTRATE OF ANTIMONY—the *emetic tartar* of the old, the *tartarized antimony* of the late pharmacopœia, is of immense importance as a medicine in the hands of the surgeon. By means of it he vomits, nauseates, and sweats

his patient, as well as in some measure succeeds in opening the bowels; and he has it in his power to regulate or divide his doses in that manner that he can produce these effects tardily or quickly, mildly or violently, according to the emergencies of his case. Its signal service in human medicine, its known prompt and violent action on the human stomach and intestines, and its influence on the skin as well, have naturally raised great expectations of its efficacy on animals. As far as horses are concerned—and farther I cannot myself speak—I am afraid these expectations have been disappointed. Professor Coleman used to say, that emetic tartar took no effect whatever on horses, even in the largest doses. In spite of this denunciation, however, it has been, and continues to be, pretty generally used in veterinary medicine, though with what amount of benefit, or with what specific efficacy, it would, I have a notion, puzzle many of us to demonstratively point out. I have been myself for years in the habit of employing it as a febrifuge, and I now likewise prescribe it in pulmonic affections, in combination with nitre; and I really think I thereby cause, with the assistance of clothing, some augmented action of the excretions of the skin; and I know that I produce diuresis, and, after long continuance, also occasion some augmentation of the secretions of the mucous coat of the bowels. After all, however, this febrifuge medicine is never placed farther reliance upon by me than as an adjunct to measures of undisputed efficacy, or by itself as a *cooling* remedy, where naught but a little febrile disorder is to be overcome. I give it in doses of a drachm and two drachms, which, considering its administration to man in divisions of a grain, cannot be regarded as being very small. It is no legitimate argument that, because a horse in health may take an ounce, or even a pound, without harm, in a state of fever or other disease, he may not be susceptible of the operation of small doses frequently repeated; else how comes it that several persons have been known to take drachm doses with less effect than at another time even grains would have had upon them.

While of little palpable efficacy given internally, it seems strange that emetic tartar should take effect when applied upon the skin of a horse, much the same as it does upon the cutis of man. With an ointment containing no more than a drachm of antimony to an ounce of lard, the skin cannot be rubbed many times before it becomes pustulous, knotty to the feel, and tender, and ultimately scurfy, from the desiccation of the pustules. Bareness from loss of hair, and soreness, will follow, should the perfrications be persisted in. And the stronger the ointment, or the more frequent the perfrications, the sooner, of course, are these effects produced. In one instance I knew it produce vesication. According to some French

accounts, in the human subject, inungations of this kind have been known, through absorption into the constitution, to affect the stomach and bowels, giving rise to nausea, vomiting, griping pains, &c. I cannot say I have ever seen much benefit arise from the use of antimonial ointment in the diseases of horses. I have made made many trials of it for spavins, splents, and other tumours, but have generally found it superseded by a common blister. I think in chronic pulmonic inflammations it might, now and then, be used with some service upon the breast or sides. The hair should be shaved off to give it a fair chance of success; and this of itself often constitutes an objection to its use.

EXTRACTION OF A FORK FROM THE ABDOMEN OF A DOG.

By M. Norrit, *V.S.*, 14*th Chasseurs.*

On the 18th of October, 1833, a large hound, belonging to M. Terris, Professor of the College of Libourne, swallowed a bone, which stuck at the upper part of the œsophagus at the back of the pharynx, and caused violent efforts by the dog to get rid of it. M. Tessier vainly attempted to force its descent into the stomach, by pressing with his hand, in a direction from above downwards, on the tumour which it formed externally. He at length opened the gullet of the dog and forced it down with the point of a fork. The animal was no sooner freed from the horrible torture it suffered, than its motions expressive of joy could not be restrained, and the fork, which was yet entangled in the pharynx, escaped from the hands of M. Terris and followed the bone into the stomach.

During the whole of this day the dog did not appear to be in the slightest degree inconvenienced; but on the following day he was out of spirits; he stood with his legs wide apart, and moved with difficulty and pain. On examining the abdomen, M. Terris felt the fork in a direction nearly across the abdomen, and parallel with the great curvature of the stomach. These symptoms continued during that day and the following one; but on the 21st the dog had regained his usual spirits and appetite, and continued apparently well for about two months, when he again occasionally expressed a great deal of pain.

On a certain day M. Terris endeavoured mechanically to accelerate the passage of the fork through the intestines; and, having ascertained its exact situation, he tried to push it backward.

When he had thus forced it as far as he could, he introduced two of his fingers into the anus, and, seizing it by the handle, he drew it an inch out of the anus. Beyond this he could not bring it without cutting into the rectum and disengaging the fork from every thing that retained it. This operation appeared to be too serious, for M. Terris loved his dog, and would not expose him to the pain and hazard of such a process; he, therefore, gently returned the fork to its former situation.

The dog was dispirited during the remainder of the day, and vomited nearly three pounds of blood. Every unpleasant symptom, however, disappeared after that, and the animal seemed to enjoy himself as usual during the next ensuing six weeks.

In the beginning of February (three months and a half after the accident) the dog suddenly appeared to be ill. He was dull, and expressed considerable pain when the belly was pressed upon. These symptoms rapidly increased, and in about twelve days the strength of the dog was exhausted: he was worn to a skeleton. He evidently suffered much, and death seemed to be fast approaching. M. Terris applied to several veterinary surgeons, but they all declined the attempt to extract the fork, believing that it would of necessity be fatal.

At length M. Nicolas Bettinger and myself saw the dog. He was in the following state:—Exceedingly depressed, very thin, lying constantly at his length in order to avoid flexing the belly, and slowly and with hesitation answering the commands of his master. The points corresponding with the situation of the fork being pressed upon, he evinced great pain; the pulse was small and quick, and the mucous membranes pale. The fork had for some time occupied a situation in nearly the centre of the abdomen, and a direction parallel with the length of the body; but in what portion of the intestinal canal it was contained, or whether it had perforated the stomach or intestines, and fallen into the cavity of the abdomen, we were unable to ascertain. We determined, however, to cut into the abdominal cavity, as the only means of relieving the sufferer.

Having shaved off the hair, I made an incision on the right flank through the skin, three inches in length, and in a direction from above below, and from before backwards. I then cautiously divided the muscular, and, afterwards, the peritoneal coat beneath. Then laying aside the bistoury, I drew a part of the floating portion of the large intestines from the abdomen, and which would probably have incommoded me in the after-part of the operation, and, introducing my fingers into the incision, I seized the fork, which was free among the intestines as far the middle of it, and I cautiously drew it to the opening that I had made in the flank.

The other half of the fork was enveloped and tightly grasped by the origin of the mesocolon, which was red and engorged.

Drawing it with moderate force towards me, I attempted in vain to disengage the fork, and was compelled to have recourse to the knife. I slid the back of a very narrow bistoury along the fork to the base of its prongs, and drawing it back, I cut through all the tissues that retained it, and thus drew out the fork with the greatest ease. The dog, during the operation, vomited some soup that it had taken in the morning, and also struggled violently, causing a great portion of the large intestines to protrude and retract through the wound, and admitting a great deal of air into the abdomen. There was a very little bleeding; the intestines were all returned to their natural situation, and the wound closed by the *suture du pelletier*.

The half of the fork which was free was covered partly by a thin and smooth brown deposit, and partly by oxide of iron, irregularly deposited. The prongs, which had been enveloped in the mesocolon, were oxidized through their whole extent, and in many places were eaten deeply into, with many grooves more or less marked, and running parallel with the length of the fork.

M. Nicolas now took charge of the dog. He kept him low, and administered emollient injections. There was some fever, and swelling of the lips of the wound, and hot and painful enlargement of the genital organs.

On examining the wound five days afterwards, the stitches had given way, and a considerable quantity of pus was found between the integument and the muscular parietes of the belly, the incision through which was already closed. Other stitches were passed through the integument; but they also gave way two days afterwards, and the wound was then abandoned to Nature and to the dog, who was continually licking it, and thus kept it in a healthy state. The swelling of the penis and scrotum diminished, and, twenty days after the operation, not only was the wound healed, but the patient had begun to acquire condition. No pain was expressed when the parts of the belly that had been occupied by the fork were pressed upon. The dog was used again as before, and had not lost one of its good qualities.

At the time of the operation, the fork was no longer in the intestinal canal. It had, probably, perforated the stomach, and escaped into the abdominal cavity about the third day after the accident, and when the animal evinced such decided symptoms of amendment. It then became entangled in the mesocolon, where it remained until the operation. The attempt of M. Terris to force it along, produced some laceration or other injury, evinced by the

temporary illness of the dog, and the vomiting of blood. It is also evident, that the fork would never have escaped from the abdomen by any effort of Nature, but would have eventually destroyed the dog. *Rec. de Med. Vet.* 1834.

ON THE CARBUNCLE OR MALIGNANT PUSTULE IN CATTLE.

By Dr. MULLER, *Hombourg.*

THE following remarks are from the pen of Dr. Muller, of Hombourg, who, in his opening paragraph, says, "For two-and-twenty years I have been practising in a district were anthrax, arising from the carbuncle in cattle, is of such frequent occurrence, that the number of cases which I have treated exceeds a hundred."

The disease in the human subject has almost invariably been observed in those seasons when horned cattle were affected with the carbuncle, or what some authors have called "the malignant pustule." I have seen only one case in which it was attributable to the application of the nasal mucus of a diseased horse; this occurred in a groom, who nearly lost his life from the consequences that ensued. In the majority of my cases I have been able to trace the operation of direct infection—usually from the hands of the peasants and from the contact of the blood of the diseased cattle, during the process of skinning them. In a few cases the disease arose from a slight wound of the finger while bleeding the animal during life; and in others from the pricks of gnats and other insects, that had been previously settling on the dead carcasses. On no occasion did it ever seem to be produced by merely eating the flesh of the diseased cattle.

The early symptoms are usually very simple. The attendant observes a small pustule over the affected spot. This is accompanied with a feeling of slight heat or itching in the part, but nothing more; and for several days there is, probably, no change. Then, however, the surrounding cellular tissue begins to be affected with a diffused hardness, and the integuments become covered with numerous pustules, which are at first white, and more or less transparent; then opaque, and of a yellow colour; and, lastly, put on a livid appearance. The induration increases; and the tubercle, always diffused, becomes larger, until it acquires the size of a pigeon's

egg, or even sometimes of a man's fist. The character of the surrounding swelling is in part œdematous, and in part erysipelatous.

It has been usually at this stage that my patients have applied for advice, so that I have not often been able to use the caustic with the view of destroying the characteristic tubercle while it was yet small—a plan of treatment which, on more than one occasion, has perfectly succeeded in my experience. I have never practised the excision of the part, as recommended and adopted with great advantage, we are told, by Dr. Wetzer, of Bonn.

The most dangerous seat of the malady is the face; and, unfortunately, this is of by no means rare occurrence. I have seen many patients die from the effects of the swelling extending inwardly to the throat and causing suffocation, before any typhoid fever had supervened. Often, in those alarming cases, neither bleeding from the arm—which is frequently of the greatest service if resorted to sufficiently early—nor deep incisions in the swollen parts, so as to cause profuse bleeding, will avail anything; and the medical man has the miserable task of seeing his patient asphyxiated, without being able to relieve him, except by opening the trachea.

Dr. Müller says that it is usually a favourable symptom when the centre of the tumour becomes gangrenous; for then the surrounding tumefaction—which, when the face is the seat of the disease, often extends up along the scalp, and down even to the chest—generally subsides more or less, and the pain is considerably relieved. If a line of demarcation is formed around the sphacelated portion of the integuments, the case will, in all probability, do well. In general, the formation of sinuses (*fusées de pus*) beneath the dead cellular tissue has, in my practice, been prevented by the use of timely incisions, and by the removal of the gangrenous parts as early as possible. In one case, where the adoption of these means was delayed, it was necessary to make a counter-opening over the top of the sternum for a carbuncle on the cheek; and, in another case, at the elbow for one on the hand. In the latter case, the arm became almost as large as the thigh of the patient, and the swelling extended even to the integuments of the chest, so that he experienced much difficulty and distress in breathing. In both cases, however, the swelling quickly subsided after the gangrene had made its appearance; and ultimately a complete cure was effected. In the second one, the entire surface of the arm up to the shoulder was covered with livid spots, like large petechiæ, which yielded to the application of warm bread poultices prepared with a concentrated decoction of cinchona. Although the local disease was so formidable, the attendant fever was not very severe, and not of a typhoid type; while in other cases, in which the local

affection was much less threatening, the patients have sunk under the constitutional disturbance.

Treatment.—Our author very distinctly says, that in scarcely any case did moist applications answer well. Poultices usually increased the swelling of the parts; while dry herbs in a bag appeared to agree much better. We have already said that, if the infected spot be excised or destroyed with caustic potash sufficiently early, the future mischief may very generally be prevented. When the gangrenous process has been fairly established, it is almost always proper that one or two deep incisions should be made—as in the treatment of ordinary spontaneous anthrax—in order to give issue to the purulent matter and sloughy cellular texture underneath, and thus obviate the formation of sinuses in the neighbourhood. "Since I have known," says Dr. Müller, "the utility of chlorine (*chlore*) against the effects of the bites of serpents, I have tried it in severe cases of carbuncle, and always with good effect. In some of the worst cases that I have seen, I have trusted to the use of chlorine, after an emetic (which he generally administers at the commencement of the treatment), and have had ample cause to be well satisfied. The dose which I usually give is from half a drachm to a drachm every hour or two, either alone or mixed with water or other vehicle. As an external application I employ an an ounce of the chloruret of lime with four or six ounces of chamomile flowers, introduced into a bag, which need not be heated when applied: it usually retains its virtues for two or three days, as the odour will testify.

I do not propose these remedies as specifics; far from it. All that I say is, that they have proved more useful in my practice than any others which I have ever employed.

Annales de la Chirurgie.

MISCELLANEA.

Knackers' Yards.

We are glad to learn that the notice taken by some of the public journals of the cruelties practised in the different knackers' yards in and around the metropolis has produced a gratifying change. The Commissioners of Police, we hear, promptly ordered the superintendents to inquire and report specially on the subject. The result is, that horses sold for slaughter are much better treated than heretofore; that hay and good water are now supplied to them;

and that no case is known which required the interference of the police. We trust, however, that a proper vigilance will be kept up, for we all know how prone mankind are to relapse into error, especially when personal interest leads the way.—*Globe.*

Sagacity and Affection in a Horse.

On Tuesday an inquest was held at the Globe, Ellen-street, Commercial-road, before Mr. Baker, on Samuel Fretwell, aged forty-eight.

Ann Fretwell, of 8, Ellen-street, wife of the deceased, stated, that about the middle of last February, deceased, who was carman to a Mr. Smithers of Well-street, on going to a hay-loft up a ladder, on gaining the last step overbalanced himself, and fell to the ground on his head, in which state he remained for two hours in an insensible condition. During the time he was lying there, several persons who had missed him called to him, but received no answer.

Near where the deceased lay was an old horse that was much attached to the deceased, locked in a stable; and he, hearing the deceased moaning for such a length of time, contrived by kicking with its hind legs to burst the door open, and going to the deceased, caressed him in the most affectionate manner, and caught hold in its mouth of a mackintosh which deceased had on, and dragged him to the manger. The deceased was then enabled to lay hold of the horse's mane, owing to its putting its head down, and by these means he got up and crawled home.

A large wound was left on his head, which, however, gradually healed up; but he still remained in a bad condition and very weak from the effect of the blow. On Wednesday week last he suddenly expired in consequence of the wound and a slight concussion of the brain.

Communications from Mr. Perrett, near Pickering, Yorkshire.

The Origin of Blister made of Cantharides.

Blisters made of cantharides were first introduced into the medical practice by Aretæus, a Greek physician and medical writer, about fifty years before Christ. (Vide Le Clerk's History of Physic.) Mr. J. Elliott and Philander says, sixty years before Christ, from Trusler's Chronology. Mr. Maylin observes, that Hippocrates, who died in (or about) the year of the world 3643, mentions the use of cantharides; and Galen, who died in 201, mentions them as poison if taken internally.

The Origin of the Custom of having Goats among Horses.

The smell of goats, of their urine and dung, is said to drive away serpents, vipers, and other venemous creatures; the dung, if immediately applied, to cure their bites, and those of mad dogs. They are said to prevent the farcy, scab, glanders, staggers, and other epidemical diseases in horses, &c., by their disagreeable smell, which drives away the *animalculæ* that cause these distempers.

A Case of Ventral Hernia.

By Mr. John Scott, *Kildare.*

In July last, I operated successfully on a thorough-bred filly, on whom a hernia had existed from birth. It was as large as in the case described by Mr. Holmes in The Veterinarian for this month, but was similarly situated posteriorly to the umbilicus.

Mr. Tombs's operation also succeeded most admirably, for I was enabled to twist off the sloughing parts in about fifteen days, but which might have been done sooner, and the cure accomplished in the time of that of Mr. Tombs; but as it was my first case, I thought it was better for me to be cautious. I never had occasion to regret the exercise of caution: it is good practice to let well alone. I cannot, however, conclude without expressing my thanks to Mr. Tombs, who has enabled me to gain considerable credit by a very simple operation.

There is a five-years'-old horse, a few miles hence, affected in the same way. His owner is afraid; but I offered to lose fifty pounds if the operation did not succeed. He applied to his surgeon, who, when he was informed that the hernia had existed from the birth of the animal, advised that nothing should be attempted. Will some of your correspondents kindly favour me with their opinion?

Charcoal Powder blended with and sprinkled over putrid portions of a subject under dissection, will, in the course of a night, in great measure remove the offensive effluvia. The hands of students rubbed well with the charcoal before washing them, will dispel the usual stench of dissection.

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LECTURES ON HORSES.

By WILLIAM PERCIVALL, *M.R.C.S., Veterinary Surgeon First Life Guards.*

PROGRESSION.

LOCOMOTION implies vaguely the act or power of moving from place to place, and is equally applicable to animals with and without feet; PROGRESSION carries in its meaning the notion of feet, and signifies *stepping forward:* RETRO-GRESSION being its antagonist term—the word we use for *stepping backward.*

From the bare facts of quadrupeds being known to be the fleetest of the creatures that move upon the earth's surface, those that are capable of the greatest feats of saltation, as well as of the greatest speed and endurance in running, we might safely infer that four legs constituted a number better calculated for progression than any other. Men can run and jump with, considering they have but two legs, surprising effect; but neither in the act of progression nor in that of saltation can they compete with certain quadrupeds; neither are many-footed creatures—*centipedes,* as some of them are denominated—to be compared in these respects with quadrupeds, or even, indeed, with bipeds: the number *four* appearing, in relation to legs, to be that which most happily answers the purposes of succession in stepping and propulsion, as well as for that continual shifting of the centre of gravity which necessarily takes place in the transportation of the body.

THE CENTRE OF GRAVITY, in a quadruped standing with its legs in their natural position, will be found to fall *anterior* to a point equidistant from each of the four feet, owing to the preponderance forward of the head and neck: the precise point upon which the line of gravitation will fall it will be difficult or impossible to determine, that in some inconsiderable degree continually

varying from the circumstance of the perpetual changes in the erection and declination of the head and neck, not to notice the unimportant fluctuations that may be caused in it by the movements of respiration and by the constant shifting of place of the viscera. The line of gravitation will be liable again to undergo variations of some consequence from the imposition of weight upon the animal's back, and they will be found to be of a nature correspondent with the situation of the weight imposed, its bulk or amount, stability, &c. Some professional *confrères* of ours on the other side of the water, with that indefatigable spirit of curious inquiry for which they are on occasions so much to be lauded, have been at the pains to ascertain the degrees of these changes and the manner in which they are effected, both in respect to the animal itself and to its rider.

Messieurs Morris and Baucher*, desirous of ascertaining correctly the influence of the head and neck on the distribution of the weight of the horse upon his four legs, especially upon the fore and hind legs, as pairs, had horses weighed in scales, constructed some years ago at the Custom-house for that especial purpose.

The first placed upon the balance was a hackney-mare, with saddle and bridle on, well enough shaped, except that she was rather heavy before. She was found to weigh in her fore-hand 210 *kilogrammes*†, in her hind 174, total 384, difference in favour of the fore-hand 36; there being, during the weighing, a fluctuation between three and five *kilogrammes* arising from the respiratory and visceral movements. The head was now forced down, until the muzzle came to a level with the chest: this made a difference of eight kilogrammes additional on the fore-hand. Elevation of the head, until the muzzle rose as high as the withers, caused a transfer of ten *kilogrammes* from the fore to hind quarters. The head being released, was next reined in and upward rather: this occasioned a rejection of eight *kil.* on the hind quarters. From these results we may deduce the conclusion, that the more the head is elevated, either naturally or by the hand, the more its weight and that of the neck is equally distributed upon the limbs, without any thing forced in the position.

After these experiments, M. Baucher mounted the mare: the weights then stood—fore-hand 251 *kil.*, hind 197, total 448, difference 54. The horseman being placed in an academical position, had his weight, which was 64 *kil.*, distributed thus: 41 *kil.* upon the fore-hand, and 23 upon the hind. Throwing the body backward occasioned a transfer of 10 *kil.* from fore to hindward;

* Extracted from the *Journal de Haras, Juin* 1835, into Lecoq's l'Exterieur du Cheval.

† A *kilogramme* is about 2¾ lbs. troy.

then gathering up his reins, he caused a further addition of 8 *kil.*, making a total of 18. When he stood up in his stirrups, the fore-hand received an addition of 12 *kil.*

These gentlemen, with justice, observe, in concluding this account of their interesting experiments, that "although the differences caused by the position of the head and neck of the animal, and of his rider, may not, under ordinary circumstances, be of any great deal of consequence, yet do they acquire vast importance in hard work, such as racing or hunting, the preponderance increasing enormously along with the fatigue."

From these experiments we learn, that although the fore-hand at all times has more weight to sustain than the hind, yet, in consequence of the hind supporting more than its half of the trunk, does this additional burthen not amount to what the head and neck abstractedly would weigh; and we learn farther the important fact, that a weight upon the fore-legs, which, in the ordinary or natural position of the head and neck, amounts to 210 *kilogrammes*, becomes, by reining-up, reduced to 200, and that, with the rider on the back, a weight forward of 254 *kilogrammes* could be diminished by bringing the head with the bridle-hand into the proper (*maneged*) position, to 233, making a difference of 21 *kilogrammes*, or nearly 58lbs. troy. These are results, which we, as veterinarians, shall be able to turn to useful account, to the equestrian and riding-master they are full of the greatest interest.

The limbs in the natural standing posture, placed as they are in parallels with the line through the centre of gravity, and being in themselves respectively so many co-operating centres of gravity, and bearing each of them its due proportion of the weight of the body, can none of them be moved in any material degree out of the lines of gravity—which we may suppose to run through their respective centres—without imposing additional weight upon their fellows, by placing themselves in a position disadvantageous for supporting the superincumbent load, and consequently creating some feeling of uneasiness, which would in time increase to pain. The first act in progression is the result of the stimulus of the will: the brain gives the order through the nerves for the body to be moved forward; one leg moves, the other, through impulse, follows: the uneasiness created in the frame by the elevation and projecture of one limb generating that impulse. No sooner is the centre of gravity of the body disturbed by the displacement of one of its supporters, than an effort is made to rectify the derangement; the rectification, however, is hardly accomplished before another act of disturbance is commenced: thus, by repeated acts of projecture in the fore limbs, and as repeated acts of propulsion in the hind, is the animal machine moved for-

wards at rates correspondent with the impetus generated by these movements.

When once set in motion, like the wheels of a carriage, the limbs instinctively continue in similar action or pace until some fresh mandate is received by them from the sensorium, that becoming the signal for some change in the action or pace. The rate the animal is moving at is either augmented or diminished, or his movements are altogether arrested, at his own will and pleasure. And though his master, as his rider or driver, may assume the controul over them during the animal's working hours, yet could neither rider nor driver effect any thing without the assent of the animal himself; and it is ever a great deal best to obtain this assent through kind and conciliatory treatment than to extort it through ill usage.

Plain and evident as the movements of the quadruped may appear to the common observer, passing as they do every day under his immediate observation, yet have they furnished a theme for difference of opinion, not less in former days than in our own. Borelli, who commences his chapter *De Incessu Quadrupedum* with the remarkable words, " Egregiè in hac parte allucinantur, nedum vulgares homines, sed etiam præclari philosophi et anatomici; qui potiùs falsæ opinioni per manus traditæ, quàm propriis oculis fidem præstare volunt," is the first to fall into error. The movements of the biped are simple and self-evident; they consist of the alternate advance of the legs, and of the reciprocal shifting of the centre of gravity from one to the other: here there can be no dispute about priority or order of movement. When we have four in place of two legs, however, the case becomes materially altered. It is an easy matter to watch two legs; but it is difficult, nay, in quick movements impossible, to keep the eyes so fixed upon the motions of four as to say in what order of succession they are actually moving or treading the ground. In order, however, that we may come at that through inference which we cannot derive from actual observation, we will commence with an examination of the slowest movement of all—the walk—and from that proceed to those next quick in succession, the slow or dwelling trot, the hand-canter or slow gallop; and, as we proceed, consider the changes, if any, that take place under augmentation of speed in these respective paces.

Notwithstanding Borelli's prefatory denunciation of the philosophers and anatomists of his own day, for pinning their faith on others' sleeves rather than look with their own eyes, he himself, as I said before, appears in error even in his very first observation. After shewing the parallelogramical figure of which the horse's legs, as they stand in their natural position, form the four respective angles,

and that the centre of gravity falls near the centre of the parallelogram—though, according to his plate, placed *behind* that centre instead of before—he tells us the animal makes his first movement with a *hind* foot, "Incipit gressus ab uno pede *postico*;" and assigns as the reason for this, the necessity of establishing a new centre of gravity in advance prior to the movement of progression taking place.

Solleysell knew better than this; he had looked for himself, and not pinned his faith on tradition:—"In a walk," says this true observer of nature, "the horse lifts the near *fore* leg and far hind leg together, and has them in the air at the same time; and when he sets these down he lifts the other two, which were cross upon the ground; viz. his far fore leg and near hind leg, and so alternately each remove. This is the true motion of a horse's legs upon a walk; which is the same with that of the trot, although the paces are different." Sir Wm. Hope, the translator of Solleysell's invaluable work, "The Compleat Horseman," appends to this passage a comment, in which he says, "Our author is here in a little mistake about the motion of a horse's legs in the walk," and by way of proving the error, refers to his "Supplement of Horsemanship" appended to the translation; where he again agitates the question, finding the same fault with the Duke of Newcastle as he had before done with Solleysell, and in great confidence lays down the law, that "the true motion of a horse's legs upon his walk, according to my own observation, which upon tryal will be found to be as true as it is new, is *one, two, three, four,* as followeth. The horse, when he beginneth his walk, must either lead with the legs on the right side, or with those of the left: if he lead with those of the right, then the first foot he lifteth is his far *hind* foot, which maketh one, &c." Now, as far as my observation has gone, every horse—I believe I might say every quadruped—usually makes his first step with a *fore*, not with a *hind* foot. I have certainly remarked horses and cattle at pasture, who, with their legs in the parallelogramical or natural position, have, on occasions, moved a hind instead of a fore leg first, in the act of advancing foot by foot, as quadrupeds do while grazing; but I have rarely or never been able to detect the same thing when horses are about setting off in earnest to walk or to trot: it is not at all unlikely but that Borelli might have made his observation on cattle pasturing, though at such a time their movements can hardly be regarded as those of ordinary progression. At the mandate of the will to move forward the fore leg is first put in motion, the order of succession of movement in the walk appearing to be this:—supposing the off or right fore leg to move first, that is no sooner carried off the ground than the left or near hind foot is raised, the former being

placed upon the ground again prior to the latter. The two remaining feet move, in respect to each other, in the same order of time, the left or near fore after the off hind, the right or off hind after the near fore; it being observable that, as each hind foot follows in the line of movement of its corresponding fore foot, the latter would very often get struck by the former did it not quit its place immediately prior to the other being placed upon, partly or entirely, the same ground. Now, as the off fore foot gets grounded before the near hind, and as the near fore foot is raised off the ground at the moment the near hind is placed upon it, it follows that the fore feet are performing in manner very or quite similar to the action of a biped, one being off the ground while the other is on, one being in advance while the other is left behind; the hind feet also are performing the same alternate movements, the only difference being that the motions are reversed: in fact, if we imagine two soldiers marching in file, or one behind the other, *out of step*, we shall have a very good idea of the movements of the quadruped animal: the soldier in front representing the fore legs, it is evident that unless he gets his feet out of the line of march in proper time, they must be trodden upon by the soldier behind, representing the hind limbs; so that, in point of reality, the quadruped, in his ordinary movements, may be said to represent *a double biped marching out of step.*

With a view of rendering the order of movement of the four limbs of the quadruped more intelligible, it has been common with writers on the subject to note each foot by a letter or number: thus, the fore legs are represented by the letters A, B, the hind by C, D: supposing the A and C to denote the left or near legs, and B, D, the right or off, fore and hind respectively, and that A moves first, D will follow, and B will quit its place just in time for D to occupy it, while A will move off for a second time, just in time for C, the last leg to move, to take the ground A stood upon; up to which period A has moved twice to C's once. Supposing a hind leg, C, moved first, the fore leg, B, having to move next, A would not quit its ground in time for C to occupy it. When it happens that a hind leg does make the first step—as in horses or cattle grazing or moving leisurely or heedlessly—the step proves to be one short of the spot upon which the corresponding fore foot is resting, and so the latter is saved from being trodden upon. In this manner it happens that the fore and hind feet of the corresponding sides become, instead of being in respect of one another diagonally placed, approached close together on one side, standing under the centre of gravity, while on the other side the fore is advanced, the hind being extended backwards. This is not a natural position, but it is one that observably occurs in movements such as

I have been describing, and likewise in those that, through any disturbance or derangement in action, are rendered irregular or discordant—as, when in the gallop, the fore and hind legs of opposite sides are in advance. So far as respects the common paces of walking and trotting, this appears to be the analysis of progression, the priority and order of motion of the animal's four legs: acceleration of movement, so long as the same paces be preserved, will not alter this order of succession, though it may quicken it to that degree that time is not given for one foot to reach the ground before the other is lifted off, and the consequence is, that two, three, and even all four feet may possibly be in the air at one and the same time. In the ordinary walk of the horse, two feet are in the air at once, though they are not grounded simultaneously; there being, as Sir W. Hope has well described it, a pretty regular beat in the time of lifting and grounding the feet, in a true or good walk of *one, two, three, four.* Both fore feet and both hind feet moving, in respect to each other, alternately, it follows that no sooner is one fore foot lifted up than a hind foot is put in its place, and that these successions are in regular alternation, if we except the very first step the animal takes with his fore foot; that not being followed up by the hind one of the same side until the remaining two feet have moved.

Richard Lawrence, often an elegant, but not always a practical writer, though he inclines to Borelli's notion of the hind leg being the first set in motion, nevertheless commences his description of the horse's "walk" by the advancement of one *fore* leg, and that being placed on the ground; "*this action being completed,* the off hind leg is elevated and advanced," &c. It must be a very slow walk indeed—such a walk as a horse takes while he is grazing or seeking after food, or as when he most painfully or reluctantly follows the man leading him—that allows the setting down or completion of action of the fore leg before the hind one is lifted. It is quite erroneous to imagine that, "during the walk, the animal is always supported by a triangular position of three legs; namely, two fore legs and one hind, or one fore and two hind legs, alternately." Progression would be tardy indeed conducted upon such a principle as this, neither would there be that spring or lift in the walk which is requisite to constitute a good or a fast one. But *two* feet rest upon the ground in the ordinary walk; and however instable this might render the centre of gravity, the intervals are so short between the alternate transfers of gravity from the two feet on the ground to the two off the ground, that all instability is lost in the impetus of progression. Were the fore foot set down before the hind was raised, the step could not be prolonged beyond the abstract extension of the fore limb; whereas,

by the hind one of the opposite side being in the air as well, while the hind of the same side is grounded in advance, by the lever of the latter a propulsion is given to the body which throws the fore foot in air to a point farther forward than of itself it could have attained.

Restricting our observation to a single limb, three motions are evident in progression: by the first motion the limb is flexed, and the foot lifted off the ground; by the second, a sort of sweep or segment of a circle is described by the foot in the air; by the third, the foot is replaced upon the ground. The French, who have paid more attention to this subject than ourselves, have—after the "inventor" of them, Solleysell—designated these three motions by the apposite terms, *le lever*, *le soutien*, et *l'appui*, which we may render in English by, *the lift*, *the stay*, and *the rest*. The slower the pace the more distinctly these motions are seen: in no pace are they better demonstrable than in what is called "a good walk;" the animal then, with a flexion of the leg, sharply catches his foot off the ground, subsequently making a sweep with it upward and forward, and lastly plants it firmly and flatly upon the ground. Insufficient lifting gives no room for the sweep, and insufficient sweep occasions the toe to strike against the ground before the foot has revolved into a position proper to be placed down; and the consequence is, from the weight alighting upon the toe instead of upon the foot flatly planted, that knuckling over, and stumbling, and now and then falling, is the result. The quicker the pace, of course, the quicker these motions are performed. In the walk they are distinguishable enough, each limb taking its regular turn in them. In the trot this is likewise the case, until the speed comes to be augmented to that degree that three and even four feet are off the ground at once, and then, though the motions still have to be performed by each limb in succession, subject to interruption from incidental circumstances, they are apt at times to be irregular.

The lift, or raising of the foot from the ground into the air, may be faulty from naturally defective action; from a habit of careless going; from lameness; and from any one of these causes a horse may stumble, and prove unsafe to ride. Without, as many writers on this subject have done, endeavouring to shew in what manner or by what rule a horse, in a walk or a trot, should take up his foot, and put it down again, or what particular sort of action his walk or trot should consist of, I shall deem it sufficient for all practical purposes that he is in action *safe* upon his feet in his paces, and manifests sufficient speed in them to escape the denunciation of being "slow." A horse may lift up and set down his feet with mathematical precision and admirable beauty, as, in

some persons' estimation, most of the foreign horses do, and yet prove insecure upon his legs, or he may go close enough almost to kick up seven-shilling pieces, and yet prove a safe hackney, of which I very well remember an instance in a mare, a cover hack, belonging to Capt. P., who, notwithstanding she appeared to raise her feet hardly oyster-shell height from the surface, dashed along at a good ten-mile-an-hour trot, without—as the Captain has often assured me—ever making a mistake. I do not make mention of these acknowledged exceptions to general rules that have been laid down by writers on action with a view of casting any disparagement on these laws, but to shew that horses will go well and safely in many ways different from those which are prescribed, and in so many different modes, that, to set about to frame rules for action, to say a walk should be performed in this manner, and a trot in that manner, is more, I think, than any man who had in his time ridden many horses would pretend to do. Even Solleysell, who may be regarded as the original framer of these rules, after telling us how a horse should raise his foot, "so as not to cross one leg over the other," and how he should *sustain* his limb, so as properly to poise his body, and how he should put it flat down, "the whole foot equally at one and the same instant of time," admits still that "there are some horses which, although they have the raising, keeping up, and tread of the foot very good, *yet have they a bad walk.*"

CONTRIBUTIONS TO ZOOLOGICAL PATHOLOGY.

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On Congenital Malformations of the Hip Joint.

THE various abnormal appearances presented by the different articulations are the results of one of three operating causes, viz. causes operating previously to birth, and giving rise to a congenital malformation in their mechanism and functions; secondly, the effects of disease; and, thirdly, the results of accidents. Numerous examples are daily afforded, both in man and in the lower animals, of the two last conditions, but of the first the instances are very rare in both classes; when any such cases, therefore, do occur, in either of them, a record of their morbid appearances cannot but be interesting to the practical pathologist.

On analysing the various congenite malformations of this joint, it will be found, that the deficiency in each case will vary very much, and, consequently, that the functions of the articulation will be more or less diminished or destroyed, according to the nature and extent of the loss. Hitherto all these conditions have been described under the general head of "congenital malformation," without any distinction as to the extent of their deficiency; but in the following remarks I have endeavoured to arrange these, as far as possible, according to the nature and extent of the arrested development, in the hope that they may be of some use in conducting the inquiries of other observers.

As the subject is almost new to veterinary literature, I have thereby been necessitated to draw many of my illustrations from human pathology; but, as the barrier between human and comparative pathology is every day becoming less and less, and as the influence of those agents, that operating in man, produce certain diseases and certain pathological effects, and, in the lower animals, induce the same, are becoming daily more and more admitted and substantiated, then it will be granted by every pathologist that the pathology of the one class will be that of the other.

In the following remarks, I have arranged the various congenital malformations of the joint under four divisions, each differing from the other in the extent of its deficiency: first, deficiency in the capsular ligament; secondly, elongation of, or misplacement in, the attachment of the round ligament; thirdly, absence of the round ligament; and, fourthly, deficiency in the cervix and articular head of the thigh bone, with a corresponding deficiency in the cotyloid cavity.

I. *Deficiency in the Capsular Ligament of the Joint, and the Articular Synovial Membrane, communicating with the Cavity of the Bursa, beneath the Psoas Magnus and Iliacus Muscles.*

The simplest form of deficiency of structure, in this or any other of the articulations of the body, consists of a congenital want of continuity of the peripheral investment, the capsular ligament. This condition of the joint, however, has scarcely been noticed by pathologists as being a positive congenital defect; for, when disclosed by dissection, it is often extremely difficult to decide, as to whether the appearance must be viewed as a congenital deficiency, or the result of some injury, inducing dislocation of the head of the thigh bone, and consequent rupture of the ligament. I have not met with this state of the articulation in the lower animals, but I have seen one instance of it in the human body, in the person of an adult female, and where there was every reason to suppose that it was

the result of retarded development, and not connected with any form of dislocation that had occurred to her during life. The body of the individual referred to was exhibited to the pupils of my anatomical class, two sessions ago: she was about forty years of age, stout, and well formed in every respect, and without the slightest appreciable derangement in the natural appearances of the ilio-femoral articulations, when viewed in the entire state. On dissection, the capsular ligament, on the left side, presented a vertical fissure along its anterior surface, extending through its entire thickness. In length it was about an inch; the edges of it were rounded off and smooth, and exhibited no morbid thickening, as if its formation had been attended with any inflammatory action: and between them the glistening head of the thigh bone could be distinctly seen, though it could not be forced through them by any direction in its manipulation. The synovial membrane of the joint, everywhere along the edges of the fissure, became continuous with the structure of the large bursa beneath the psoas muscle; but neither of these tissues exhibited any of the effects of previous disease, which could not but have existed, in the muscular bursa especially, in the form of bands of adhesion, had this deficiency in the capsular ligament been the result of dislocation. The internal ligaments of the joint were in a state of perfect integrity: the cotyloid ligament presented its normal appearances in structure and attachments, and, what was especially noticed, the ligamentum teres was entire, and attached to its usual points, the depression on the head of the thigh bone, and the base of the cotyloid cavity. This latter circumstance I should look upon as being conclusive of the nature of the appearances; for it is well known, that in every form of dislocation that takes place at the hip-joint, from violence, the ligamentum teres is torn through, and the capsular ligament is torn transversely, to a considerable extent. Considering, therefore, the great differences in the appearances in the latter case, with those seen in connexion with the former, I think that there is sufficient evidence to conclude, that it was the result of a congenital defect in structure, and not produced by any mechanical injury, or other morbid condition of the joint, inducing forcible or spontaneous laceration of the capsule. It is not necessary, however, that there should be any change in the external appearances, or derangement in the function of the joint produced by the circumstances above alluded to, for the essential structures of the articulation being entire, no derangement in either of these could take place. I should, however, look upon it as being the most simple deviation from its normal stuucture, and as being a congenital defect.

II.—*Elongation of, or Irregularity in the Attachments of the Inter-articular Ligament, the Ligamentum Teres.*

Next to deficiency in the continuity and integrity of the capsular ligament, may be classed those conditions of the joint in which there is found some preternatural elongation of, or irregularity in, the attachment of the round ligament: under such a state of parts, lameness to a greater or less extent must be a usual concomitant, on account of the increased play which the head of the thigh bone must possess, and its consequent tendency to spontaneous dislocation. Several cases are on record of individuals possessing the power of throwing out their hip-joint at pleasure, from their earliest years, and where no mechanical injury had ever been inflicted, so as to have given rise to it. Such cases, therefore, must be considered as being dependent either on elongation of or misplacement in the attachment of the ligament; for in the normal state of parts in the dead body, and when the capsular ligament has been cut all around, it is quite impossible to remove entirely the articular head of the thigh bone beyond the brim of the cotyloid cavity*.

Many of the peripatetic professors of gymnastic antics have, by repeated and forcible abduction of the head of the bone, acquired the power of spontaneously dislocating it, or, at least, producing a state approaching very nearly to dislocation. The generality of anatomists and surgeons suppose that this power of preternatural abduction invariably depends on rupture of the inter-articular ligament at either of its attachments; and others, again, incline to the opinion, that, in consequence of the looseness and increased length of the capsular ligament at its internal part, "jugglers are able to separate their legs, until they form right angles with their body, without producing dislocation†." A careful examination, however, of several of these performers will soon satisfy the observer, that the extent of abduction which they individually possess varies very much, and is of two kinds. In one there will be found perfect abduction, the limb being carried outwards, in the direct external axis of the articulation; and, in this case, rupture of the ligamentum teres does always exist. In another, along with abduction, there is eversion or inversion of the feet, with slight flexion of the limb accompanying it, the feet being carried somewhat forwards

* I do not here refer to the experiment of the Webers, in reference to the influence of the pressure of the atmosphere, as being sufficient to keep the head of the thigh-bone in the air-tight acetabulum; but to the possibility of removing, after the introduction of air between the head of the thigh-bone and the cotyloid cavity, the rounded articular head, beyond the brim of the cotyloid cavity, whilst the ligumentum teres is of its normal length.

† Cruveilhier's Anatomy, vol. i, p. 206. London, 1841-43.

or backwards beyond the centre of the joint, and resting on the external or internal edge of the os calcis: in such individuals there will be found either an excessive elongation of the round ligament, without rupture, or a misplacement in its attachment, commonly to the upper surface of the head, or cervix femoris, close to that of the capsular ligament. As illustrative of the pathology of both these varieties in the condition of the inter-articular ligament, elongation or misplacement of attachment, there are two excellent cases reported by Mr. Adams*. The first of these cases I should consider as one of simple elongation of the ligament, predisposing to, and actually being attended with, persistent dislocation. In examining the joint in this case, "the capsular ligament was found remarkably thick, and lined on its interior with a very red vascular membrane. *The round ligament was fully three inches long, and much stronger than usual.* It grew to the cotyloid cavity as usual, and had no other connexion with the acetabulum, which had no Haversian gland, and was not lined with cartilage. The cotyloid ligament was very flat and imperfect." In the second case, the malformation existed to greater extent: "the capsular ligament was attached, as usual, to the circumference of the acetabulum on the one part, and to the base of the neck of the femur on the other: it was strong, and, at the same time, elongated, so as to allow the head of the femur to rest on the dorsum of the ilium. When the capsule was cut into, the head of the femur was found to be somewhat conical in its form, and much smaller than usual; the cartilaginous covering was thin, and did not form a perfect covering for the head of the bone. The inter-articular ligament was of unusual dimensions, being more than four inches long, and as thick as the tendo Achilles, near the os calcis†: instead of being firm, round, and thick, it was soft, and could easily be spread out to the breadth of an inch. This substitute for the normal ligament was continuous with the cotyloid ligament, or arose from that part of it which completes the notch of the acetabulum within. From this origin the ligament passed outwards and upwards to be attached to the head of the femur, presenting in its course an inverted arch. On its inferior surface it corresponded to the head of the femur, where it was hollowed out from before backwards, so as to accommodate itself to the head of the bone, and for which it formed a kind of cup, and followed all its movements. This broad ligament had no connexion by synovial folds or fibrous productions, with the bottom of the acetabulum. The cotyloid ligament was flattened out around the

* Cyclopedia of Anatomy and Physiology, vol. ii—article, hip-joint, abnormal anatomy of.

† The individual from whom the description was taken was of adult age.

brim of the acetabulum, and was otherwise imperfect; but the Haversian gland was large and well developed."

In both of these cases the external appearances, during the movements of the joint, were very similar to each other: shortening of the entire limb, especially during motion; approximation of the great trochanters to the spine and crest of the ilium, and inversion of the foot and toes; exhibiting, in short, all the appearances connected with a dislocation of the head of the bone directly upwards*, or upwards and backwards.

III.—*Congenital Absence of the Round Ligament.*

This form of malformation by congenital deficiency is by no means of unfrequent occurrence, both in man and in the lower animals; and, indeed, of all the ligaments in the structure of the skeleton, this, the round ligament of the hip-joint, is that which has been most frequently noticed as being wanting, from congenital defect. Its absence in man has been noticed under these circumstances, by many anatomists, from the time of Gengat down to the present day; and it is well known to comparative anatomists that its absence in many of the mammalia is so regular, that this condition of the joint is looked upon as the normal structure.

"It is not usually possessed by the orang-outan (though it is found in the chimpanzee and gibbons), and its absence has also been noticed in the elephant, the sloth, the seal, the enhydra, and the ornithorinchus. It has also been reported as being wanting in the tucutuco (Ctenomys Magellanicus, Bennet), though it has not been substantiated by other anatomists‡."

Instances of its absence in those of the mammalia that come under the notice of the veterinarian have been seldom reported. I have not as yet seen one case of such deficiency in my zoological investigations; but, through the kindness of Professor Dick, I have been furnished with an account of three cases of its occurrence in the horse, which have come under his notice. "Within the last four years," says he, "three cases of total absence of the round ligament of the hip-joint, in one side only, occurred in my dissecting-rooms here. The subjects of all these cases were aged horses, which were obtained either at the knacker's yard, or were purchased, as usual, for dissection, as old worn-out horses. All of them seemed to have undergone much work, as common

* This form of dislocation can only occur where there is deficiency in the cotyloid brim and ligament, which here existed.

† Genga, Anatomica Chirurgica, 8vo, Rome 1687.

‡ Martin's Nat. Hist. of Quad., p. 100.

cart-horses; but how they had performed this I am unable to say, neither could I obtain any information as to their previous soundness or unsoundness. In all these three cases the pathological appearances were similar. The capsular ligament of the joint was healthy in appearance, structure, and points of attachment; and on its being removed, and the articular extremity of the bone taken out of its socket, no trace of a ligamentum teres could be seen. The depression on the head of the thigh-bone, to which it is usually attached, did not exist, and the cartilage of incrustation formed a uniform covering to it. The depression in the cotyloid cavity was filled up as usual by the Haversian gland; the cotyloid ligament was well formed, and, if any thing, larger than usual; but at the notch in the cotyloid cavity, where its fibres proceed to form the round ligament, no traces of an interarticular band existed, nor was there any preternatural attachment of the capsule to the cotyloid ligament at this point, so as to compensate for the absence of the round ligament. The whole of the inside of the joint had a uniformly smooth surface: the synovial membrane was healthy in appearance, and the synovial fluid was natural in quantity; and the movements of the joint seemed to have been perfectly performed, and without tendency to dislocation and consequent lameness."

It is perfectly evident to me, therefore, from the above report, that these were instances of congenital deficiencies of the round ligament; and, as such, it might naturally be asked, Could not spontaneous dislocation occur, and consequent lameness be the concomitants of such a state of parts? So far as negative reasoning goes, I should be inclined to the contrary, and should rather suppose that such a state of parts may exist without giving rise to hip-joint lameness to any extent.

As the above pathological appearances are the same as those seen in the human individual under similar circumstances, I need not direct attention to these latter cases, and shall therefore proceed to consider the last and most extensive form of congenital malformation.

IV.—*Arrest in the Development of the Neck and Head of the Thigh Bone, with a corresponding Deficiency in the Development of the Cotyloid Cavity.*

This form of arrested development is the most extensive in its nature, and the most serious in its consequences, on the functions of the articulation, of any of those which have been enumerated. It is by no means a very frequent occurrence in the human individual, though it has been sufficiently so to attract the attention of

practical men towards it, and much information will be found regarding it in the writings of Paletta*, Prochaska†, Dupuytren‡, Cruvelhier§, and Adams‖. All the cases adduced by these different authors may be classified under three divisions, each varying in the nature and extent of the defect. In the first class, there is found deficiency in the development of the cervix femoris, and the articular head of the bone rests on the side of the shaft, between the trochanters: in this form the immediate osseous and ligamentous structures are perfectly normal, and, though the limb may be slightly shortened, yet the functions of the joint are perfect¶. In the second division, a deficiency in the development of the articular head of the bone and the inter-articular ligament exists, and in its place a conical process projects from between the trochanters, serving the purpose of the former, and which is received into a correspondingly rudimentary cotyloid cavity**. The third division embraces that form in which the entire articular head and round ligament and the cervix femoris are deficient, and the superior extremity of the shaft of the bone articulates with the ilium by an irregular plano-convex surface situated between its trochanters. Such cases are, perhaps, of the least frequency in the human individual, as well as in the lower animals; and as the case I wish to draw attention to belongs to this division, I will only describe its pathological appearances, without referring to the two former. This case occurred in the dissection of the body of the spotted cat, the jaguar, the cause of the sudden death of which I recorded in the last number of THE VETERINARIAN. It was noticed, during the minute examination of the body, that there was a considerable disproportion in the relative lengths of the right and left hind extremities. On a careful measurement being made, it was found that, on the left side, from the top of the trochanter major to the articular edge of the external condyle, the distance was nine inches; and from the top of its articular head to the corresponding point on the internal condyle, the distance was eight inches and three quarters. On the right side the corresponding measurements were respectively eight and seven inches, thus giving rise to a shortening of the limb to the extent of an inch: besides this shortening, there was adduction and inversion of the limb, the stifle-joint resting upon that of the opposite side, and the points of the toes only coming to the ground. The capsular ligment of this articula-

* Paletta, Exercit. de Claudicatione Congenita, p. 82.
† Prochuska, Disquisit. Anat. Physiol. Organ.
‡ Dupuytren, Repertoire General d'Anatomie.
§ Cruvelhier, Anatomie Pathologique.
‖ Adams, Cycloped. of Anat. and Physiol., loc. cit.
¶ Vide Dr. Knox, in Edin. Med. Chir. Trans., vol. 3, pt. 2.
** Vide Dupuytren, loc. cit.

tion was found to be thick, and very firm, especially towards its anterior and superior part, and seemed to be implanted on the ilium, a little further forward than usual: the superior extremity of the shaft of the bone was turned inwards, and was lost in the substance of the ligament, so that the prominence of the trochanter major was destroyed. On removing this ligament, the entire cervix and articular head of the bone was found wanting, and their place was occupied by a flat elongated eminence: this was situated between the rudimentary trochanters, and placed almost on the anterior aspect of the bone: it was rather rough upon its surface, a small portion of which only was covered by cartilage, particularly at its superior part. The edges of it were thick and rough, and gave attachment to the capsular ligament. The cotyloid cavity was found in a correspondingly rudimentary state; the brim was so much flattened as to destroy entirely the appearance of a cavity, the natural position of which latter was indicated by the presence of a quantity of fat. The superior part of the brim alone was covered by articular cartilage, and beyond this there was a thin membranous ligament corresponding to the cotyloid, which, at the rudimentary notch in the inferior part, stretched across as a firm band, the transverse ligament, but without giving off any fibres to the head of the bone to constitute the inter-articular ligament. No articular cartilage existed in the rudimentary cotyloid cavity, the entire fossa being filled by the Haversian gland; and the only point upon which the head of the thigh-bone had moved was upon the superior edge of the cotyloid brim. The left side was perfectly normal in structure. A reference to the accompanying plate will explain all the relative appearances which we have described above.

On looking to the mechanism of this rudimentary articulation, therefore, it might be supposed that considerable lameness had existed; but on inquiring at the keeper of the animal, I found that, though she was "rather ricketty in her movements," as he expressed it, yet she was able to walk and leap with comparative freedom: still, from the freedom of play that existed between the articular surfaces, the different movements could not have been performed with much steadiness. As a comparative pathological specimen of this rare form of malformation, it is almost unique in itself, whilst the appearances which it presents contribute much to the explanation and elucidation of the same condition of parts in the human individual. In man the same class of cases would scarcely present the same extent of arrestment in the development; but this depends on a very obvious cause. In the lower animals their state of independent existence must be much more early assumed than in him; and as greater physical exertion must be

employed by them in obtaining their means of existence, a necessarily increased activity must take place in this as well as in all the other joints of the body, and thus preventing the fuller development of that which is even malformed at first.

On reviewing the appearances seen in the above case, and comparing them with those that may be produced by disease (if any doubts could arise as to these appearances having been the result of domestication, and not produced by a congenital defect*), the only proximate conditions that can be placed in apposition to them, are those seen as the effects of interstitial absorption of the head and neck of the thigh-bone, and chronic rheumatic arthritis of the soft tissues of the joint. Though both these morbid actions are now placed under the same general definition, and viewed as the result of the same morbid cause, I shall, for the sake of comparison, consider the two appearances individually, inasmuch as interstitial absorption of the osseous paste, and a corresponding change in the length and angle of the neck and the articular surface of the thigh-bone may occur, without much, if any, disease being co-existent in the peripheral tissues.

This form of disease in the osseous structure of the joint was particularly described by Benj. Bell; and as he gives a most perfect and lucid description of it, I shall transcribe it in his own words.

"In the advanced stages of the disease," says he, "there is something resembling a yielding or bending of the neck of the bone, so that the inferior edge of the corona of the bone approaches the trochanter minor. This effect does not proceed from any softening or alteration in the intimate structure of the bone, but arises in consequence of the absorption and disappearance of a portion of its entire substance. On a cursory examination, it looks as if the head of the bone were forced downwards by the action of some great pressure; and in some cases the interstitial absorption proceeds so far, that the head of the thigh-bone rests upon the upper part of the trochanter minor, which, in some instances, becomes hollowed out for its reception. In some rare cases, combined with the shortening of the cervix femoris, there is also a flattening of the head of the bone, and the formation of a deep groove around the lower edge of the corona, and occasionally more than two-thirds of the neck of the bone disappears, so that the head of the bone becomes forced in the direction of its axis towards the base of the trochanter major†."

I have seen several well-marked cases of this form of the disease

* It is well known, that animals which have been domesticated from a state of nature suffer most changes in their osseous system.

† Bell on Diseases of Bone, p. 94 et seq.

in elderly people, and that, too, without much change in the condition or structure of the soft tissues. But in all these cases, though the head and neck of the thigh-bone had become almost sessile on the trochanters, yet, in all of them, the osseous mechanism of the joint was perfect, the head of the bone, though small, was strictly confined to the cotyloid cavity, and the interarticular ligament was entire. This latter circumstance, however, is not a necessary condition of structure; for, as I shall immediately state, it has been found entirely destroyed in that form of the disease which involves more especially the softer structures. In all these cases that I have referred to, the elementary type of formation of the normal condition was always found in the sessile neck and head of the bone, on its being sawn through in its long axis, and there was not the slightest appearance in any of them that could positively be placed in apposition with the appearances seen in this case of malformation.

The other form of morbid change above referred to, and in which the softer tissues are especially involved, has been carefully investigated by Dr. Adams, of Dublin*. "The fibrous capsule of the joint," says he, "is greatly thickened, the cotyloid ligament is either ossified or absorbed, and that ligament which completes the notch in the natural state is usually converted into bone. When the disease has been fully established, the ligamentum teres is altogether removed, the synovial fluid is deficient in quantity, and the cartilage is removed from the bottom of the acetabulum and the upper surface of the head of the femur; and if any vestige of the synovial membrane remain, it is in a highly vascular condition. The acetabulum is generally much larger and deeper than natural, and forms a circular cup, often two inches deep, with a complete level brim, which is sometimes so much narrowed, as to render the extraction of the head of the femur difficult.

"This is the most frequent abnormal appearance that the acetabulum presents, though it is sometimes increased in size and very shallow, and of an oval form; and when we examine the bottom of it, we find it widened, and not any trace of Haversian gland is left. The interior of the cavity presents a worn and porous appearance, the cartilage and compact stratum of bone which the cartilage normally covers is removed, and in some places, where the pressure and friction from the head of the femur have been greatest, instead of a rough, and worn, porous appearance, resulting from the exposure of the cells of the bone, a dense enamel

* Vide Cyclopedia of Anatomy and Physiology, loc. cit.

has been, as it were, ground into these pores, and here the surface presents the polish, smoothness, and hardness of ivory."

It will be seen, however, from these cases, that the changes induced by the existence of an active morbid cause are by no means similar to those seen in the case of malformation; for, in the former there was abundant evidence, even without the direct evidence of the patients, that the natural structures had once existed, and that the joint had performed its healthy functions; whilst in the latter there was not any vestige of either of these having ever existed. From every consideration, therefore, I view this case as one of congenital malformation, and not as having been produced by disease; and I am still more strengthened in this, that in the shoulder-joint of the same side there was also an abnormal state of its development, as if both these joints had been formed under some hemiplegic state of the nervous system of organic life. This condition of the shoulder-joint I shall refer to at some future period.

In conclusion, it may be asked, What practical utility may be expected to arise to the veterinary practitioner from a knowledge of the various circumstances that have been above related, or will they in any way tend to further the practice of his profession? True, indeed, such cases will not often be presented to him in his general practice, in consequence of such malformed animals being generally destroyed immediately after birth; and even if they were seen, what could be done for them? It must be admitted that, considering the severe physical labour to which they are daily subjected, little might be done for them in the way of relief; but then their very, though occasional existence (setting even aside their importance in furthering the advancement of human pathology, and as tending to combine with it comparative pathology, so as to form one general and inseparable science), shews that the lower animals, as well as man, are subject to the influence of the same agencies during the development of the different parts of their structure as he is, and therefore, that a deficiency in development or a malformation in structure are not to be viewed in them as being entirely the results of civilization; and however it may be said, that "among the lower animals, sickness and decay are not permitted to exist; that activity and health alone are conspicuous throughout the broad creation; that disease and decline are banished from their world; that nothing is permitted to live but what possesses its faculties and its strength unimpaired and unenfeebled; and that, if any creature lacked, but for a brief period, its accustomed powers of escape, the destroyer would be instantly at hand, to remove it from its accustomed

Dr. Mercer's Case of Congenital Malformation of the Hip Joint, in the Jaguar.

sphere of action*." We must, on the contrary, admit, that all the brute creation is, in the same degree, liable to all those ailments "to which our mortal flesh is heir to," and that the pangs and bitterness of pain and affliction is their lot as well as ours :—

> "The poor beetle that we tread upon,
> In corporal sufferance feels a pang as great
> As when a giant dies."

EXPLANATION OF PLATE.

Fig. 1.—View of the rudimentary cotyloid cavity, right side.

a. The flattened cotyloid ridge, over the upper edge of which was spread a thin membranous ligament; above, is a roughened impression, into which was inserted the strong, though loose, capsular ligament.

b. A semilunar, cartilaginous surface, covered with synovial membrane, occupying but a small portion of the cotyloid ridge above, and on which the upper part of the thigh bone moved.

c. The cotyloid cavity, filled up by a large Haversian gland.

d. The continuity of the cotyloid ligament, across the small notch of the acetabulum. (The notch in the plate has been too deeply marked.)

Fig. 2.—Anterior view of entire thigh bone.

a. The dotted lines indicate the incurvation of the upper extremity of the shaft, to compensate for a support to the articular surface.

b. Trochanter major.

c. The rudimentary articular process, extending anteriorly on the shaft of the bone.

d. Anterior edge of the articular ridge.

e. Epicondyloid bones.

Fig 3.—View of the articular surface.

a. Articular surface.

bb. Posterior edge of articular ridge.

c. Trochanter minor.

d. Trochanter major.

e. Trochanteric fossa.

* Jones's Animal Kingdom, p. 652.

LAMINITIS — ACUTE FOUNDER — FEVER IN THE FEET.

By E. Gabriel, *Esq., M.R.C.S. and V.S.*

Of all the diseases to which the horse is liable, I know of none that has been longer known, and yet of which so little is known; that has been so generally recognised, and yet respecting which so many blunders have been made; of the history of which so much has been written, and of its treatment so much has been unskillful and empirical; of the results of which so accurate accounts have been given, and yet the remedies been, ay, in very many cases worse than inert and useless, than the one we are now about to consider.

Acute founder, a very significant term, though by no means a well-defined one—Fever in the Feet, which is a much better one, and will give the general reader at once a notion of the disease, —and Laminitis, which is by far the best, as indicating that the fever or inflammation is not only in the foot, but also that particular part of the foot, called the sensible laminæ. This, then, is the disease, and one of so severe and, usually, fatal a nature, as far as the organization of the parts affected goes, that the anticipations of a perfect cure, such as we should as a matter of course hold out in an equally severe inflammatory attack of any other organ not terminating fatally, appears never to have been indulged in: but the account of the symptoms is followed up by every author with the best mode of palliating, or inadequately compensating for, the imperfect resolution, effusion, or sloughing, in which it would seem this destructive disease so often terminates; reducing the pride of the stable with his splendid figure, high courage, fast pace, and grand action, to an almost useless cripple, with an awkward gait, imperfect action, and jarvy pace;—reduced in value from hundreds to tens, or perchance to units; ejected from the splendid establishment, where every care, comfort, nay even luxury, surrounded him, to linger on the remainder of his existence in the last stages, so truly and graphically described as closing the career of the high-mettled racer.

Somewhere about two hundred years ago, indeed, it would appear that the case was different, and the treatment then adopted was attended with such signal success, that, in from four days to a fortnight the cure was accomplished, and the animal as sound as ever; for Gervase Markham, in 1660, tells us that "by thinning the sole, bleeding in the toe, and then pouring in some boiling hot stopping, and repeating the same three times in one fortnight, that

without any further trouble you shall be sure to have the horse as sound as ever he was:" and then De Grey cuts the matter still shorter, for he says that, "if your horse has not been foundered above four days, then with this receipt you may easily set him upright, and make him sound again in four days more."

The means, however, which appear to have been so successful in those days, unfortunately lost their efficacy in succeeding generations, and with that loss fell also the sanguine predictions of the users thereof; for, fifty years after, Sir William Hope says, "now, where the foundering hath fallen down into the feet, horses are a long time recovering, so that a year's time will produce but little amendment, therefore the best way is to sell them for the plough." Fifty years later, Jeremiah Bridges, Farrier and Anatomist, whose very names and titles must carry conviction, tells us, "that the progress of a founder is so quick and its consequences so pernicious, that you cannot be too speedy in your applications," and that, when confirmed, "time, rest, and turning out in soft meadow ground, may be of service." Towards the close of the eighteenth century, Snape, Farrier to His Majesty, informs us, "that it rarely happens that this dreadful malady is surmounted before the consequences of it are on the point of proving exceedingly pernicious, if not totally destructive, to the horse, who languishes beneath its violence."

True, methinks, I hear some one skilled in veterinary lore remark, up to this time, I fear, as you say, the results of those cases were unfortunate, and the treatment but little understood: but now the Veterinary College has been established, and surely the science and knowledge there brought into play must have benefitted this as well as all other disorders. Granted, as far as the treatment is concerned, for it became in many respects more enlightened; and if it was not rendered more efficient, it was at least freed from those barbarisms which had previously encumbered it: but as to the results let us see. St. Bel (I quote from Lawrence's abstracts from his Lectures) declares that "sometimes the inflammation is so rapid as to occasion a total falling off or shedding of the hoof in a few days, and then the part reproduced is always in some measure feeble and deformed: when the separation of the hoof does not take place, it becomes totally deformed: and, in a less violent founder, although there be no deformity in the foot, yet the horse treads with difficulty, especially at coming out of the stable."—Bad enough all this; but then comes "our first Edward," whose investigations into the structure and functions of the foot would alone always cause the name of Coleman to be remembered with respect. Did he profess to cure laminitis? I well recollect hearing him decide the question in two sentences,

the latter of which inculcated the propriety of having the horse knocked on the head.

But time presses forward. The College has been established above half a century, and we have our standard authors educated in its school. Improved by its advantages and matured by their own individual experience, let them report progress. Blaine says that "in the worst cases the hoofs separate and drop off, or mortification at once ensues. At other times, where the effects are not quite so violent, the termination is sufficiently unfortunate, effusion taking place, and the hoofs gradually becoming imperfect and deformed." White writes, "the best termination that can be expected of this dreadful disease is an incurable lameness;" and Goodwin confirms these statements, adding, "that even in the commencement of the disease the natural secretion of horn ceases, and a separation between the laminæ takes place, and the horny sole soon flattens and becomes convex," and in one out of two extraordinary recoveries which he relates the hoofs came off both fore feet.

And if, finally, we appeal to practitioners of the present day, shall we not hear of the same unhappy results, the same unfavourable terminations? will any come forward and say they anticipate and rely on equally favourable results from the remedial measures they adopt in these cases as they do in others? I appeal to any veterinary surgeon to pass his veto on the matter: veterinary surgeon, remember, I say—not to the *canaille* of the veterinary art, who would say or swear to any thing to gain a customer or injure an honest or honourable opponent, not to the groom's oracle, the coachman's companion, or the tap-room lounger—who has science and experience enough to form a correct opinion, and who has enough of liberal and gentlemanly feeling to give a candid one—if such is not the case.

But, nevertheless, and in spite of this somewhat awkward mass of *per contra* evidence, I am not going to have Gervase Markham and Thomas de Grey, Esquires, thrown overboard, merely because of all the farriers and veterinarians who have lived ever since, none have been able to do what they did; on the contrary, I mean to take my stand beside them, and assert that acute founder can, in a vast majority of cases, be cured, and that, too, without leaving the slightest bad effect behind; or, as old Gervase has it, "you shall be sure to have your horse as sound as ever he was." And now, having backed myself up with these two equestrian Esculapii, I will just run over a few particulars touching the causes and symptoms, and then in "a plain unvarnished tale" describe my mode of treatment.

The causes of this acutely painful disease vary; but in two-

thirds of the cases I have seen it has been over-exertion, either the pace having been unusually severe, or the distance gone greater than ordinary; and that this is the most usual cause all agree. In two cases it supervened as a metastasis, from super-purgation, the cessation of the symptoms of the one and the commencement of those of the other being simultaneous, in three or four cases I could not discover any assignable cause, the animals having been doing their usual light work in apparent health, and, in each of them the disease was first noticed in the morning, having apparently commenced during the night.—Castley and Goodwin, both good authorities, mention standing an unusual time on board ship as a cause. I should only venture to differ from them so far as to inquire whether this may not rather be considered as a predisposing than an immediate cause of the disease, as both agree that it is some short time after landing that it becomes developed.

But the symptoms of this disease, are they equivocal or difficult of recognition? If we believe all we read, they certainly must be both one and the other, for, as we are informed, "the symptoms of acute founder have been mistaken for those of pnuemonia, enteritis, nephritis, and colic." It is curious that any third disease could be mistaken for pneumonia or enteritis, of which two diseases no series of symptoms could be more dissimilar, or indeed so diametrically opposed to each other! This, however, will lead us, by and by, to notice an anomaly in the symptoms of laminitis. So far, however, from agreeing with this account, I should say that, if there is any one disease more strongly marked and instantly recognizable than another, with the single exception of tetanus, it is laminitis. If on your first visit you find your patient standing with an intensely quick hard pulse, with most accelerated breathing, dilated nostrils, and severely distressed, having all the appearance of a severe attack of pnuemonia, still you will not require the animal to move to undeceive you; for the very first effort to move, without his even taking a foot from the ground, will as clearly and certainly indicate laminitis as if he had been walked round the yard. The effect this singular attempt at motion produces on the mind is, that the animal, making levers of the posterior extremities, is lifting by the force of sheer muscular power the weight from off his fore feet. It is not a roll, or a lurch, or a spasm, but it is a concentrated muscular effort to remove the weight from the fore feet, and suspend it over the hind ones:—it is perfectly unmistakable.

If, on the contrary, your first visit is paid while the horse is lying down, you will at once recognize pain and distress: the *locale* of the mischief will not be indicated till he rises, but the

very instant he does so you again recognize laminitis; instead of getting partially on his fore legs and then on his hind ones, he makes one great effort to get as it were on the hind ones at once. See where the fore feet are placed! not under, but as far as possible before him, as if they never were intended to be used to support an ounce of his weight, but merely as points to prevent his falling forward on his nose; the hind legs at the same time, instead of being placed under his quarters, are made central supports of and brought directly under the body. Now, I have no hesitation in asserting, that no man possessing even the most ordinary powers of perception, who has once seen either of these exquisitely characteristic symptoms, can by any possibility ever after mistake them.

Having thus mentally decided on your case, you investigate the other more general symptoms,—the rapid pulse and accelerated respiration before-mentioned, accompanied by warm and frequently hot extremities,—the metacarpal arteries throbbing away to an extent frequently observable to the eye,—the disinclination to rise when down, although lying down appears scarcely to mitigate his sufferings,—the confined state of the bowels, with occasional partial perspirations, will fully confirm the first impression. These symptoms, so well marked, become simultaneously developed, and that not unfrequently in the course of two or three hours, so rapid is the progress of the disease. There is, however, an occasional anomaly in the symptoms of this disease, to which I have before alluded, but which I have never been able satisfactorily to account for: it is this—that, although in the great majority of cases the patient will be almost constantly lying down, yet every now and then it happens that he will stand throughout the entire course of the disease as obstinately as in the most acute chest affection; and it is this fact that has occasioned the disease to be mistaken for such opposite ones as pneumonia and enteritis. But is there not accompanying pneumonia in this case? Why, yes; just as probably so as there might be in enteritis or nephritis.

And now, then, as to the treatment:—So diversified are the modes now in vogue, that I think it must be very hard if I cannot choose my own. Some bleed from the neck, others from the coronet, and others again from the toe; some take the shoes off, others leave them on; some thin the soles, others rasp the quarters; some apply cold poultices, others hot stoppings; some blister the legs, others the coronets; some give physic, others are afraid of it; some order fever-balls, and others comfortable drenches; to say nothing of tight garters, riding the poor beast till he sweats, standing two or three hours in a running stream—then the boiling-hot stopping, with hard-roasted eggs of my allies, Markham and De

Grey: surely, here is room enough to say to every one, *chacun à son goût.*

The first, and the only anxiety I have, on being called to a case of laminitis, is to ascertain whether or not disorganization has commenced: if it has, why then, of course, the mischief is irremediable; but if it has not,—and such will generally be the case, for the urgency of the symptoms is too great to allow of any neglect,—why, then, I feel perfectly easy as to the result, and do not hesitate to predicate a favourable prognosis to the owner. I am now speaking of those cases in which the fore feet alone are affected, never having had one in which the hind feet, or all four, were suffering, under my own immediate care.

My first step, without the slightest loss of time or waiting for any thing like preparation, is to give a full dose of physic—seven, eight, or nine drachms of Barbadoes aloes, as may be required—and then put on the hobbles and immediately *insert a seton through each frog;* thereby applying the safety-valves, which regulate the course of the disease. As soon as the patient is released, and has a little rallied from his punishment, I have recourse to a copious venesection from the jugular vein. Having noticed the state of the animal's condition, I place my finger on the pulse, and care not what quantity is taken, till it begins to falter; but, having produced that effect, I stop. It may be, that the abstraction of one, two, or three gallons is requisite to produce this impression; but this impression I will have produced, and some intermediate quantity of the amount named will most generally do it. I then have his feet enveloped in large tepid bran poultices, order him to be comfortably clothed, to have plenty of chilled water and slop mashes, and then consider he is fairly started on the high-road to safety. Should the symptoms become more urgent, bleed largely again the next day; and should not the physic be operating in twenty-four hours, lose no time, but go on with smaller doses till their full effect is produced: fever medicine may then be substituted, and given two or three times a day. Within twenty-four or thirty-six, or say, if you will, forty-eight hours, his physic will be operating and his setons discharging; and having produced these effects, you have as effectually secured your patient against separation of the laminæ and sinking of the soles as if no disease whatever had existed. Nothing can be more pleasant than the feeling of confidence with which each morning, when the poultices are being changed and the setons dressed, you tell the groom to pick out his feet and examine his soles. "All right, sir." "What! no dropping?" "Not a bit of it, sir," is the certain reply; most grooms of any experience knowing well what there is to be apprehended: indeed, in a day or two you know how the case is progressing the

moment you go in his box; for, instead "of throwing his feet forward in a seemingly burlesque manner and bringing them down as oddly on the heel," as Blaine so quaintly expresses it, you will see him stepping on his toes and almost knuckling over to avoid coming on the setons. In the course of five or six days, if the case is progressing favourably, leave off your poultices, and have the feet stopped up, dressing your setons daily for ten days or a fortnight. A striking peculiarity in the discharge from the setons occasionally is, its intensely fœtid character. Imagine the worst thrush you ever put your nose near;—it is a perfect nosegay to this discharge.

I do not have the shoes meddled with for a fortnight or three weeks; for I cannot imagine any thing more punishing than the concussion produced even by raising the clenches while the sensible laminæ are so intensely inflamed. In three weeks or a month, your patient will be fit for light work; nor does a run at grass appear at all necessary to complete the cure, although, of course, there can be no objection to its being had recourse to.

But these *frog setons*, for they are the remedy,—is their application good in principle as well as practice? Why, when acute founder was considered to be a fever in the whole internal parts of the foot, and those parts were considered homogeneous, this might be doubtful; but when we define acute founder to be an inflammation of the sensible laminæ, and know that the structure of the sensible frog differs from it as much as that of the liver does from the lungs, then we at once allow their application to be physiologically correct, on the axiom that counter-irritation can never be set up too near the seat of disease. In some chronic diseases of the foot the value of the frog seton has been fully ascertained; and the similarity of Nature's own remedy, thrush, would authenticate its application in many more but much earlier stages of disease. "But you follow up your setons by active depletory means, are you correct then in attributing so much to them as you appear to do?" I think so, for two reasons: one is, that active depletions alone have so often failed to cure the disease; and the other, that in those cases arising from metastasis, bleeding was quite out of the question, and the action of the bowels could only be reproduced by the mildest possible measures; in them, therefore, the frog-seton was, indeed, the sheet anchor.

And now, I may as well candidly confess, I take no credit whatever for originality in this mode of treatment. The setons—the specific remedy, if a specific remedy there be—I saw applied while I was yet a pupil; but so strong was the impression made on my mind by the extraordinary effects they produced, that I have never lost sight of them, and, in return, they have never

once in this disease disappointed me. I am speaking, it is true, from a limited experience of not more than from twenty to thirty cases; but where one has obtained the same satisfactory result in every case included in that number, it does appear to me to form no bad ground-work for a recommendation of the general application of the remedy. I need not, I am sure, tell the readers of THE VETERINARIAN that cases will every now and then occur so intense in their character, and so rapid in their career, that all remedial measures are had recourse to in vain. I have never, however, met with one of these cases, and the results of my treatment have hitherto been perfectly successful. My confidence in it will be best understood when I say, that had I my choice of a severe set of cases to attend to, these cases should most certainly be of *fever in the feet.*

CONSULTATION.—No. XXXI.

A SINGULAR AFFECTION OF THE CHEST IN A HORSE.

Sir,—I TAKE the liberty of writing to you concerning a horse affected with a disease, the symptoms of which I have never before seen. He is a crib-biter, and has been so for a long time. His pulse is about 50, and quite regular. He heaves at the sides, as if he were affected with broken-wind. The beating of the heart may be heard as soon as we enter the stable. He has a cough like that which we hear in broken-wind; but his wind is as good when galloped as ever it was, and has no unnatural sound. The coat is very unhealthy, and now and then a slight discharge from the nose. He looks cheerful, and is fond of play when out at exercise. He feeds pretty well, but still appears to have disease about his chest. He has been labouring under this for two months, now and then getting a little better, and then the disease again returning. I have tried every medicine that I can think of, but without the desired effect. He is a valuable hunter. I should be obliged by your opinion of him.

Reply from PROFESSOR DICK, *of Edinburgh.*

My dear Sir,—THE case which you describe is a very rare one, more especially from its long continuance. I have frequently met with cases presenting nearly the same symptoms; but I have

never seen any that last more than two or three days, and sometimes not more than as many hours. I should have been better able to advise you, if you had given me an account of the medicines that you have administered, and also what are the sounds of the chest when the ear is applied.

It appears, however, from what you state, that there is either hypertrophy of the heart, or ossification of some part of it, or of the aorta, or that the disease is some spasmodic affection, either of the heart or diaphragm. If it be either of the first, then I am afraid that little good can be done. If it be the latter, I should advise, first, a dose of laxative medicine with a mash diet; and when the laxative has operated, I would give daily, for a week, a drachm each of opium, camphor, and digitalis, made into a ball with linseed-meal and treacle, continuing the mashes. I should be glad if, at the end of this time, you would let me know what is the result,

(The horse was perfectly recovered in the course of a fortnight.)

A CASE OF INTESTINAL IRRITATION AND CONSTIPATION.

By JOHN TOMBS, *Esq., Pershore, formerly of the East India Service.*

I am induced to send the following case to THE VETERINARIAN, being one of several that I have witnessed lately, on account of its similarity to a few others that Mr. Percivall has lately registered in the above Journal, and which he considered to be epidemic. I am inclined to think that those which I treated were of a similar species.

January 20, 1844, 8 P.M.—I WAS requested to attend a chestnut horse by the Colonel, out of a half-bred mare, the property of an officer of the Royal Artillery, who had leave of absence, and was on a visit to his friends in this neighbourhood.

I found him lying down, and looking back towards his flanks. When made to get up he looked dull and heavy, kicked his abdomen with his hind feet, turned his head to his sides, and then put himself in a position as though he wanted to stale. I was informed that he purged very much in the morning previous to hunting in the Broadway country with Earl Fitzhardinge's hounds. When he came home, about 5 P.M., he ate a feed of split beans very ravenously, and drank his gruel as usual.

His pulse being 48, and full, I bled him freely. In consequence of his having sweated profusely and becoming cold afterwards, I prescribed spt. nit. æther ℥ij, in combination with tinct. opii ℥jss.

At 11 P.M., has had no griping pains since he took the draught, but has not voided any fæces. Give him ol. ricini ℥x in gruel.

21*st*.—At 8 A.M., pulse 45, and regular—exempt from pain—eats a little mash and drinks gruel sparingly: has not dunged since he came into the stable yesterday. Give pulv. Barb. aloes ʒij, hyd. submur. ʒj, and opium ʒj, in gruel: enemas, &c.

At 4 P.M., the griping pains returned. Pulse 45. He straddled for staling, but did not accomplish his purpose, although he had voided his urine freely in the morning. He has not had any evacuation per anum. Give aloes Barb. ʒiij, hyd. submur. ʒj, and opium ʒj. An enema brought away a small quantity of indurated fæcal matter enveloped in mucus.

At 8 P.M., he commenced blowing. The conjunctival and Schneiderian membranes were injected, the mouth hot, and the tongue coated with fur. Countenance dejected.

Pulse 48, and hard. Has lain down two or three times since 4 P.M., and has had a shivering fit. I bled him until the pulse was 60, and soft. He has not voided any fæces, with the exception of what comes away with the injections. Give ol. ricini ℥x: enemas. Keep the skin and extremities warm.

22*d*.—At 6 A.M., having had no motion, I administered ol. ricini ℥viij.

At 8 A.M., he blows a little. Pulse 64, and weak—voids his urine in small quantities, but the obstruction of the bowels is not yet overcome. He appears free from abdominal pain. Walk him about for a quarter of an hour, and then give him plenty of thin gruel, and keep the extremities warm.

At 7 A.M., pulse 68, and weak, and does not warrant the use of the lancet again. He blows highly sometimes; at other times his respiration is tranquil. He sighs, turns and walks about the stall, picks at the litter, lifts his hind legs up, eats a little hay, and drinks chilled water very greedily if permitted. The conjunctival membrane is exceedingly reddened: the mouth parched. He has voided soft fæces two or three times since morning. The irritation is still going on in the colon. Give opium ʒj, keep legs and skin warm, and bed him up warmly.

23*d*.—At 8 A.M., pulse 60, and weak—the conjunctiva injected—free from pain. Bowels freely acted upon, eats hay and scalded bran, and neighs after his gruel, which he drinks with avidity.

At 6 P.M., has had repeated liquid motions during the day, prior to which he experienced pain by kicking his belly. Give opium and creta preparata, with plenty of thick gruel.

24*th.*—Pulse 56, and stronger. Eats hay and drinks gruel. No pain. Purges much. Give chalk mixture.

25*th.*—Considerably improved. Pulse 50. Fæces more regular.

26*th.*—Pulse 50. Fæces natural. Diet, mashes and gruel.

28*th.*—Quite recovered. Feed moderately and give exercise.

February 5*th.*—His owner sent for him to go to Woolwich by Railway.

I am truly gratified to think that I have communicated something to THE VETERINARIAN that has proved beneficial to two members of the profession; I allude to the cases of "Umbilical Hernia," by Messrs. Holmes and Scott. In reference to the cases mentioned in the last month's VETERINARIAN by Mr. Scott, I should advise him to be cautious, and not to operate on the hernia. It having been so long existing, the probability is, that the aperture would not granulate. Picture to yourself that circumstance after the sloughing process has taken place.

ON THE USE OF THE TARTRATE OF ANTIMONY AND THE CHLORIDE OF MERCURY IN THE TREATMENT OF THE DOG.

By Mr. C. S. GREEN, *V.S., Alton.*

AS the onward march of science can only be secured by its members diffusing among each other such scientific facts as may come under their notice, and having the honour to belong to the veterinary profession, I feel myself in duty bound to offer some little addition to the treatment of a disease of the dog which I read of in THE VETERINARIAN for February, as extracted from the writings of Professor Renault.

I had several cases of a similar nature in my own practice, in the commencement of which I gave the tartrate of antimony and the chloride of mercury; and on the following day, when the cough was very troublesome, I administered an aqueous solution of digitalis in the morning, and of pulv. quininæ at night, and which was continued until some relief was afforded. The calomel and emetic tartar were given on every third day, until the bowels were got into a good state. In the intermediate time a dose of castor oil was administered. It sometimes happened that the

antimony and calomel were repeated a second and a third time before the bowels were got into a good state. I have lost very few cases since I have adopted this course of treatment. The regimen was of the most nutritious kind, but was never given cold or in a raw state.

ON THE USE OF ANTIMONY.

By the same.

On perusing the paper by Mr. Percivall on the compounds of antimony, in the same month's Veterinarian, and finding it to be stated therein that the application of it externally in the horse has been attended with little or no benefit, I beg to say that I have seen it used in the form of ointment in diseases of the eyes with great benefit in numerous cases, and particularly in cases of opalescence of the cornea, that which we term specific ophthalmia, and which at first, after its application, causes a great degree of tumefaction of the eyelids, but which after a short time subsides, and the lids resume their former state, and by that time the opalescence entirely disappears.

Wishing The Veterinarian still to perform what its design has ever been—the diffusion of true and right principles,

I remain, your's truly.

[Mr. Percivall is gratified to hear that Mr. Green has found in antimony so serviceable a remedy for so untractable a disease. He would feel obliged to Mr. G. if he would, through the medium of The Veterinarian, kindly give some account of his cases.]

ON CRAMP IN THE TONGUE IN CATTLE.

By Herr Eberhaardt, *V.S., Kurhessen.*

This complaint is peculiar to the neighbourhood of Eschwege, Kreuzburg, Sontra, and Kurhessen, and is rarely if ever met with elsewhere; but the causes from which it arises, and the reason of its appearance in these places, I cannot pretend to unfold. I have never yet had the opportunity of seeing an animal labouring under its attacks, but have taken every occasion that presented itself of questioning

those who have, and gathering from their accounts as succinct a description as possible of every symptom. This account of it I now lay before the public, in order that my professional brethren may be induced to bring forward any information relative to the subject with which their experience and practice may have furnished them.

It appears that the attacks usually come on while the animal is feeding. It starts suddenly back from the manger—begins to breathe heavily and sonorously, and stretches out the head and sways it to and fro. It appears to be uneasy—it moves restlessly from side to side—becomes swollen or half suffocated, and voids much dung. If closely examined there will be seen an expression of suffering on the countenance; the eyes are protruded, they roll in their sockets, and have a fiery glistening appearance. The veins of the head enlarge, and project in bold relief like cords. If one of them is pressed with the finger, the flow of blood can be distinctly felt. The ears stand erect—the nostrils work convulsively—the mouth is held open—and the whole face plainly speaks the agony which the animal is suffering. With regard to the state of the pulse, I am sorry to say that I know very little, for most of my informants have been men who understood little or nothing of that point.

Should no one acquainted with the disorder happen to be present to administer the proper relief, the animal soon falls down and dies in violent convulsions. If the mouth is examined, the tongue is found to be curled up like a corkscrew, and drawn backwards towards the upper part of the throat, on which it presses so violently as to make it evident that this is the cause of the convulsions, and that it is only necessary to bring the tongue into its natural position, in order, at once, to relieve the animal. Such is actually the case. No sooner is that done than the respiration becomes more free and regular, and every unfavourable symptom disappears.

This is the whole course of one attack, but many animals are again and again subject to it. Whether these attacks occur at stated intervals, or the having had one predisposes the animal for others—whether each successive one is weaker or more violent—whether old or young animals are most subject to them, or what the effect of several on the constitution may be, I cannot take upon myself to say. From the foregoing symptoms, and the manner in which they can be relieved, it is evident that the seat of the disease is in the tongue. But still the question remains, What is the nature and cause of the disease?

It is well known that the puncture of the tongue by a needle or thorn, or any other sharp substance, will cause it to be spasmodically drawn back, and hence many superficial observers might be led

to think that the complaint of which I am speaking may be attributed to this cause; but in such case no danger of suffocation ever arises, because there is no absolute cramp or spasmodic affection of the tongue, but, merely, the natural rapid motion which is consequent on pain; and, besides, the disease which I have been describing is instantaneously cured by the tongue being brought into its natural position, whereas in the other case the inflammation and pain of the wound often remain for a considerable period. Hence, I think, we may safely conclude that cramp alone is the cause of the symptoms I have been describing, and all that remains to be discovered is the inducing causes of that cramp.

I cannot give any positive data relative to the duration of the attacks. From what I have been able to learn, they evidently vary; and half an hour or less, but rarely more, may be considered as the average period which they last.

The termination is invariably death, unless some person is at hand who understands the nature of the attack, and promptly administers relief. Tracheotomy, however, would prove beneficial, if the disease was properly understood and treated.

I have frequently been applied to by large cattle-proprietors respecting this disease, and asked to give my opinion relative to its nature and cause; but the attacks are so short, that it is almost impossible to summon a veterinary surgeon in time for him to be of service. A farmer in the neighbourhood once asked me to prescribe for an ox that had repeated attacks of this disease. I recommended the use of peppermint and alum internally, and directed that the upper part of the throat, the under jaw, and the region of the kernels of the ear, should be rubbed with mercurial ointment and camphor. This treatment had the desired effect, for the animal never suffered again from the same complaint.

Magazin für die Gesammte Thierheilkunde, 1844, p. 83.

We may here take into consideration the occasional inflammation of THE MUSCULAR TISSUE OF THE TONGUE, an affection of which few veterinary writers, with the exception of Vitel and Volpi, have made any mention. It is recognized by the name of GLOSSITIS. It is occasionally observed among our domestic animals, particularly the horse, the ox, and the dog. It is superficial, profound, primitive, or symptomatic.

The superficial glossitis is chiefly connected with the mucous membrane of the tongue, which becomes red, hot, and painful, in some part of its extent, as we sometimes observe in animals af-

fected with angina or aphtha, or when the cause depends on some irritation with reference to that organ.

Profound or deeply-seated glossitis is more rare than the preceding affection, and it has also a more serious character. It attacks the whole or a great part of the tongue, and is sometimes accompanied by very alarming appearances. The tongue is not only red, hot, painful, and hard, but considerably enlarged in every part, and closely lodged in the mouth, which the animal keeps open, in order to diminish the pain that would result from its compression. Having passed the palate, it projects more or less from the mouth, sometimes hanging three or four inches from it. It is livid, or of a violet colour, particularly on its inferior surface, and becomes covered with a white matter.

In the mean time the vessels of the inferior surface are easy to be seen, and gorged with blood. There is an infiltration in the cellular substance situated beneath the membrane which covers the bridle of the tongue, and in that also which governs the engorged veins, in such a manner that we can see on the inferior surface of the tongue large irregular cords, surrounded with an infiltrated tissue. Ordinarily the submaxillary glands are swollen and painful, and the saliva runs abundantly from the mouth. If the tongue is much tumefied, especially at its base, the jaw-bones are forcibly held tight to each other, and it is difficult or even impossible to separate them. The functions of mastication and deglutition are painful and forced. The respiration is accelerated, and difficult to execute; indeed, to such degree as sometimes to threaten suffocation. This is principally the case with the dog, who respires chiefly through the mouth. The tongue is exceedingly dry when the inflammation assumes a serious character; and as it diminishes, the saliva or thick discharge, which was before exceedingly clear, becomes thick and viscid. In this state of things the fever develops itself, or sometimes precedes the attack; offers a remission of some hours on almost every morning, and characterizes itself by a hard and frequent pulse when the disease is most intense.

Frequently glossitis is accompanied by inflammation of the pharynx, the muzzle, the roof of the palate, or the submaxillary gland.

Glossitis must not be confounded with *glossanthrax.* The coldness of the portion of the tongue hanging out of the mouth—the redness, the violet or black colour, the black cords which cannot but be observed, must not induce the surgeon to think that he has to do with a *charbonneuse* affection, and that the inferior portion of the tongue is attacked by gangrene: these are only some of the phenomena resulting from inflammation, which involves

the floating portion of the organ—sometimes the fixed portion, and occasionally the whole. It is principally when the floating portion is alone affected that, dragged by its own weight, it projects from the mouth. If we then explore the interior of this cavity, we soon recognize that a little higher the organ is in nearly its natural state. In order to avoid any mistake, we should inquire whether the natural feeling still remains, or has ceased,—whether the circulation of the blood has ceased, or continues to be still carried on. For this purpose we may pinch the end of the tongue, or ascertain whether there are any spots. If the animal expresses pain, or the blood issues from any of the orifices, it is simply glossitis; but, on the contrary, if the sensibility is absent, and a serous fluid exudes from the punctures, there is no doubt that the tongue is affected by gangrene.

The first variety of glossitis is a comparatively slight affection, and readily yields to the use of some antiphlogistic measures, or disappears with the affection of which it is only a sympathetic phenomenon. The other variety is more serious, nevertheless it is ordinarily got rid of in a few days, if it is properly treated.

The causes are often unknown, and we cannot discover to what to attribute it. The presumed causes, or those which produce a direct irritant effect on the tongue, are the sting of an insect or venemous animal—the impression or action of venemous or caustic substances—the contact of acrid plants or grain, whose edges are sharp and cutting—the pressure of the bridle or bit—the wounds caused in the act of mastication—the annoyance of various of the molar teeth, whose edges are more or less pointed, &c. &c.

The antiphlogistic treatment alone will be of any service. The quantity of food should be lessened as much as is practicable. It should be of a soft and yielding and cooling nature. Its liquid food should consist of white water acidulated or nitrated. To the dog nothing should be given but broth or soup, or milk, according to the liking of the animal. Gargarisms should be administered, composed of barley-water, with honey, or acidulated with vinegar. Such are the light measures which may be adopted, and which are ordinarily efficacious, when the affection of the tongue is superficial and slight.

When the glossitis is more profound or general, it will be proper to produce immediate disgorgement from the affected part, and several times in every day to practise bleeding from the ranine veins, taking care to avoid the arteries of the same name. If too great enlargement of the volume of the tongue renders these local bleedings impracticable, they must be effected by scarifications of some depth, more or less numerous, and repeated on the fleshy

body of the tongue. At the same time emollient applications should be placed between the two branches of the maxillary bone, while the vapour of diluted vinegar is directed towards the mouth. Some persons insist on gargarisms of barley-water, with a small portion of vinegar and honey, and the exhibition of laxative medicines.

A general bleeding is indicated when the heart is irritated sympathetically. It should also be repeated when the return or violence of the glossitis demands it. No time should be lost in such case. If, in despite of all these measures, the swelling of the tongue increases, and even menaces suffocation, there should be no hesitation in having recourse to tracheotomy. The diminution of the swelling and of the other inflammatory phenomena generally follows these last measures. If, nevertheless, it should turn out otherwise, and that the inflammation of the tongue terminates in suppuration or gangrene, in the first case we should give issue to the pus by an incision, employing emollient gargarisms; then others, acidulated with honey, and afterwards astringents, replaced, if the suppuration should so far prolong itself, with tonic injections of bark and honey, or tincture of myrrh, or balsam of Peru.

In the second case we should employ gargarisms made with the same decoction, but acidulated with a mineral acid.

ON THE PRODUCTION OF ANIMALCULÆ DURING THE PROCESS OF DIGESTION.

In a recent number of the "*Comptes Rendus*" there is an excellent account, by Messieurs Gruby and Delafond, of "Researches upon some animalculæ that are developed, during digestion, in great numbers, in the stomach and intestines, in herbivorous and graminivorous animals." These we have transcribed, in the hope that some of the practical veterinarians of our country will direct their attention to the subject. The natural history of the entozoa and epizoa of the lower animals presents a wide field for inquiry, and would afford ample rewards to such as enter on it with zeal and industry.

The entozoa which are thus formed during the digestive process are found without much difficulty, by subjecting a solution of the recent excrements to the microscope, or in the fluid that may be found in the digestive canal immediately after death.

1*st.* Ruminants have, during their digestive process in the cud, four species, and the chyme:—

First Species.—Form long and flat; body provided with a granular carapace, convex above, flattened beneath, and indented towards its posterior part; head distinct; a band of vibratile cilia around the middle of the body; a long conical and moveable tail; movements of the cilia are rapid, those of the body are slow; length $\frac{1}{103}$th, and diameter $\frac{1}{208}$th of an English inch. This animalcule bears no analogy to those already known.

Second Species.—Ovoid form; body covered with a carapace indented before and behind; a conical tail; a crown of vibratile cilia at the anterior part of the body; movements very distinct; length $\frac{1}{320}$th, diameter $\frac{1}{780}$ of an English inch. This species is analogous to the brachionus polyacanthus of Ehrenberg.

Third Species.—Form lengthened and cylindrical; a smooth carapace; no tail; vibratile cilia around the mouth; movements very rapid; length $\frac{1}{780}$th, diameter $\frac{1}{1300}$th of an English inch. This species has a close resemblance to the *enchelis nebulosus* of Ehrenberg.

Fourth Species.—Form oval; no carapace; cilia upon all the surfaces of the body; buccal opening at one of the extremities; movements rotatory and very rapid; length $\frac{1}{112}$th, diameter $\frac{1}{520}$th of an inch. This species bears a great analogy to the *leucophris anodontæ* of Ehrenberg, and which Müller has seen in the water of the sea muscle.

The carapace, or transparent envelop of these animalculæ, permits the observation in their interior of the alimentary molecules with which they are nourished, and which render them more or less opaque. The number of these animalcules is so considerable, that in little less than a grain of alimentary matters taken in the first two stomachs of the sheep, there existed from fifteen to twenty of different kinds and sizes.

Considering that all these animalcules are principally composed of fibrine and albumen, we may estimate that the weight of from fifteen to twenty of these animals, existing in each grain of the liquid of the stomach, constitutes nearly one-fifth part of the total weight of the liquid in which they live. Now sheep have an average of from 6½ lbs. to 11 lbs. avoirdupois of aliments in the first and second stomachs, after an ordinary repast; the total weight of animals contained in these two stomachs will be the fifth part, or from 19 to 32 ounces. In the third, and particularly in the fourth stomach, these animalculæ are dead, and can be recognized only by the form of their carapace, which is then transparent. In the small and large intestines the remains of the carapace will only be found.

2*d.* The horse has, in the cæcum and dilated portion of the colon, seven species of animalculæ :—

First Species.—Form elongated, and conical at its anterior part; head not very distinct; posterior part of the body terminates abruptly; no tail; a granular carapace; two short anterior extremities, which are articulated and mobile, and terminated by some strong filaments; movements slow and analogous to those of the tortoise; length $\frac{1}{208}$th, diameter $\frac{1}{416}$th of an inch.

Second Species.—Form elongated and a little flattened; head distinct; carapace granulated; body provided with four extremities articulated upon the lateral parts, of which two are anterior and two posterior; a crown of vibratile cilia at the posterior part of the body; movements slow; length $\frac{1}{31\,5}$th, diameter $\frac{1}{7\,0}$th of an inch.

Third Species.—Form, ovoid; carapace, granular; a tuft of cilia at the anterior, posterior, and lateral parts of the body; movements slow; length $\frac{1}{7\,8\,0}$th, diameter $\frac{1}{1\,0\,4\,0}$th of an inch.

Fourth Species.—Body elongated with cilia upon the whole of its surface; movements slow; length $\frac{1}{1\,4\,0\,0}$th, diameter $\frac{1}{1\,8\,6\,0}$th of an inch.

Fifth Species.—Form, spheroidal; whole body covered with cilia; movements lively and rotatory; diameter $\frac{1}{492}$th of an inch.

Sixth Species.—This animalcule has some resemblance to the form of the turtle; carapace flattened, and bearing three slopes, two of which are furnished with tufts formed by large cilia; diameter $\frac{1}{3\,9\,0}$th of an inch.

Seventh Species.—Monad; $\frac{1}{2\,6\,0\,0}$th of an inch; the alimentary matters, more or less hard and moulded, contained in the last portion of the colon and in the rectum, offered only the carapaces of all these animalcules.

3*d.*—The dog has in its stomach two species of monads:—

First Species.—Body pyriform, terminated by a little tail; movements very lively; length $\frac{1}{1\,3\,0\,0}$th, diameter $\frac{1}{2\,6\,0\,0}$th of an inch.

Second Species.—Body pyriform; movements executed forwards and backwards with slowness; length $\frac{1}{3\,2\,0\,0}$th of an inch.

The duodenum and the anterior third of the middle portion of the small intestine contain these monads; but the last third, the cæcum, colon, and rectum, did not offer any.

4*th.*—The hog had only one species of animalcule in its stomach: the form is oval and flattened; the posterior part terminated in a conical tail; movements very lively; length $\frac{1}{1\,3\,0\,0}$th, diameter $\frac{1}{2\,6\,0\,0}$th of an inch.

5*th.*—These animalcules of digestion are generated, live, and swim in the acid liquid of the stomach; and, by placing it in a glass tube and kept constantly at a temperature of 86° to 95° Fah., they may be preserved alive for two or three hours.

6*th.*—The great number of these animalcules in the first two stomachs of ruminants, the presence of their carapaces in the third and fourth, and in the excrementitial matters; the number equally considerable in the cæcum and colon of the horse, as also the existence of the carapaces in the transverse colon and rectum, induce the conclusion that the organic matter of these animalcules is digested by the rennet of the ruminants; that it is absorbed in the colon of the horse; and that in the one as in the other viscus it gives an animal matter for digestion.

7*th.*—The consequence of this fact is, that herbivorous animals, as the sheep and the horse, take into their stomachs, in their natural state, vegetable matters, the fifth part of which is destined to give birth to, and to keep alive, a large number of animals of

an inferior development; which, digested in their turn, *furnish animal matters* to the general nutrition of these herbivorous quadrupeds.

In the dog and pig, which derive their nourishment from animal and vegetable substances, the animals are small, of one or two species only, and are seen in very few numbers.—(*Comptes Rendus;* also, *The London Physiological Journal,* No. 5.)

M.

THE VETERINARY ART IN INDIA.

By J. GRELLIER, *Esq., M.R.C.S.*

[Continued from p. 19.]

GLANDS are situated in almost every part of the body, for the purpose of what is generally termed secreting the various fluids from the blood, as urine by the kidneys, the bile by the liver, saliva by the salivary glands, semen by the testes, &c.

The property of secretion by the means of glands has been much doubted. A secretion implies that the fluid secreted exists in the blood: but this is not the case; for most of the fluids produced by the glands are not to be found in the bowels, which, I think, is a demonstrable argument against the elective property of glands; for the late opinions favoured the theory of appetency in the glands and lacteals. Many arguments have been adduced to prove the impossibility of appetency, or a desire existing in glands and lacteals to choose their own peculiar fluid; but the non-existence of these fluids in the blood is, I imagine, sufficient to entirely expunge this theory.

To the discovery of elastic fluids we are indebted for a probable explanation of this very important part of physiology. The blood, although it does not contain the respective fluids produced by the glands, yet does contain the elementary parts of which every fluid in the body is composed; there consequently remains but one mode of production, which is the separating from the blood these elementary parts, or rather decomposing the blood, and recomposing the divided parts by various combinations into the fluids produced by the glands; for I again observe, that every part of the animal frame, whether solid or fluid, is composed of the same principles, combined in various proportions.

This mode of operation in glands, I think, may be supported by many of the natural phenomena. The chyle of graminivorous and carnivorous animals, we should imagine, must be very opposite in their properties, as the one feeds on vegetables and the other

on animal matter, which, when simply dissolved, produce pulps of very opposite properties; but if they are still further decomposed, their produce is very similar; for their principles are the same, differing only in the proportions. It is, then, by allowing the lacteals the property of decomposing the assimilated matter of food in the intestines, that we can account for the sameness which we find in the chyle of carnivorous and graminivorous animals. This could not possibly be the case by any other mode of action; and from the discovery of the decompositions, and various recompositions perpetually succeeding in the vegetable world, and, in many instances, in the animal, the above operations of the lacteals will appear natural; for I conceive it is merely the infancy of the interesting discovery of elastic fluids which gives an air of improbability to every successive link of discovery, and fresh observations of their extensive operations in the field of nature.

Several more of the natural phenomena might be adduced in favor of this mode of operation in glands and lacteals, although amalogy is by no means the strongest proof that can be advanced in the present instance; yet if it is known that this operation takes place in other parts of the animal economy, or that there can be no other mode of acting, it will in some measure efface the appearance of theory or improbability—a kind of odium which every new observation or discovery has to combat previous to its adoption. A similar process is known to exist in the lungs, where the air is decomposed, and the oxygen separated from it; at the same instant a quantity of hydrogen from the blood combines with part of the oxygen, and water is produced, which escapes in exhaling. Here is the whole process successively performing every time we respire, and, as a continued series of well directed observations prove a sameness and simplicity in the operations of the universal economy, the above property of glands is the more plausible.

The rapid mode by which diuretics are known to act in some measure supports the above opinion.

If this property is not allowed to the glands and lacteals, by what mode shall we account for an animal out of condition being turned out to graze, and returning in twelve or fifteen days with an accumulation of a half hundred weight of fat? This cannot, surely, be produced by the quantity of poor sour herbs which the animal had picked up during that time; for the quantity of animal oil accumulated could scarcely be produced from any known quantity of grass; but if the decomposition of the watery parts of the herb is allowed, or of the water which the animal drinks, the phenomenon is developed; for the water as well as the herbs can supply, when decomposed, an abundance of the principles requisite for the formation of fat.

An objection may be advanced to this, or, rather, a query. If the brute creation can accumulate fat from water, or the most common and least nutritious herbs, why cannot the human subject receive the same benefit from water and vegetables? In reply, I have to remark, that such instances are not uncommon. Many of the natives of India live on rice and water, the lower class of Irish on potatoes and skim-milk, many young children use scarcely any thing else; and there is scarcely a doubt that a person elevated from infancy on vegetables and water may be fat and healthy: yet I imagine the human subject requires a different kind of food; and it is known that persons using animal diet are much stronger than the former description of people. When once a person has been accustomed to animal food, he can seldom exist long without it, for the stomach and bowels, once accustomed to a strong stimulus, will suffer from so great a reduction as to vegetables and water; and it is this deprivation of stimulus and want of solidity in the vegetable food which would injure the system more than the immediate want of nourishment, although the latter might exist to a considerable degree. Indigestion would take place, and the lacteals, losing their accustomed stimulus, would refuse to perform their functions; for it is an invariable rule in the laws of irritability, that the fibre, once stimulated, will require a yet stronger one to produce the same effect.

Previous to my leaving England, a circumstance occurred which I think cannot well be accounted for by any other operation than by this property in the lacteals and glands.

A French prisoner, of the name of Donery, taken in the Hoche by Sir J. B. Warren, was one of nine brothers remarkable for their voracious appetite. The above prisoner was allowed the rations of ten men daily, which could not quiet his voracious craving for food. That the fact might be well attested, Admiral Child and his son, Doctors Cochrane and Johnson, and many other respectable persons, were present on a day appointed to witness the quantity of food he would eat, and the effects produced. The following is the quantity consumed in twelve hours, and he yet was requesting more, which was refused:—Cow's raw udder, 4 lbs., solid beef, raw, 10 lbs., tallow candles, 2 lbs.: total of solids, 16 lbs., and five bottles of porter.

When he was with the French army, and much distressed for food, he used to eat daily five or six pounds of grass; but vegetables, and even bread, in general did not agree with him.

The diet which he preferred, and which also appears most grateful to his constitution, was entirely animal, and that raw. When in those situations in which he could not be supplied with wholesome provisions, he would eat live cats, dogs, and rats: of the

former, he was known to have eaten one hundred and seventy-four in one year. In the English prison such a shameful practice was not long suffered.

It is surprising that, with this enormous appetite and savage mode of gratifying it, his manners were amiable, and he was universally liked among his fellow prisoners, and in general very lively and active.

His skin was of the usual temperature, his pulse generally about eighty, his eyes were clear and bright, his tongue clean, and his stools natural. He had enjoyed one uninterrupted series of perfect health from a child, and his uncommon feeding never interrupted him during the day, and was so far from rendering him dull, that after he had eaten the quantity of provision witnessed by Admiral Child and company, he retired with his companions to spend the evening in dancing. He generally went to bed at eight o'clock, and immediately perspired intensely. About one o'clock he usually awoke very hungry, and would eat the residue of his day's provisions, and would again sleep, and violently perspire till he arose in the morning early, when the perspiration left him; and if he could procure a few pounds of raw flesh to satisfy his immediate craving, he was perfectly easy. As a proof of his strength and activity, he had frequently carried a load of three hundred weight to a considerable distance, and when in the army he has marched fourteen leagues with all his military appointments.

This is a very uncommon case, and no satisfactory explanation can result from the consideration of the lacteals taking up such an immense quantity of assimilated fluid; and, indeed, I must confess it is equally as inexplicable to imagine how the stomach could dissolve such a quantity of flesh, which it evidently conveyed into the system in a few hours. We can, however, draw one conclusion, which Dr. Johnson also remarks in his letter to Dr. Blane, shewing the very great importance of the discharge by the skin. I think, too, it is very obvious that one of the principal actions of food is to increase the stimulus of the whole body; for in the above case it does not appear that the man was more lusty than usual, although his digestive powers were so outrageous; but his strength, &c. was conspicuous, and the nocturnal sweat proceeded evidently from an increased action of the system. If we trace its progress, we shall find it stimulating the stomach and intestines, next the lacteals and mesenteric glands, from thence, increasing the mass of blood. It there also acts as a stimulus, until the circulation is reduced by the immense perspirations. The whole of this process appears to have taken place twice every night, without the least apparent injury to the system.

ON ANGINA TONSILLARIS IN HORSES.

By HERR EBERHARDT, *V. S., Keerhessen.*

[This account, translated from the German, may be somewhat interesting here.]

IT is well known that this disease consists in inflammation of the glands of the ear, and subsequent swelling and the formation of purulent matter. It occasionally is a dangerous disease, and difficult to contend with; but usually the steps from its crisis to its cure are sudden and rapid. For a few days before an attack, the appetite fails, the animal coughs frequently, and mares with foal lose their milk.

Symptoms.—The first actual symptom of disease is usually a shivering fit. The coat becomes rough and dull—the animal ceases to eat—the head is depressed—the neck extended, and the patient stands as far as possible from the manger, and rarely attempts to move. Occasionally it endeavours to eat; but the act of swallowing evidently produces pain, and is with difficulty effected. The whole of the throat is sore, and the animal shrinks from the slightest touch. The mucous membranes are somewhat inflamed—the ears cold—the pulse hard and wiry, and quicker than in its natural state. The looks express suffering—the dung is hard and dry, and the urine of a reddish colour. The patient, in general, suffers from thirst, and, although he finds it painful to swallow, he is constantly endeavouring to drink.

After a lapse of from twelve to eight-and-forty hours, both the breathing and the cough acquire a peculiar tone. The breathing has a rattling sound. It is not, however, a gurgling that is heard, but a harsh grating noise, as if the uvula was covered with adhesive clammy matter. The cough is tremulous and broken, and accompanied by a secretion of mucus. Whoever has once witnessed these two latter symptoms can afterwards rarely mistake the disease.

If strong stimulating embrocations are rubbed on the throat at this period of the disease, they scarcely produce any visible effect. Occasionally a small portion of serum is exuded—the skin becomes moist, the hair stands on end, and some few little bladders may be discerned; but no blister or actual swelling arises. The skin soon becomes dry again, no scab appears, and, after the lapse of a day or two, every trace of the effect of the embrocation has vanished. Even if blistering ointment is applied immediately

after the embrocation, the only effect that it produces is to cause the skin and hair to come off; but still no blister rises.

As the disease increases, the difficulty of breathing becomes greater; and it often happens that there is considerable danger of suffocation. The patient becomes exceedingly restless—his looks are haggard, and expressive of deep suffering—he moves impatiently to and fro—he is continually altering the direction of his head, as if seeking to obtain a little ease—he can no longer drink—he endeavours to suppress the cough as much as possible, the nostrils and flanks move convulsively, and the breathing becomes sufficiently loud to be heard at a distance of from twenty to thirty paces. On account of the painful difficulty of breathing, the animal cannot, without great difficulty, pass his dung, and consequently it accumulates in the intestine, so much so as to press on the bladder, and prevent the passage of the urine.

At length, when the disease reaches its height, which is generally from the third to the fifth day, the enlarged glands may be easily felt, the whole of the throat is swollen, and every symptom is at its height. Suddenly the swelling bursts, and the purulent matter, which has been formed during the progress of the disease, is discharged through the nose and mouth. When this occurs, the rattling in the throat ceases—the breathing becomes comparatively easy—the flanks no longer heave—the animal coughs without much pain—the head is again held in its natural position—the throat unbent—the eyes become bright and lively, and the ears warm. A considerable discharge of pus still continues, and gradually the swellings abate and every thing seems to return to its natural state; and the animal may be said to be well, usually within about twelve or fourteen days after the first appearance of the complaint.

Duration.—The duration of the disease depends upon circumstances. Where the causes have only slightly taken effect, the swelling and inflammation do not reach so great a height, every symptom is milder, and the patient is never in any danger; but where the attack is severe, the disease comes on rapidly and violently, and, at its height, there is occasionally danger of suffocation. The animal becomes very much weakened and reduced, because he is unable to take any food and thus repair the exhausted powers; their recovery is, consequently, very much protracted. The duration of the disease also depends, in a great measure, on the course of treatment which is pursued. When it is active, prompt, and judicious, the disease may be conquered in a few days; but a contrary course will often prolong it for weeks. The diet, also, exercises considerable influence. If the animal should exhibit any disposition to eat at the commencement of the disease, and hay or dry fodder is placed before it, nothing can prevent the attack from

becoming exceedingly violent, if not absolutely dangerous; whereas warm mashes, or no food at all, tend materially to ameliorate the complaint.

The usual duration of the complaint is from twelve to fourteen days; but where the attack is slight, and a judicious course of treatment is pursued, it often does not last more than eight days; on the other hand it may, under opposite circumstances, extend its duration to three weeks or a month.

Termination.—The disease usually terminates in a perfect cure, after the inflammation of the tumours of the ear had reached its height, and the swellings have burst and discharged all their purulent matter. Death seldom ensues, unless there is some unskilful treatment, or the animal is suffered to perish from suffocation, instead of the operation of tracheotomy being practised.

Post-mortem Appearances.—On the post-mortem examination of those which have died of angina tonsillaris, the glands of the ear are found to contain abscesses of various sizes, from that of a walnut to the size of a man's fist. These abscesses contain matter similar in appearance to that of all glandular enlargements.

Causes.—The causes of angina tonsillaris are exposure to cold, either from standing in some draught, from working in wet or snowy weather, or exposure to cold winds, or the animal being over-heated, and then suffered to stand in a draught, or to drink cold water, or being driven through water. Why angina tonlaris should be the consequence of cold taken in this manner, I cannot explain any more than I can the reason why rheumatism or inflammation of the lungs are brought on by other kinds of cold. All that we can say is, that the system is thus predisposed to take on this peculiar affection; but whether it is occasioned by too great susceptibility, or too great weakness of the parts attacked, is as yet unknown.

Prognosis.—This is in general favourable; for even when the disease assumes its most violent form, and we are compelled to confine ourselves to therapeutic treatment, and there seems every danger of suffocation, we can still have recourse to tracheotomy, and thus put an end to the fatality of the disease, even though we cannot immediately reduce the suffering. There is, in general, little danger of death; for, although the disease is painful and violent, it may generally be managed, and is not difficult to conquer when taken in time and properly treated.

Indications.—Every thing which is at all likely to increase the complaint should be removed. The animal should be kept quiet; and every means employed to bring the swellings *to a head* as soon as possible. I am by no means an advocate for opening the abscesses; on the contrary, I have never seen such proceeding at-

tended with good result, at least, in real angina, although occasionally it has proved beneficial in a milder form of disease, which resembles inflammation of the throat. The ordinary bodily functions, as the discharge of the dung, the urine, &c., should be regulated and restored to their natural action as soon as possible.

Regimen.—In cold weather body-clothes, without any holes or rents, should be put over the animal, every kind of draught through the stable carefully stopped, the door opened as seldom as possible, and the patient removed from the door and kept uniformly warm. A good litter of dry straw should be laid down; for, even if the animal is unable to rest on it, it will tend to promote general warmth. Nothing but luke-warm water should be given as drink, although the animal may evidently prefer that which is cold; for the least degree of cold of any kind will tend to heighten the attack. As soon as the abscesses have burst a pail of clear water should be kept standing near the patient, in order that he may rince his mouth and get rid of the offensive matter. If he has any appetite, warm or scalded food alone should be given, as bran mashes; but on no account dry fodder, as that increases the inflammation materially. When the abscesses have burst, clover or green hay may be given. Lastly, the animal should be kept as quiet as possible—not compelled to move his head and neck too much; and, above all, nothing should be done which is likely to induce a fit of coughing, unless the abscesses are ripe, and then a cough may be useful in bursting them; not that I advise such an experiment, for abscesses will generally break of their own accord when they come to a head; and if the fit of coughing is brought on a little too soon, it only retards their progress. If the legs of the animal are cold, they should be wrapped up in straw or hay-bands; but this must be done carefully, and so as to disturb the patient as little as possible. Before wrapping them up they should be well rubbed with dry straw.

Treatment.—The first step to be taken in the treatment is to bleed, more or less largely, according to the constitution of the animal, in order to reduce the fever and lower the pulse. The next is to place some purgative medicine in the drink placed before the animal, as Glauber or Epsom salts. These two things alone will materially tend to ameliorate the sufferings of the animal; and if the medicine is made of a proper temperature, it will conduce to the formation of matter in the glands. Should the patient be unable to drink from the soreness of throat, the purgative must be given in the form of a clyster, care being taken to disturb the patient as little as possible. Glauber's salts will still be the best medicine, with the addition of warm water. The clyster should be repeated until the required effect is produced.

The formation of the abscesses and the bringing of them to a head, should be promoted by poultices, or fomentations. The best plan is, to take a piece of cloth, three feet long and two feet wide, to fasten strings to each corner, and tie it round the jaw, the upper part of the throat, and lower part of the head; then take a small bag, of two feet long and one wide, and fill it with a poultice of linseed meal, or chamomile flowers moistened with hot water or milk, and put on at the same temperature as the skin of the animal. The outer piece of cloth will serve to keep this in its place. The poultice should not be suffered to remain on after it begins to cool, but be replaced by another and similar one, and so on until the abscess bursts. When this is the case, and the patient is evidently relieved, the poultices may be discontinued, and a hare or deer-skin wrapped round the throat.

Medicines can then be given, and an electuary composed of sal-ammoniac, fennel, carduus-benedictus, and liquorice, will be beneficial, as thus the digestive organs, which had been weakened by hunger and inactivity, will be brought into action, and the flow of the purulent matter and healing of the abscess assisted.

Convalescence.—When the animals are so far advanced as to be again capable of swallowing—when they can move the tongue and throat freely, and turn round without difficulty in the stall, and the secretion of purulent matter has entirely ceased, and the appetite returned, they may be gradually permitted to return again to dry fodder. A little hay may now be given, but the mashes must not be discontinued; they, however, as well as the water, need no longer to be warmed, and the animal may by degrees be accustomed to the temperature of the weather, whatever that may be. The straw round the legs, and afterwards the body clothes, may also be taken off; but all must be done gradually and prudently.

In general the digestive powers, will be found to be somewhat impaired, and the appetite by no means good. Where this is the case gentian should be substituted for liquorice in the electuary; and if this is given for a few days, the digestive functions will resume their natural powers.

If the weather is fair, the animal should be taken out for a little while every day, and regularly and progressively exercised, until he is fit to return to his accustomed work.

My readers will perceive that I have only treated of the disease in its simple form; but they must not infer from that, that it is seldom complicated. In the course of my practice, I have several times met with cases of Angina, complicated with other affections; but I have purposely avoided all mention of them in this paper. It was my intention to treat simply of Angina Tonsillaris. Its

varieties and complications would only have confused the subject here, and will be more properly considered in a separate paper.

I have also, and for the same reason, been silent respecting its passing into some other complaint, which it not unfrequently does. I have seen some few cases of this; but they always appeared to me to be rather a complication with, than an alteration into, another disease.

Magazine für die Gesammte Thierheilkunde, 1844, p. 88.

A CASE OF LARYNGITIS, FOLLOWED BY NEPHRITIS.

By Mr. R. W. Wallis, *Dunmow, Essex.*

My dear Sir,—If a brief outline of this case is considered worthy a nook in your valuable Journal, it is at your service.

On the 4th of January ult., I was requested to attend upon an aged pony, the property of a clergyman in this neighbourhood. On my arrival I found, by the symptoms evinced, that laryngitis had set in. The respiration and pulse were accelerated—the appetite fastidious—difficulty of deglutition, with painful cough.

My treatment consisted in bleeding, laxative and fever medicine, with the employment of counter-irritation to the throat, and attention to the diet of the animal, &c., which, in the course of ten days, set all tolerably right again, not, however, without my patient having sustained considerable loss of condition.

At the interval of little more than a week, I was again summoned to attend upon this pony, which was said to be in the last stage of disease. My old patient presented a sorry appearance—his countenance was extremely anxious—he was restless, making frequent efforts to pass his urine, which was scanty, and of the colour of porter—occasionally lying down, and, when made to walk, his gait being straddling and awkward.

These symptoms, together with others, forewarning me of disordered kidneys, my attention was directed to a considerable swelling on either side of the spine, extending from the hip to the withers, which I found to be of an œdematous character and painful. On pressure being applied over the region of the kidneys, it was sufficiently evident, that either there was a species of remote metastasis of the laryngeal inflammation, or, as I was disposed to think, a kind of settling of the febrile state of the system had fallen upon the urinary secretory apparatus, there being an inflammatory diathesis already existing in these organs.

By copious venesection, a brisk purge, the application of a sheep-skin to the loins, and, subsequently, the employment of medicinal counter-irritation over that region, conjointly with the administration of fever medicine and occasional doses of æther. nit. opii, which latter I believe to be very useful in these cases if judiciously given, I was enabled a second time to release my patient from the invasion of another form of disease which Nature has imposed as a penalty upon the domestication of our equine slaves.

I would just observe, that the laryngitic affection was doubtless ushered in by the pony having been incautiously turned out of a warm stable to a damp cold pasture; and, I would add, rather abruptly, too, being compelled by the villany of some dastardly incendiary. An unusual state of weather occurring in the course of this case, perhaps, caused a great infiltration of lymph along the lumbar portion of the back under the latter malady, which I apprehend was referrible to a favourable extension of the phrenitic inflammation, as it certainly appeared to have moderated the intensity of the attack upon those organs.

THE EMPLOYMENT OF ARSENIOUS ACID AND UNGUENTUM HYDRARGYRI.

By Mr. Cox, *Leek.*

THE cases recently recorded in your Journal of poisoning by arsenic being applied to the skin bring to my recollection what occurred upwards of fifteen years ago.

A farmer had five cows (his all) infested with lice. Application was made to a person famous for destroying this kind of vermin. The doctor prescribed a solution of arsenious acid,—the hair of the animals to be wetted with it; but the farmer exceeded his instructions, and gave each of them a good rubbing; the consequence of which was, that two died on the following day, and two others on the second day from the application, exhibiting the usual symptoms before death, and in the post-mortem appearances, of poisoning, the same as when the mineral is given internally. They were clothed, and great care was taken that they did not lick themselves, &c.

The cow which survived narrowly escaped with life. Extensive sloughing took place on various parts of the body, and she became a mere skeleton.

The next is a case of Ptyalism from the application of the unguentum hydrargyri :—

My first impression was, that it was a case of the eruptive epizootic, so prevalent at that time among cattle; but on a minute examination I found that she was in a state of salivation. She had been very much infested with large black lice, to destroy which the unguentum hydrargyri had been freely used. She was well supported with decoction of linseed, and, in a few days, the effects of the mercury began to subside; but the result of this was, that the hair of her ears sloughed off close to the head, and likewise the points of both of the ossa calcis, and to such an extent, that one of the tarsal joints was left open, which caused me no little trouble to stop the escape of synovia. Her tail, likewise, became almost denuded of hair; nevertheless, she ultimately rallied, and milked well in the following summer.

In the spring of 1842 she became rotten, or affected by constitutional dysentery — altogether a different disease to what our writers call diarrhœa and dysentery: the two latter are diseases of mucous membrane of the intestines,—the former is not.

THE VETERINARIAN, MARCH 1, 1844.

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

Our friends, Messrs. Turner and Mayer, request that we reserve all comments on the glorious intelligence which they communicate until the April Number of our Journal. We obey; but our feelings of joy and gratitude are truly deep, although not yet expressed. The following is the communication from the President and Secretary :—

WE stop the press to announce, that her most gracious Majesty the Queen has been pleased to grant to Thomas Turner, of 311, Regent-street, Middlesex, and of Croydon, Surrey; William Joseph Goodwin, of Queen's-mews, Pimlico; Thomas Mayer, of Newcastle-under-Lyme, Stafford; William Sewell, of the Royal Veterinary College, Camden Town; William Dick, of

Edinburgh; Charles Spooner, No. 1, Great College-street; and James Beard Simonds, of No. 9, College-street, London, and to such persons as now hold certificates of qualification from the Royal Veterinary College of London, or the Veterinary College of Edinburgh, and to such others as now are or hereafter may become students of the same Colleges, or either of them, or of such other veterinary college, corporate or incorporate, as now is or hereafter may be established for the purposes of education in veterinary surgery, whether in London or elsewhere in the united kingdom, and which may hereafter be sanctioned by the royal sign manual in that behalf, and should pass such examination as might be required by the Royal College of Veterinary Surgeons—a *Royal Charter of Incorporation*—that they may henceforth be one body politic and corporate, by the name and title of "The Royal College of Veterinary Surgeons," and that by that name they should have perpetual succession and a common seal, with full power and authority to alter, vary, break, and renew the same at their discretion, and by the same manner to sue and be sued, implead and be impleaded, and answer and be answered unto, in every court of her said Majesty, her heirs and successors, and be for ever able and capable in law to purchase, receive and possess, to them and their successors, any goods or chattels or other personal property whatsoever—and should have full power and authority to sell and dispose of any goods and chattels or other personal property, so to be by them acquired, and to act and do in all things relating to the said proposed body politic and corporate, as fully and effectually to all intents, constructions, and purposes whatsoever, as any other of her Majesty's subjects, or any other body politic and corporate in the united kingdom of Great Britain and Ireland, not being under any disability, might do in their respective concerns.

That the veterinary art, as practised by the members of the said body politic and corporate, should thenceforth be deemed and taken to be, and recognized as, a profession; and that the members of the body politic and corporate, *solely* and *exclusively* of *all other persons* whomsoever, shall be deemed and taken and recognized to be members of the said profession, or professors of the said art, and

shall be individually known and distinguished by the name or title of "Veterinary Surgeon."

The Charter contains many other provisions, which we hope to publish in full in our next Number, with our remarks thereon. We can only add, now, our sincere congratulations on the successful termination of the labours of the Committee, which will prove one of the greatest steps for the advancement of veterinary science ever accomplished in this or any other country.

The Editors have unfeigned pleasure in laying a second document, just received, before the profession. Its value cannot be too highly estimated. It will, in truth, form the commencement of a new and glorious era in the veterinary art. We have now, however, only time and space to announce the receipt of it.—ED.

To the Members of the Veterinary Profession.

Gentlemen,—SINCE the period when your Committee undertook the responsibility of watching over your interests, and the duty of carrying out your plans for the advancement and improvement of the veterinary art, they have, by an honest and undeviating line of policy, endeavoured to obtain for themselves and for you a Royal Charter of Incorporation.

They now congratulate you on the success of their labours, and beg to announce that Her Majesty has been pleased to grant to Thomas Turner, of No. 311, Regent-street, in the county of Middlesex, and of Croydon, Surrey; William Joseph Goodwin, of Queen's Mews, Pimlico, in the county of Middlesex; Thomas Mayer, the elder, of Newcastle-under-Lyne, in the county of Stafford; William Sewell, of the Royal Veterinary College, Camden Town, in the county of Middlesex; William Dick, of Edinburgh; Charles Spooner, of No. 1, Great College-street, St. Pancras, in the county of Middlesex; and James Beard Simonds, of No. 9, College-street, St. Pancras, in the county of Middlesex,—and such other persons as now hold certificates of qualification from the Veterinary College of London, or the Veterinary College of Edinburgh, or hereafter may become students

of the same colleges, or either of them, or of such other veterinary college, corporate or incorporate, as now is or hereafter shall be established for the purpose of education in veterinary surgery, whether in London or elsewhere in the United Kingdom, and which may hereafter be sanctioned by the royal sign manual in that behalf, and should pass such examination as may be required by the Royal College of Veterinary Surgeons,—a *Royal Charter of Incorporation*,—that they may henceforth be one body politic and corporate, by the name and title of THE ROYAL COLLEGE OF VETERINARY SURGEONS; and that, by that name, they should have perpetual succession and a common seal, with full power and authority to alter, vary, break, and renew the same at their discretion, and by the same name to sue and be sued, implead and be impleaded, and answer and be answered unto, in every court of her said Majesty, her heirs and successors, and be for ever able and capable in the law to purchase, receive, and possess, to them and their successors, any goods and chattels, or other personal property whatsoever, and should have full power and authority to sell and dispose of any goods and chattels or other personal property so to be by them acquired, and to act and do in all things relating to the said body politic and corporate as fully and effectually, to all intents, constructions, and purposes whatsoever, as any other of her Majesty's subjects, or any other body politic and corporate in the United Kingdom of Great Britain and Ireland, not being under any disability, might do in their respective concerns; and that the veterinary art, as practised by the members of the said body politic and corporate, should henceforth be deemed and taken to be, and recognised as, a profession; and that the members of the said body politic and corporate *solely* and *exclusively*, or all other persons whomsover, shall be deemed and taken and recognized to be members of the said profession, or professors of the said art, and shall be individually known and distinguished by the name or title of Veterinary Surgeons; and also for regulating the appointment of a council, consisting of a president, six vice-presidents, and twenty-four members; and also for regulating the annual appointment of a president and vice-presidents, and other officers of the said body politic and corporate, and the change or re-election of six members of the council every year, and the examination and government of

the students who shall have been educated at the said colleges, or either of them, and who may be desirous of becoming members of the said body politic and corporate, and the holding of general meetings of the said body politic and corporate, and for vesting the whole property of the said body politic and corporate in the said body politic and corporate, as well as for other purposes and objects in the said Charter prescribed and authorized.

The advantages which this Charter of Incorporation will afford to the profession will be further enhanced, should Parliament grant the privileges and exemptions which your Committee hope for, but which could not be obtained so long as the veterinary body was not legalized.

The benefits which the profession have thus had bestowed upon them have not been acquired without considerable expense and some difficulty. The cost of the Charter alone, including stamps, fees, &c., amounting to £700; and for this sum the Committee have made themselves responsible. To release them from their responsibilities, and to defray the legal and other necessary expenses consequent upon the obtainment of the Charter, it is imperative that, including the sum already in the Treasurer's hands, the sum of £1000 be raised.

Your Committee, relying on your zeal and fidelity, feel convinced that you will not be slow in assisting them by your donations, in relieving them from those responsibilities, and in maintaining the honour of the veterinary profession.

Before closing this report, to which a statement of the accounts is annexed, your Committee beg most cordially to thank those who have already contributed to the funds, and again to appeal to their liberality.

To those who have not as yet assisted them, they trust that, now a great and important step has been gained, which opens such prospects for veterinary science, and will be of such benefit to each individual in his standing in society, contributions from them will not be denied.

The labours of your Committee must soon cease; and, when called upon to surrender their trust, they feel convinced that their exertions will meet with your approbation.

Dr. *FRANCIS KING, Jun., in account with Cash.* *Cr.*

1844	£.	s.	d.	1844	£.	s.	d.
Total Receipts from Feb. 1841, to Feb. 1844	189	7	6	Feb. Postages	5	2	2
				— Legal Expenses up to Oct. 5th, 1842	24	10	8
				— Printing Reports, Registers, Books, Advertisements	25	19	0
				— Sundries	4	11	4
				— Committee Expenses	1	18	0
				Cash in the Treasurer's hands, Feb. 16, 1844	127	6	4
	£189	7	6		£189	7	6

It is requested that all donations to the fund under five pounds be remitted to Mr. Francis King, jun., Stanmore, Middlesex, or to Mr. T. W. Mayer, Newcastle, Staffordshire, secretary, by a post-office order; and any amount above that sum by an order on some banker in London, or to Messrs. Drummonds, Charing-cross, to the account of the Royal College of Veterinary Surgeons.

By order of the Committee,

THOS. WALTON MAYER,

Secretary.

HYSTERITIS IN A MARE.

By Mr. A. S. COPEMAN, *Halesworth.*

THE meagre state of our literature in regard to this disease in the mare—for, indeed, British writers are all but silent on it—would seem to afford incontestable proof that it is a disease of rare occurrence; but I am inclined to think that in breeding districts such is not really the case. I trust that the many able contributors to THE VETERINARIAN will not allow the present year to pass by without affording their aid towards its elucidation.

In furtherance of the above object, I beg to place the following case at your disposal:—

January 11*th*, 1844.—Mr. James Peck, of this place, requested me to see a seven-year-old cart mare, in good condition. I was informed that the mare had aborted twin foals on the night of the 9th inst.; but as her appetite was not impaired, little notice was taken of her until this afternoon, when the following symptoms were observed:—A slight rigor—the body bedewed with sweat in patches, and the look gloomy and depressed. Soon after this she became uneasy, frequently lying down and looking at her flanks; but there was no violence, or attempt to roll upon her back. She walks stiffly, with her back roached. There is not any appetite.

On more closely examining her, I found the pulse 85, hard and incompressible—the visible mucous tissues highly injected—the vagina red, and discharging a fœtid bloody fluid—the state of the fæces quite normal.

Treatment.—When I had abstracted eighteen pints of blood, the pulse faltered. Having placed her in a loose box, I put a rug on her back, and bandaged her legs. I gave a full dose of cathartic medicine, and ordered a bran mash to be placed within her reach, and to be watched during the night.

12*th.*—Pulse 50, soft—the mucous tissues nearly normal—no indication of abdominal or other pain—the discharge from the vagina less in quantity and more healthy—medicine doing its duty. On the whole, she is much better, and has eaten her mash. Give a fever ball.

13*th.*—Continuing to improve—appetite good. Give a fever ball. She was fed carefully for a few days, when all the functions became healthy.

Observations.—In my note book I find that in all the cases I have treated (i. e. of hysteritis), the system has tolerated the effects of the loss of blood to a surprising degree.

The symptoms of inflammation of the womb are, many of them, common to enteritis and colic; yet, if we may judge from the animal's mode of expression, I should say the sufferings are not so acute as in either of these diseases. It generally occurs between the second and fourth days after delivery. The fœtid discharge from the vagina, and the stiff awkward gait, will assist very much in distinguishing it from enteritis; and it never can be mistaken for colic by him who will pay diligent attention to the case.

A CASE OF INTERNAL HÆMORRHAGE IN A COW, PROCEEDING FROM EXTERNAL VIOLENCE.

By Mr. G. Gooke, *Edwinston, Nots.*

An Alderney cow, in calf, the property of the Countess of Scarborough, and which was suffering from severe lameness in the stifle joint, was run at by another cow, knocked down, and dragged upon the ground some distance by the horns of her adversary, without, however, penetrating the skin, although grazing it severely.

Ten minutes after this the carman came and told me that she was swelling to an enormous size underneath her belly. I immediately attended, and pronounced it to be a rupture of the abdominal or milk-vein. The symptoms were, anxious countenance—increased respiration—horns and ears alternately hot and cold—legs warm—pulse hard, full, and quick.

The treatment which I adopted was as follows:—Venesection to syncope, an aperient drink, which in due time acted well—diet opening and of easy digestion—medicine and food changed as the symptoms required. Trusses were passed round the body, which acted in a three-fold manner, namely, by keeping the animal warm, being a support to the pendulous mass, and a vehicle for fomentations being applied, which were kept up constantly for a week. Cloths dipped in hot water were placed upon the loins and then pressed by the hands, by means of which the water trickled down the mass, thereby taking a large surface.

I consider that fomentations have a more beneficial effect by having plenty of water in the cloths, and not squeezed out.

The cow had considerable fever with increased respiration for some days, which I reduced by means of febrifuge and sedative medicines.

The swelling was considerably less five days after the accident; but, on the eighth day it was larger than ever, and very painful. I therefore plunged a very small penknife into it, in preference to a lancet, and a considerable quantity of serous fluid escaped. After this I enlarged the opening sufficiently for the introduction of my hand, and drew forth a handful of coagulated blood. The quantity of serous fluid was now very much increased, and would have filled a half-peck measure.

I then closed the orifice with metallic setons, leaving a small opening, through which I applied my dressing daily, by means of tow wrapped round the end of a long whalebone probe, and dipped into warm ung. tereb. with hellebore. By means of this I was enabled to touch the wound at every part, after which I was very

particular in excluding the air. The wound continued to heal gradually day by day, and the cow is now perfectly recovered, but her secretion of milk ceased gradually.

AN ACCOUNT OF THE SWALLOWING OF AN EGG, AND OF A STICK.

By Mr. J. OSBORNE, *Ashborne.*

THE following case, although not attended with any serious consequences, may be, in some degree, the means of dispensing with that cruel habit of administering unbroken eggs to the horse, in order to improve him for the chase, or, to use to owner's words, "make him long-winded."

It is that of a bay mare, belonging to a young sportsman. On the 12th January he had given her an egg, which she did not appear to swallow as usual; but immediately commenced coughing, and, in fact, presented every symptom of being choaked, the shell having broken. The owner, being much alarmed, sent her to Mr. Cope, resolved to give no more eggs.

The probang being well wrapped with tow, we proceeded to remove the shell; but from the edges adhering so closely to the mucous coat of the œsophagus, great difficulty was experienced in so doing. At length, however, we succeeded in removing the obstacle, but not without first damaging the mucous membrane, which ultimately caused inflammation of the lungs: however, with the usual treatment, the mare soon recovered.

Having heard of a similar case which proved fatal, the patient's life was feared. After all the usual means had been tried, œsophagotomy was resorted to; but as the exact situation of the shell could not be found, the horse died.

In order to fill up my letter, I will state the following singular case:—

A pig, belonging to my father, was fed in the usual way. About a month prior to the time of killing, he was observed not to feed so well, and looked much thinner; but as he regained his appetite in the course of a fortnight, little was thought of it. At the end of the month he was killed. On taking out the inside, a hazel-stick, eighteen inches in length and one and a half in circumference, was found in the stomach and duodenum, which it had perforated at several places, without any mischief from the escape of excrement: two inches only of the stick now remained in the stomach. Its whole length was firm, and not in the least decayed. The stick is preserved as a curiosity.

THE

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THE

ROYAL CHARTER OF INCORPORATION

OF

VETERINARY SURGEONS.

Victoria, BY THE GRACE OF GOD, of the United Kingdom of Great Britain and Ireland, Queen, Defender of the Faith, TO ALL TO WHOM THESE PRESENTS SHALL COME, GREETING: WHEREAS our loving subjects THOMAS TURNER, of No. 311, Regent Street, in the County of Middlesex, and of Croydon, in the County of Surrey, Veterinary Surgeon; WILLIAM JOSEPH GOODWIN, of Queen's Mews, Pimlico, in the said County of Middlesex, Veterinary Surgeon; THOMAS MAYER the elder, of Newcastle-under-Lyme, in the County of Stafford, Veterinary Surgeon; WILLIAM DICK, of Edinburgh, in that part of Great Britain called Scotland, Veterinary Surgeon; WILLIAM SEWELL, of the Royal Veterinary College, Camden

Town, in the County of Middlesex, Veterinary Surgeon; CHARLES SPOONER, of No. 1, Great College Street, St. Pancras, in the said county of Middlesex, Veterinary Surgeon; and JAMES BEART SIMONDS, of No. 9, Great College Street, St. Pancras, aforesaid, Veterinary Surgeon, Members of the Royal Veterinary College of London, have, by their Petition, humbly represented unto us, That the Royal Veterinary College of London, and the Veterinary College of Edinburgh, have been established for many years for the education of students of the veterinary art; That our said Petitioners have been pupils at the said Royal Veterinary College of London; That the said Royal Veterinary College of London was established in the year one thousand seven hundred and ninety-one, and has been patronized by our royal predecessors, and now enjoys our royal patronage; That the said College was instituted to improve the veterinary art, which had been theretofore practised generally by ignorant and incompetent persons, which had been long and universally complained of; That Parliament, being fully convinced of the propriety of such an institution as the Royal Veterinary College of London, and of the national benefits to be derived from it, has munificently (when required) granted aid to that establishment; That our said Petitioners humbly submitted that the institution of the Royal Veterinary College had been of great advantage to the country and to our royal army, and the utility of it had been so highly estimated that some years ago a board of general officers was appointed to take the utility of the said institution into consideration, and they re-

ported that the loss of horses accruing to our cavalry, which had been theretofore very heavy, was principally owing to the total ignorance of those who, previously to the appointment of veterinary surgeons educated at the said Veterinary College, had had the medical care of them; That for the instruction of the pupils of the said Veterinary College, a professor, an assistant professor, and other proper officers, are appointed, so as to form a school of veterinary art, in which the anatomical structure of horses, cattle, sheep, dogs, and other domesticated animals, the diseases to which they are subject, and the remedies proper to be applied, are investigated and regularly taught, and that by these means enlightened practitioners of liberal education are dispersed over our kingdom; That our said Petitioners had been at considerable expense in payment of the necessary fees on entry as pupils at the said Royal Veterinary College, and to the different lectures on anatomy, pathology, surgery, and chemistry, during their probation at the said College, in which they remained until from the Medical Examining Committee (which consisted of the most eminent physicians and surgeons, teachers in the various branches of medical science in London) they had obtained a proper certificate or diploma, and were considered qualified to practise the veterinary art; That our said Petitioners had all obtained such certificate or diplomas, and that nearly one thousand members, who had been graduated at the Veterinary Colleges of London and Edinburgh, are now practising as veterinary surgeons in our dominions, and that their practice, under the blessing of Divine Providence, tends greatly to the alleviation

of the sufferings of those animals confided to their care; That the veterinary art is not recognized by law as a profession; That, owing to our said Petitioners not participating in the privileges and exemptions which have been granted to the medical and other professions, much injury has arisen to themselves in the course of their practice, as well as loss to their employers; That our said Petitioners are so fully occupied in the discharge of the duties of their profession, and they are so continually at the call of the public, as to be very ill qualified to discharge, with due regard to the interests of the public, the parochial and other services which the law at present enforces on them; and that, considering the progress already made in the advancement of the veterinary art by the superior education and attainments of veterinary practitioners, our said Petitioners humbly submit that considerable advantages would accrue to our subjects generally by enabling our said Petitioners and others constituting the body of veterinary surgeons to possess privileges from which they have been hitherto excluded; and our said Petitioners, being convinced that the sanction of our Royal Charter of Incorporation would materially contribute to the advancement of the veterinary art and the respectability of the veterinary practitioners, have humbly prayed that we should grant to them, and to such other persons as now are certificated members of the Royal Veterinary College of London, or of the Veterinary College of Edinburgh, our Royal Charter of Incorporation, that they might from thenceforth be one body politic and corporate, by the name and title of the Royal College of Veterinary Surgeons, with such

rights, powers, privileges, franchises, and immunities, as are hereinafter expressed, and that the veterinary art might henceforth be recognised by law as a profession: NOW THEREFORE KNOW YE, that we, being desirous to encourage a design so laudable, of our special grace, certain knowledge, and mere motion, HAVE willed, granted, ordained, and declared, and DO by these presents, for us, our heirs, and successors, will, grant, ordain, and declare, that the said Thomas Turner, William Joseph Goodwin, Thomas Mayer, William Dick, William Sewell, Charles Spooner, and James Beart Simonds, together with such others of our loving subjects as now hold certificates of qualification to practise as veterinary surgeons, granted by the Royal Veterinary College of London, or by the Veterinary College of Edinburgh, respectively, and such other persons as respectively now are, and may hereafter become, students of the Royal Veterinary College of London, or of the Veterinary College of Edinburgh, or of such other Veterinary College, corporate or unincorporate, as now is or hereafter shall be established for the purposes of education in veterinary surgery whether in London or elsewhere in our United Kingdom, and which we, or our Royal successors, shall under our or their sign manual authorise in that behalf, and shall pass such examination as may be required by the orders, rules, and bye-laws which shall be framed and confirmed pursuant to these presents, shall by virtue of these presents be members of and form one body politic and corporate, by the name of "THE ROYAL COLLEGE OF VETERINARY SURGEONS," by which name they shall have perpetual succession, and a common

seal, with full power and authority to alter, vary, break, and renew the same at their discretion, and by the same name to sue and be sued, implead and be impleaded, and answer and be answered unto in every court of us, our heirs, and successors and be for ever able and capable in the law to purchase, receive, and possess to them and their successors any goods and chattels, or other personal property, whatsoever; and shall have full power and authority to sell and dispose of any goods and chattels, or other personal property, so to be by them acquired; and to act and do in all things relating to the said body politic and corporate as fully and effectually to all intents, effects, constructions, and purposes whatsoever, as any other of our liege subjects, or any other body politic and corporate in our United Kingdom of Great Britain and Ireland, not being under any disability, might do in their respective concerns: AND WE DO FURTHER DECLARE and GRANT, That the veterinary art as practised by the members of the said body politic and corporate shall be henceforth deemed and taken to be and recognised as a profession, and that the members of the said body politic and corporate solely and exclusively of all other persons whomsoever shall be deemed and taken and recognised to be members of the said profession or professors of the said art, and shall be individually known and distinguished by the name or title of veterinary surgeons: AND WE DO FURTHER DECLARE and GRANT, That general meetings of the members of the said body politic and corporate shall from time to time be held; and that there shall always be a council to direct and manage

the concerns of the said body politic and corporate, and that the council shall consist of not more than thirty-one nor less than twenty-four members, of whom one shall be president, six shall be vice-presidents, and one shall be secretary; and the members of the council, the president and vice-presidents, with the exception of the first president, who is appointed by these presents, shall be severally elected and appointed in manner hereinafter mentioned: AND WE DO HEREBY APPOINT, That the said Thomas Turner shall be the first president of the said body politic and corporate; and that he shall remain the president until some other person is elected in his place or stead as hereinafter mentioned: AND WE DO FURTHER DECLARE, That the president, vice-presidents, and members of the council, shall be elected from and amongst the members of the said body politic and corporate: AND WE FURTHER DIRECT, That within four months from the date of these presents the first general meeting of the members of the body politic and corporate shall be held, and such meeting shall be held at the Freemasons' Tavern, Great Queen Street, Lincoln's Inn Fields, in the said county of Middlesex; and the said first president of the said body politic and corporate, or in case of his death the others or other of our aforesaid Petitioners, or the major part of them, or the survivor of them, if but one of them shall be then living, shall fix the day and hour for holding the said general meeting, and shall convene the same by advertisements published in the London Gazette and in two or more London and Dublin daily newspapers, and in two or more Edinburgh papers, at

least twenty-one days, and not more than thirty days, before the time of holding such general meeting, and in each advertisement the object of such meeting and the time of holding the same shall be stated; and at such meeting twenty-four members of the said body politic and corporate shall be elected members of the council, and such first general meeting may adjourn from time to time, and for such time as such first general meeting or any adjournment thereof shall think proper; and every such adjourned meeting shall be considered a continuance of such first general meeting: AND WE DO FURTHER DIRECT, That on the first Monday in the month of May, one thousand eight hundred and forty-five, and on the first Monday in the month of May in every subsequent year, an annual general meeting of the members of the said body politic and corporate shall be held at some place within the city of London or Westminster, or the suburbs thereof; and every annual or other general meeting of the members of the body politic and corporate shall be convened by the council by advertisements published in the London Gazette, and in such two or more London and Dublin daily newspapers, and in two or more Edinburgh papers, as the council shall think fit, at least twenty-one days, and not more than thirty days, before the time of holding the same; and in each advertisement the object of such general meeting, and the day, hour, and place of meeting, shall be specified; and the annual general meetings, and the adjournments thereof, shall be held and the business to be done thereat shall be transacted whatever may be the number of members present thereat, but no business

shall be transacted at any other general meeting of the members of the body politic and corporate unless ten or more members shall be present; and every annual or other general meeting may adjourn to such time as the original meeting or any adjournment thereof shall think proper; and every adjourned meeting shall be considered a continuance of the meeting from which the adjournment took place, and no business shall be transacted at any adjourned meeting except the business left unfinished at the general meeting from which the adjournment took place: AND WE DO HEREBY FURTHER DIRECT AND DECLARE, That with the exception of the persons to be elected at the first general meeting of the members of the said body politic and corporate as hereinbefore is mentioned, and of the person hereinbefore appointed the first president of the said body politic and corporate, and of the persons who shall be appointed presidents and vice-presidents as hereinafter directed, and of the persons who shall be appointed temporary members of the council as hereinafter also is mentioned, the members of the council shall be elected at the annual general meetings, and that the president and vice-presidents shall be ex-officio members of the council; and that on the day on which the annual general meeting in the month of May, one thousand eight hundred and forty-five, and on the day on which the annual general meeting shall be held in every subsequent year, the president and vice-presidents and six members of the council and also the secretary shall go out of office, but any president or vice-presidents

who shall have been appointed from amongst the members of the council, and any secretary, shall not by reason of his going out of office as president, or vice-president, or secretary, cease to be a member of the council; and that any member of the said body politic and corporate, whether for the time being a member of the council or not, shall be eligible to be appointed to the office of president or vice-president, and that the secretary shall at all times be appointed from the members of the council: And that for the purpose of determining the six members of the council who are to go out of office on the days on which the annual general meetings in the month of May, in the years one thousand eight hundred and forty-five, one thousand eight hundred and forty-six, one thousand eight hundred and forty-seven, and one thousand eight hundred and forty-eight, shall be held, the names of the persons to be elected members of the council at the first general meeting of the body politic and corporate as hereinbefore is mentioned shall be inserted in a list in regular order according to the dates of the respective certificates of qualifications granted by the Royal Veterinary College of London, or by the Veterinary College of Edinburgh, or of such other Veterinary College as hereinbefore mentioned, as the case may be, commencing with the name of that person who according to the date of his certificate shall appear to have last obtained such certificate, and ending with the name of the person who shall according to the date of his certificate appear to have first obtained such certificate; and in those cases where the certificates of two or more of such persons shall be

dated on the same day, the person in the chair at such first general meeting shall determine by lot the order in which the names of such two or more persons shall be inserted in such list, and after such list shall have been completed the members so elected at the said first general meeting shall be divided into four classes consisting of six each, taking them in the order in which their names shall have been arranged on the said list, the first six names in the list forming the first class, the second six names in the said list forming the second class, the third six names in the said list forming the third class, and the last six names in the said list forming the fourth class; and the members whose names are mentioned in the first class shall be those to go out of office on the day on which the annual general meeting in one thousand eight hundred and forty-five shall be held, and the members whose names are mentioned in the second class shall be those to go out of office on the day on which the annual general meeting in one thousand eight hundred and forty-six shall be held, and the members whose names are mentioned in the third class shall be those to go out of office on the day on which the annual general meeting in one thousand eight hundred and forty-seven shall be held, and the members whose names are mentioned in the fourth class shall be those to go out of office on the day on which the annual general meeting in one thousand eight hundred and forty-eight shall be held; and on the day on which the annual general meeting in the month of May shall be held in the year one thousand eight hundred and forty-nine and in every subsequent year the six members of the council to go

out of office shall be the six who shall have been longest in office; and that on the day on which the annual general meeting shall be held in the month of May one thousand eight hundred and forty-five, and in every subsequent year, six new members of the council shall be elected, and that the members of the council for the time being going out of office shall be considered to be re-eligible to that office, either immediately or at any time afterwards; and that upon any vacancy in the office of member of the council from any cause except that of going out by rotation, the same shall be filled up at the first annual general meeting of the members of the body politic and corporate which shall be held after the vacancy shall have occurred, and the council may, if it shall be deemed advisable, appoint some person to fill that vacancy until the day on which the first annual general meeting after the vacancy shall have occurred shall be held, and every person so appointed by the council shall cease to be a member of the council on the day on which such annual general meeting shall be held, and the vacancy shall be filled up at such annual general meeting to all intents and purposes as if the council had not appointed any one to fill that vacancy: Provided, nevertheless, that in case any person shall cease to be a member of the council before the day on which the annual general meeting in the month of May in any year shall be held, at which he would have been one of the members to have gone out of office, then such vacancy shall not be filled up, but such person shall be considered as one of the members for the time being going out of office on that day; and that in case any occasional

vacancy or vacancies in the office of member of the council shall be to be filled up at any annual general meeting, then and in such case the annual general meeting shall elect such number of persons to the office of members of the council as shall be sufficient to make up the number of members of the council to twenty-four, exclusive of ex-officio members, without specifying which of the persons so elected shall supply the occasional vacancy or vacancies to be filled up, or which of them shall fill up the vacancies occasioned by going out of office annually by rotation; and immediately after such election the person in the chair at such annual general meeting shall determine by lot which of the persons elected shall supply the occasional vacancy or vacancies to be filled up at such annual general meeting, and which of them shall supply the place of the person, or of each of the persons, who shall have occasioned such occasional vacancy or vacancies, and shall forthwith declare the person or persons so determined upon elected accordingly, and the other persons elected at such annual general meeting shall thereupon be declared by the person in the chair at such annual general meeting elected to supply the vacancies occasioned by going out annually by rotation; and that every person who in consequence of an occasional vacancy shall be elected a member of the council shall be only a substitute for the person whose place he may supply, and shall continue in office only for the same period as the person whose place he may supply would have continued if he had not vacated the office before the time at which he must necessarily have gone out of office; and that at every annual ge-

neral meeting the president, vice-presidents, and other members of the council, going out of office on the day on which such annual general meeting shall for the time being be held, shall for all the purposes of such meeting be considered president, vice-presidents, and members of council in office until the meeting shall break up or adjourn, and that all elections of members of council shall be by ballot, to be taken at the general meeting; and that when and so often as on the election of any member of the council votes shall be given for more persons than there shall be vacancies, and in consequence of any two or more persons having an equal number of votes it cannot be determined which of such two or more persons shall be the person or persons to supply the vacancy or vacancies, the person in the chair at the annual general meeting at which such election shall take place shall forthwith decide by lot which of those two or more persons shall supply the vacancy or vacancies, and the person or persons in whose favour such decision shall be made shall be considered duly elected; That any president, vice-president, or member of the council for the time being, may at any time vacate his office by sending in his resignation in writing to the council, and any general meeting specially called for the purpose may remove from his office any president, vice-president, or member of the council, for misconduct or other reasonable cause: AND WE DO HEREBY FURTHER GRANT and DECLARE, That the members for the time being of the council shall assemble together at some place in London or Westminster, or the suburbs thereof, at such times as they shall be convened by

the secretary, and every such meeting shall be called a council; and that no business shall be transacted at any council unless seven or more members of the council shall be present at the discussion of such business, and at the time when a decision shall take place on the whole and every part of such business; and that the first meeting of the council shall be held before the expiration of one calendar month after the holding of the first general meeting of the members of the body politic and corporate, and the election of twenty-four members of the council thereat, pursuant to the direction hereinbefore contained; and at such first meeting of the council six vice-presidents, one secretary, and one treasurer of the said body politic and corporate, shall be appointed; and that before the expiration of one calendar month after the day on which the annual general meeting in the month of May, in the year one thousand eight hundred and forty-five, and in every subsequent year, a meeting of the council shall be held, and at each such last mentioned council one president, six vice-presidents, and one secretary, shall be appointed; and in case any vacancy shall happen in the office of president, vice-president, or secretary, from any cause except that of going out of office annually, the same shall be filled up by the council with all convenient speed, and the persons to be appointed president, vice-presidents, and secretary, shall be decided by ballot, and the council may at pleasure remove any secretary or treasurer from his office, and may appoint any person to be treasurer in the place of any treasurer so removed from his office: AND WE DO HEREBY FURTHER

DIRECT AND DECLARE, That all questions relating to any business to be transacted at any general meeting, and at any council, shall be decided on by a majority of the members present, and entitled to vote thereat respectively; and that the person to be in the chair at every general meeting, and at every council, shall be the president, or if he shall be absent, or shall decline to take the chair, then one of the vice-presidents to be elected at the meeting shall take the chair; or if they shall be all absent, or such of them as shall be present shall decline to take the chair, then one of the other members of the council to be elected at the meeting shall take the chair; and in the case of a general meeting, if the president, vice-presidents, and members of the council, shall be all absent, or such of them as shall be present shall decline to take the chair, then one of the other members of the body politic and corporate present to be elected at the general meeting shall take the chair: AND WE DO HEREBY FURTHER WILL, GRANT, AND DECLARE, That minutes of the proceedings at every general meeting of the members of the said body politic and corporate, and at every meeting of the council, shall be entered in a book to be kept for that purpose, and shall be signed by the person in the chair at such general meeting or council, and the secretary or one of them; and the book purporting to be so signed shall be evidence that the proceedings of which the minutes purporting to be so signed as aforesaid shall be entered therein were regular in every respect, and took place at a general meeting or council, as the case may be, duly held and convened, and that the persons or person whose

names or name are or is subscribed to the minutes entered in such book was the proper persons or person to authenticate such minutes, and that they or he signed the same; and such book shall be binding and conclusive on the said body politic and corporate, and all the members thereof: AND WE DO HEREBY FURTHER WILL, GRANT, AND DECLARE, That the council shall have the entire management of and superintendence over the affairs, concerns, and property of the said body politic and corporate, and shall and may from time to time nominate and appoint such persons to be officers and servants for carrying on and executing the necessary affairs and concerns of the said body politic and corporate, as the council shall think proper, and shall and may at pleasure, from time to time, remove such officers and servants, or any of them, and allow them such salaries, wages, or compensation, as the council shall think fit; and also shall and may make any orders, rules, and bye-laws for the regulation of the council, and for the management of the estates, goods, effects, and property of the said body politic and corporate, and for fixing and determining the times and places of meeting of the council, and also the times and places and manner of examining students who shall have been educated at the Royal Veterinary College of London, or the Veterinary College of Edinburgh, or such other veterinary college as hereinbefore mentioned, and who may be desirous to become members of the said body politic and corporate, and for regulating the nature and extent of such examinations, and for the appointment of persons

to examine and determine upon the fitness and qualifications of such students, and for the admission or rejection of such students as members of the said body politic and corporate, and for fixing and determining the sum and sums of money to be paid by such students, either previous to their examinations, or upon their admission as members of the said body politic and corporate, or otherwise, and generally touching all other matters relating to and connected with the said body politic and corporate; and the same orders, rules, and bye-laws, from time to time, to alter, suspend, or repeal, and to make new orders, rules, and bye-laws, in their stead, as the council shall think most proper and expedient, so as the same be not repugnant to these presents or the laws of this our realm: BUT, NEVERTHELESS, WE DO HEREBY EXPRESSLY DECLARE AND ENJOIN, That no professor of any or either of such colleges as aforesaid, of which the person desirous of becoming a member of the said body politic and corporate shall have been a student, shall in any way or manner act or interfere as the examiner of such person, and that all qualified students who shall have passed the said examination to the satisfaction of the examiners shall have the right to claim admission as members of the said body politic and corporate: AND WE DO FURTHER WILL, GRANT, AND DECLARE, That no fee or fees for admission as a member of the said body politic and corporate shall at any time exceed the sum of ten guineas: AND WE DO FURTHER WILL, GRANT, AND DECLARE, That all orders, rules, and bye-laws, to be as aforesaid from

time to time made by the said council, shall be reduced into writing, and the council shall cause the common seal of the said body politic and corporate to be affixed thereto; and such orders, rules, and bye-laws, after the common seal of the said body politic and corporate shall have been affixed thereto, shall be binding upon the members of the said body politic and corporate, and upon all students and other persons who may be desirous to become members thereof: Provided nevertheless, That any order, rule, or bye-law, or any alteration in, or repeal of, any existing order, rule, or bye-law, shall not be made, unless notice of the intention to make such order, rule, or bye-law, or such alteration in, or repeal of, any existing order, rule, or bye-law, shall have been given at a previous council, nor unless a fair copy or copies in writing of the same shall have been hung up in some conspicuous place in the common meeting-room of the council, for and during the space of three calendar months previous to the meeting of the council at which it is intended to propose the same, nor unless the same shall be made at a council specially called for the purpose, and shall be confirmed by another council also specially called for the purpose, and held not more than fourteen days, nor less than seven days, after the day on which the council at which the same shall have been proposed shall have been held: Provided further, That in no case shall the corporate seal of the said body politic and corporate be affixed to any instrument whatsoever, except by the order of the council, and in the presence of at least three of the members of the council (of whom we will that the pre-

sident, or one of the vice-presidents, shall be one), and the three members in whose presence the same shall be affixed, shall, by their signatures, attest such sealing, and that the same was done by the order of the council: AND WE LASTLY WILL, GRANT, AND DECLARE, That the whole property of the said body politic and corporate shall be vested, and we do hereby vest the same, solely and absolutely in the said body politic and corporate, and that they shall have full power and authority to sell or otherwise to dispose of the same as they shall think proper, but that no sale or other disposition of any property belonging to the said body politic and corporate shall be made, except with the approbation and concurrence of the council. IN WITNESS whereof, we have caused these our letters to be made patent. WITNESS ourself at our Palace at Westminster, this eighth day of March, in the seventh year of our reign.

BY WRIT OF PRIVY SEAL.

EDMUNDS.

SUMMONS

OF THE FIRST GENERAL MEETING

OF

VETERINARY SURGEONS.

I, Thomas Turner, of No. 311, Regent Street, in the county of Middlesex, and of Croydon, in the county of Surrey, Veterinary Surgeon, President of the Royal College of Veterinary Surgeons, in pursuance of the powers vested in me by the Royal Charter of Incorporation of the members of the said College, do hereby convene a General Meeting of the Members of the body politic and corporate of the said Royal College of Veterinary Surgeons, to be held at the Freemasons' Tavern, Great Queen-street, Lincoln's-inn-fields, in the county of Middlesex, on Friday the 12th day of April next, at Two o'Clock in the afternoon, precisely, to elect, by ballot, twenty-four members of the said body politic and corporate to be members of the Council of the said body politic and corporate.

Thomas Turner.

311, Regent Street,
March 15th, 1844.

BUT one feeling, and that such an one as, *professionally*, has not at any former period been experienced by them, can pervade the breasts of veterinarians, when they come to reflect what, as a body of persons *calling themselves professional*, they hitherto have been, and what in the year 1844, by virtue of a Royal Charter, creating them henceforth a RECOGNIZED PROFESSION, they by law rightfully and truly are. It is true we had what went by the name of a "Veterinary College;" but that—with no disrespect be it spoken—was nothing more than a *private institution**, under the management of a self-constituted body of "Governors," irresponsible save to themselves, and heedless of all veterinary interests save such as concerned the prosperity of their own institution; from any vote or interest in which they—the governors—by a by-law of their own, carefully excluded every person bearing the denomination of a veterinary surgeon. To this miscalled "College" was attached a veterinary school; and, in order that the pupils belonging to it might, in the best way the conductors of the school could at the time make them, become what they chose to call "veterinary surgeons," or "members" of the said "College," the said "Governors" appointed gentlemen of the highest eminence in the medical profession to act as examiners of the pupils.

For being, at the suggestion of M. St. Bel, foremost in establishing a veterinary school in this country, and in that respect in setting us on a footing with our neighbours the French, the Odiham Agricultural Society, the original governors, or rather the founders of this Veterinary Institution, deserve our grateful acknowledgments; and most sincerely and cordially do we now tender them. Nor could they have acted more wisely at the time than in appointing to the posts of examiners of the pupils educated at their institution men renowned for their learning and accomplishments in the profession of medicine. For these patriotic and commendatory acts we freely grant and give them their full meed of praise. But when the time had arrived that, from their thriving institution, graduated members were annually sent forth into the country, of whom there were enough, and more than enough, to constitute an efficient board of examiners—when, we

* College:—A corporation or society of men having certain privileges by the king's license.—*Law Dictionary.*

repeat, we found our *Alma Mater* not only refusing us any interest whatever in the management of her concerns, but spurning every petition we made to her to be allowed even to examine her scholars—then she drove us (and blessings on her for having driven us!) to seek a Charter, and for ourselves. And we have sought, and have obtained one; and now, in truth and law, we are a *College*—a ROYAL COLLEGE OF VETERINARY SURGEONS.

Let us for a moment take a glimpse at our beloved Charter—look a little into its meaning and objects; and then, let us cursorily inquire what its influence is likely to be, both as regards the present state and future prospects of the profession. Its purport runs thus:—To the persons named and described in the Charter—*secundum formam statuti*—to all persons now holding veterinary diplomas, either from St. Pancras or Edinburgh; to all students at either of the Schools; and likewise to all who may become students at other Veterinary Colleges (?) or Schools, in London or elsewhere, in Britain, not at present in existence, "*and which may hereafter be sanctioned by the royal sign manual in that behalf*" such students passing an examination before a board of examiners constituted by and of the Royal College of Veterinary Surgeons, the Charter of Incorporation is granted. From which it appears that the Chartered College have it not in their power to admit to examination, or into their body politic and corporate, any persons who may have studied at any private or foreign school—at, in fact, any other school save such as has been previously sanctioned by "the royal sign manual." This is an enactment that will have the effect of restricting the number of veterinary schools: how far its operation is likely to prove desirable or beneficial may become matter for future consideration.

By virtue of their *Charter of Incorporation*, the members of the profession become empowered by law to act *as one person*, under the name of THE ROYAL COLLEGE OF VETERINARY SURGEONS; and by that name, bound by their common seal, they have power to sue or be sued, acquire or dispose of property, &c.; all such acts to be evidenced by their aforesaid common seal. They also have the privilege, vested in their corporation, of making for their own governance reasonable and consistent by-laws; in virtue of which,

one of their first acts will be, to elect a president, vice-presidents, and members of council, six of whom, it is proposed, shall annually resign their places to others: it being understood that *every member of the Corporation* possesses a vote in such appointments, and is moreover himself, equally with another, eligible to any station of honour or emolument as shall by the general body be hereafter created.

Out of the council must also be chosen a BOARD OF EXAMINERS, before whom will have to appear all future candidates for admission into the TRUE AND ONLY COLLEGE OF VETERINARY SURGEONS; the present "Committee" of Examiners being from the date of the Charter virtually defunct.

In what manner and to what extent the Charter is likely to operate on the present and future conditions of our professional body, we shall defer the consideration of until the members of the Royal College shall have held their first general meeting, which we find announced, by advertisement upon our cover, to take place on the 12th April, at the Freemasons' Tavern. At this meeting all necessary arrangements must be entered into preliminary to the new machinery being set in motion. In the interim, one thing we would intreat our brethren not to lose sight of, and that is, *the one thing needful.* The wheels of the machine cannot turn *without oil.* The Committee—on whom prompt payment for the Charter, amounting to £700, has necessarily fallen—have, in advances of £100 and £200, done their duty in the most handsome manner, relying upon us doing ours. We will not—cannot—*must not* disappoint them. Altogether—inclusive of every expense—£1000 is wanted, and one thousand pounds *must be raised.* Let us, then, vie with one another, who, in so glorious a cause, shall contribute *first* and *most!* Correct Lists of the Donors shall be published in THE VETERINARIAN.

EDITORS.

CONTRIBUTIONS TO ZOOLOGICAL PATHOLOGY.

By JAMES MERCER, *M.D., Fellow of the Royal College of Surgeons, and Lecturer on Anatomy, &c. Edinburgh.*

[Continued from p. 141.]

IV.—*On the Structure of the Synovial Sulci of the Hock, and Ginglymoid Joints generally, in the Horse.*

IN THE VETERINARIAN for December 1830, Mr. W. C. Spooner, of Southampton, published a paper on Hock-joint Lameness, and which he then attributed to be produced by the abrasion of the articular cartilage on the central convex ridge of the inferior extremity of the tibia, accompanied with a corresponding change at an opposite point along the central groove of the astragalus. For several years no notice seemed to have been taken of the matter; and accordingly, in the July Number of 1837, he again reverted to the matter, and succeeded in drawing a reply from Professor Dick. This was followed by a very wordy, pithy, and sarcastic paper-war, in which two opposite opinions were most stoutly maintained; the one, that it was a positive pathological condition of the joint, and the other, that it was only a normal structure, and that similar conditions of the articular cartilage were found in many others, if not in all, of the articulations of the skeleton. Considering the matter, therefore, as one of some little importance, I directed my attention to it in making some recent zootomic investigations; and without being biassed by either of the above opinions, I carefully examined the subject of dispute, and now lay the few following remarks before the veterinary profession as to the results which I have obtained, and with the distinct hope that they will only be viewed by the practical veterinarian as the result of such, and not as a positive *ipse dixit*, to guide him in his practice or his opinions on a case of doubt or difficulty.

In the first place, I may state that I have, with Rigot*, Ferguson†, Youatt‡, &c. found these synovial sulci in many other animals besides the horse, and in those too where there had never been exhibited the slightest symptom of lameness; and with Professors Dick and Rigot, I have also found them (uniformly, so

* Traité des Articulations du Cheval, *Paris*, 1827, prim. chap.
† VETERINARIAN, vol. x, p. 492.
‡ Loc. cit. sup.

far as I have observed) in all the other true ginglymoid joints of the skeleton. In regard to the first of these statements, I have found them in the feline, canine, ruminating, and pachydermatous animals generally, and also in the larger species of our domesticated gallinaceous birds that have come within my power for dissection; and in all of these animals, also, the appearances were similar in situation and structure. In reference to the second, I have found them especially in the hock and elbow joints, as also in the fetlock and pastern joints. In my examinations of these sulci, I confined myself chiefly to those seen in the hock joint: in as far as this joint is of a large size, the articular cartilage is comparatively thick and well developed, and the sulci are larger and more distinct than in the other ginglymoid joints. It is also a joint where the general anatomist will find many facilities for examining the general arrangement and structure of the cartilaginous plates that form the cartilage of incrustation to the different joints of the skeleton.

In its general physical properties this cartilage is elastic in the highest degree; of a white colour, with a bluish, yellowish, or in the lower animals of a slight pinky tinge, more or less transparent, and easily cut with a knife. When dried, it becomes of a brownish yellow colour, transparent and hard; and in those joints where the sulci are found, the surface of the osseous paste that forms their base shines through the groove, so as to give rise to a polished or ivory appearance. In thickness, the cartilage varies much, even in the same joint, being thickest on a convex part and towards the centre, and thinnest in a concave part and towards the circumference. Its free surface is smooth and covered by the delicate synovial membrane of the joint, from which it cannot be separated; and the attached surface, irregular and nodulated, is equally intimate in its union with that part of the bone on which it rests, the one being dove-tailed into the other.

In its anatomical arrangement it consists of a series of plates or lamellæ, placed vertically on the surface of the articular extremity of the bone, some of which are shallower than the others, so as to form cavities of insertion and attachment to the projecting nodules of the osseous surface.

In their microscopic structure, these plates are found to consist of a basement intercellular substance, in the meshes of which are deposited, at irregular distances, the linear nucleated cartilage corpuscles, surrounded by a nearly homogeneous matrix or hyaline substance—the fluid substance of cartilage. These cartilage cells measure from $\frac{1}{1300}$ to $\frac{1}{900}$ of an inch. The central nuclei are, for the most part, small. In the interior of the cartilages of incrustation, the external cells assume more or less of a linear direction,

and point towards the surface. This arrangement is probably connected with a corresponding peculiarity of texture of the intercellular substance; and hence is caused the vertical appearance presented by the laminæ generally*.

The synovial membrane is extremely thin, and invests the whole of the interior of the articular surface. Like the generality of serous membranes, it forms a complete shut sac—one surface of which is rough and attached to the parietes of the joint, and the other, being smooth and free, secretes the viscid, stringy matter—the synovia, or joint-oil. In its intimate structure, it is formed of dense compacted fibres of cellular substance, having its inner or free surface covered with a pavement of tesselated epithelial cells. These epithelial cells, or plates, are easily seen on that part of the membrane which is attached to the ligament; and, a few years ago, Henle† also shewed their existence upon the entire cartilaginous surface, thereby proving, beyond a doubt, that this membrane is continued over the entire surface of the articular cartilage, a circumstance which has been for a long time questioned. Their existence in this situation is best demonstrated in the earlier periods of life; for, as age increases, they become removed or rubbed off from the basement synovial membrane by the increased activity which then takes place in the functions of the joint.

In regard to the sulci, or the deficiency in the development of the cartilaginous lamellæ, they are always found at opposing points, and in both bones, along the centre of the articulation. In the hock-joint they are superior to the central axis of revolution of the joint. When either of their surfaces, in the very recent state, are examined by a simple magnifying glass, the margins of the depressions, instead of presenting the compact, smooth, clear, and glistening appearance of the general surface of the cartilage, will, on the contrary, be found to have a dull and rather grooved or porous aspect, as if the cartilaginous lamellæ had been disjoined from each other. This porous and pulpy appearance is greatest at the very margin of the sulcus; for, externally, it becomes gradually lost in the surrounding cartilage. From the pointed extremities of the sulcus, especially in that of the astragalus, an irregular winding groove, formed by an opening out of the lamellæ, will be found to extend along the centre of the articular groove to the upper and lower part of the articulation.

In the depression itself, there is a distinct and variable deficiency in the depth of the vertical lamellæ; the surface is irregular, rough,

* Vide, also, Tod and Bowman's Physiological Anatomy, part i, p. 90.
† Henle, in Müller's Archives fur Anatomie, page 116. 1838.

and flocculent, and is bedewed with a small quantity of synovial fluid; and if a very recent joint be carefully opened and then exposed in an apartment to a freezing atmosphere, and after a few hours examined with a powerful glass, the entire surface of the sulcus will present the appearance of innumerable, small, and isolated particles of frozen synovia, suspended like grapes on and around minute filamentous tendrils, formed by tufts of the intercellular substance. When a thin, transverse slice of the margin and centre of the sulcus is placed in the field of the microscope, with a high power applied, the white, fibrous filaments that form the meshes in which the hyaline substance and the nucleated cartilage corpuscles are deposited will be found to be comparatively great in quantity, resulting from a deficiency in the development of the two former constituents. In the pulpy margin, however, they will be found more numerous than in the centre; and they will also be found to increase the more we approach the general compact surface of the articulation.

In the greater part of the cavity of the sulcus nothing but filamentous substance will be found, forming a loose and flocculent network over the surface of the bone below. This latter presents its usual roughened and papillated surface, for insertion between and around the adherent points of the lamellæ of the articular cartilage; but I have never found it changed in its consistency, or presenting the porous, worm-eaten appearance, of a carious surface, which would be found if this solution of continuity in the cartilage depended on the existence of a morbid cause.

I have never found, in the sulcus or around its margins, the pavement of tesselated epithelial cells before mentioned, as forming the superficies of the synovial structure; but, from what has already been mentioned, these could scarcely have been expected to be met with.

From the situation and microscopic structure of these sulci, therefore, I am inclined to view them as a normal, and not as a morbid structure; and from these convictions I am also inclined to adopt the opinions expressed by Professor Dick, M. J. F. Rigot, and Ferguson, that,

1st, These synovial fossæ, which have been mistaken for ulcerations, are frequently to be found in the articulations of all our domestic animals.

2d, That they seem to be developed more as the animal advances in life, and as his labour becomes greater.

3d, That their appearance is quite different from that presented by cartilage when inflamed.

4th, That, when the articular cartilage will be found diseased, there will also be found an altered state of the synovial membrane.

5th, That instead of these fossæ, therefore, being the result of disease, they are neither more nor less than "*oil cisterns*," or reservoirs, for supplying synovia continuedly to those parts of the articulation which, by their mechanical relations to each other, are most liable to be affected by friction*.

ON DISEASES OF THE DENTAL APPARATUS IN HERBIVOROUS ANIMALS.

By Professor BOULEY, *of Alfort; and* PEARSON B. FERGUSON, *Esq., late Attaché to the British Embassy at Paris.*

THE maladies of the apparatus of mastication in herbivorous animals, and principally in the horse, present, in a practical point of view, somewhat a high interest; and the clinical facts that we have had occasion to observe and gather together on this subject having been rather numerous of late, we have thought it a duty to unite in the same table all the considerations that bear upon this part of special pathology, and lay them before the profession.

To apprehend the interest which ought to be attached to the subject that we propose to treat, it is sufficient to remember that the digestive apparatus in our domesticated animals reigns, by the importance of its function, over all the other apparatus of the economy. The active centre of all the products that animals render us, it is upon its perfect integrity that depends the perfection of their aptitude to the different services for which they are used by man.

The truth of this proposition is especially evident in its application to animals of labour. Labour, the most weakening of all the products that the animal economy can render, soon becomes for this latter a cause of deterioration, and, in fact, rapid ruin, if the digestive apparatus does not incessantly suffice, by its functional activity, for the reparation well proportioned to the immense loss of vitality in, or, to speak more correctly, enormous decomposition of, the animal tissues that is necessarily caused by labour.

Now, the integrity of the digestive functions finds itself in the herbivorous animals especially, under the influence of the masticatory apparatus. If the fibrous and resistant aliments by which these animals are nourished have not primitively suffered in the mouth, under the powerful action of the dental eminences, that

* Vide VETERINARIAN, vol. xi, page 493.

trituration which despoils the alible matters of their fibrous cortical envelops, they pass (if the term may be allowed) in a state of nature along the mucous membranes of the digestive organs, without yielding to the absorbents the elements for a sufficient reparation.

It is this that is produced when, under the influence of some cause or other, the dental apparatus is deteriorated, and is become incapable to fulfil integrally its functions. As a consequence, almost immediate, of this alteration, we observe the animals to become thin, *to melt before our eyes,* as the vulgar energetically say: the skin attaches itself to the skeleton, which shews in relief, by the rapid resorption of the subcutaneous adipose tissue, or, to speak plainer, of the fat situated under the hide, and thus demonstrates to all eyes the imperfection of the digestive functions: the muscular energy weakens, and the animals, vacillating upon their wasted extremities, are rendered incapable to suffer the least work.

It is not, therefore, uninteresting to study with care diseases which produce such evil results, especially inasmuch as the curative means at our disposition can be very efficacious in a great number of instances.

Organization of the Teeth.—Our intention is not to enter into grand developments upon the organization of the teeth. For this object let us refer to special works, and particularly to the excellent monagraph of N. Girard, lately completed by his father. But there are some points of anatomy and physiology that we must recall to mind, in order to make our subject well understood.

1. The teeth are composed of two substances, different in their colour, and especially in their densities;—the one external, called the *enamel;* the other internal, named the *ivory.*

2. In the molar teeth, which must, in this place, be the principal object of our study, the enamel may be said to resemble a kind of ribbon, which forms, in refolding many times upon itself in the interior of the tooth, a succession of undulating planes, and constitutes the hard external envelop of the cubic mass of the organ: an idea of this disposition may be formed on examining a tooth which is not yet without its alveole, but which is near its expulsion from this cavity. Those which have made their eruption, and which have already triturated, present, at their tabular or crown-surface, besides the undulating line of the enamel envelop, a succession of reliefs, salient and sinuous, of the substance of the enamel, which are nothing else than the free border of this folded ribbon (if we may so name the enamel). It is in the intervals left between the folds of the enamel that is deposited the ivory-coloured substance which transforms the tooth into a solid, full, and resistant mass, when it has made its complete evolution without the alveole.

3. At their external face, the molar teeth of the upper jaw present perpendicular canulæ, in number from two to three, according to which of these is examined. These canulæ are separated, the one from the other, by salient columns, of which the free extremity at the side of the dental table is susceptible of forming asperities, very angular when they have not been used or worn by a regular grinding.

The molars of the inferior jaw are not canulated; they present only a ridge, often little marked, and which is situated principally on their inner surface.

4. The molars of the superior maxilla form, in their succession, a range larger and longer than those of the inferior maxilla. This disposition, which results from the greater volume of the former, gives the key to the discovery of the causes of certain malformations, as we shall hereafter expose in treating of dental pathology.

5. When the dental arcades are examined in the head of a young horse, it will be seen that they differ, not only the one from the other by the volume of the teeth which constitute them, but also by their respective breadth. The ranges or rows of the superior arcade are more distant each from the other than those of the inferior arcade, and they form two curves, of which the convexities are externally situated. At the inferior arcade the molars are disposed in two lines, almost straight, converging towards each other at the region of the symphysis of the chin.

6. The dental tables of the inferior arcade are disposed according to an oblique plane, whose descending direction is from above and within to below and without. The tables of the superior maxilla present an inverse disposition; their plane is oblique from below and without to above and within.

7. In a jaw which has been regularly used or ground, the dental tables in the two arcades present asperities and anfractuosities little marked, which receive each other reciprocally in such a manner, that in their approach and contact the relations of their surfaces is perfectly exact.

8. From the disposition of the inversely inclined planes of the dental tables, and from the difference in the breadth of the arcades, it results that the relation cannot establish itself at both sides at the same time, between the teeth of the superior jaw and those of the inferior. It is only alternately that the rubbing and trituration can be executed from the one side to the other by a lateral movement of the lower jaw upon the superior.

9. In herbivorous animals, more particularly the horse, and other monodactyles whose food is of such a nature as to require an enormous degree of mastication in order to render it fit to be acted upon by the gastric juice, bile, &c., the teeth have the property of

growing from their roots during the entire life; and they continue, at the same time, their outward eruption, under the influence of this growth, in such a manner that the parts worn by the friction are incessantly renewed; and that, during a very long time, the teeth can preserve, if not their form, at least their length.

Here, again, is found the explanation of a great number of the alterations in the dental apparatus.

10. Are the teeth living? The solution of this question, anatomically considered, is difficult, since neither vessels nor nerves are said to exist in these structures; but the facts furnished by physiology and pathology witness that these organs, endowed with a sensibility obscure in their normal state, can become the seat of the most exalted and dreadful pain in their pathological state.

11. This sensibility, is it inherent in the dental substance itself, or does it reside exclusively in the pulp?—an organ essentially nervous, in which the sensations could be transmitted through the ivory, so that they might even penetrate as far as the phodapholous tissue, through the thickness of the horn-like matter which envelops it. This is a physiological point, of which a satisfactory solution remains yet to be given.

12. Are the teeth the combined product of the secretion of the pulp, and of the membrane which lines the alveolar cavities? We are inclined to think so, and some facts which we are about to produce will aid us to support this opinion.

Having cursorily reviewed these few anatomical considerations necessary to the interpretation of clinical facts, we shall next consider the pathological part of our subject.

The dental arcades of either the superior or inferior maxilla may be the seat of anomalies, of alterations, or of diseases, which place an obstacle, more or less complete, to the perfection of mastication; and which have for results, either definite, approaching, or distant, the production of general alterations in the economy, consequences of an imperfect or insufficient nutrition.

Let us study the alterations in the dental apparatus in the order of their gravity:—

1. *Anomalies in the Number of the Teeth.*—Sometimes, but very rarely, we meet with supernumerary molars in the horse. This anomaly may be caused either by the persistence of the temporary teeth, by the development on one or both the branches of the arcades, and of the repetition of a greater number of permanent teeth than should naturally exist: in the latter case it is necessary to admit the existence of a greater number of dental bulbs than is usual and normal.

We remember to have seen some time ago, at the consultation of the Veterinary College of Alfort, a horse which, to use the words

of his proprietor, "had a double row of teeth in the upper jaw."

This anomaly may present itself under different forms. Sometimes the supernumerary tooth is situated in the one or the other jaw, in front of the normal range of molars, without having a correspondent tooth in the opponent jaw. At other times it is placed either within or without the arcade, without having, no more than in the other case just mentioned, a correspondent against which it may rub in the antagonist jaw. In practice this is designated extra tooth, or wolf-tooth. This kind of anomaly obtains more frequently in the deviation of a normal tooth than in the addition in the range of a supernumerary one.

In the first instance, it is often not very long before the mastication encounters an obstacle in the exuberance of the supernumerary tooth, of which the discontinued growth is not limited by a regularly exercised friction. A day arrives, in fact, in which, under the influence of this growth, this same tooth finishes by passing the level of the others, and by attacking, in prolonging itself, the sharpish border of the antagonist maxilla at that region commonly called the *bars*. Then the mucous membrane of this part of the mouth, murdered by the continual shock which it suffers, ulcerates, and leaves the bone naked. The latter, itself contused, mortifies and exfoliates. If the cause continues in action, after the exfoliation is produced, the bone, softened by the inflammation at the region of the exfoliation, becomes the seat of insterstitial suppuration, and caries is consecutively established: then, the evil still progressing, the maxilla tumefies, and at length displays the pathological form designated by the name of *osteosarcoma*.

In the second case, when the supernumerary tooth is placed either within or without the arcade, it offers an obstacle by its presence, in the commencement, to the motions of the tongue and cheeks, of which it excoriates the mucous lining. From thence a hinderance in the mastication, which hinderance increases from day to day in a ratio proportionally as the lengthening of the tooth augments the intensity of the cause which produced the first evil effects.

Let us add, that the irregularity in the rows of the teeth to which the supernumerary organ leads by its presence, has for its necessary consequences the opposition to the exact relation between the dental arcades, and then to the approach of the jaws. Hence, also, an irregularity in the friction, and consequently in the wear—an irregularity which permits the exuberance of the borders of the tables, either externally or internally, and which finally has, for a definitive result, the placing of an obstacle almost complete to the performance of the all-important function of mastication.

2. *Anomalies in the form of the arcades and in the direction of the teeth.*—We have said in our preliminary considerations, that the dental arcades formed at the superior maxilla two curves opposed by their concavities, and, at the inferior maxilla, two lines nearly straight, converging the one to the other towards the symphysis of the chin. These directions may, owing in some cases to congenital conformation, be very irregular. We observe sometimes, in fact, that the curves of the upper jaw are effaced; at other times, and most frequently, that the lines of the lower jaw are incurvated within the arcade. Either of these deformities may exist isolated or simultaneously.

It therefore results from this, that, in the approach of the jaws, the relation is not identically established between the surfaces of friction; and the consequence of this disposition is, an irregularity in the wear, which permits the abnormal development of the border of the tables, within at the lower jaw, and without at the superior; and hence a hinderance in mastication.

3. *Exuberance of some particular parts of the dental apparatus.*—The deformities of which we are now about to speak are those most frequently encountered:—

A. The superior molars are, as we have said in commencing, larger and longer than those of the inferior maxilla, so that, in order that the friction may be established in the entire breadth of the superior tabular surfaces, it is necessary that there should exist a forced lateral movement of the inferior jaw upon the superior.

In some animals, perhaps because the movement is not effected throughout the extreme limits of the segment of the circle that may be described during mastication by the jaw, the external border of the dental tables does not wear sufficiently, and therefore becomes elevated and sharp.

Each of the free extremities of the salient columns which separate the fluted cannulæ at the external side of the teeth, become then so many sharp points, which tear the buccal membrane within the cheeks, and determine very acute pain.

At other times, it is at the internal border of the molars of the inferior jaw that this effect manifests itself. Then it is the tongue that is painfully excoriated by the angular asperities presented by the cutting border of the teeth.

In some rare cases, when the cause, difficult to determine, which produces this deformity continues in action, the dental tables, which present a normal inclination *inverse* in the two jaws, at length form planes very oblique. This obliquity is sometimes so great that, at the under jaw, the internal borders of the teeth are very elevated, while the external is almost on a level with the gums. The inverse effect manifests itself at the upper jaw: the

external border is very salient, and the internal finds itself worn down to the alveole.

As a consequence of the influence of such a deformity, on account of even the excessive inclination of the planes of the dental tables, the alimentary matters have the tendency of slipping into the pouch of the cheeks, where they accumulate in great quantity, because the bucco-labial muscles have not sufficient energy to push them under the dental tables, whence they continually escape, on account of their obliquity. Hence an "*emmagasinage*," which profoundly disgusts the animal. There exists in the museum of the college at Alfort a horse's head in which this deformity may be seen in its greatest degree.

The tables of the teeth at the right side form in both jaws planes so much inclined, that they are become almost parallel the one to the other, and intercross each other in the manner of the blades of shears. As, by the presence of this parallelism, the borders, the most salient of the dental tables from top to bottom, not being able to continue to encounter each other, and that the teeth, nevertheless, continue to grow, the external sides of the superior molars and the internal of the inferior have acquired the enormous height of three inches without the alveoles. With such dimensions of the teeth the complete approach of the jaws could not remain possible, for the inferior grinders were compelled to strike the vault of the palate, upon which is deeply imprinted their marks.

In examining this curious anatomical specimen, the manner in which this veritable monstrosity was produced may be somewhat satisfactorily explained.

The right branch of the maxilla, which gives implantation to these exuberant teeth, is considerably tumefied: the fourth and the fifth molar of this branch are absent; perhaps they were carious. The examination of their alveoles permits us to recognize that the tissue of the bone, rarefied and spongy, has been the seat of an alteration, probably caries, which was the point of departure of the general tumefaction. Finally, the last molar, obliquely directed in front of the empty alveoles, indicates that the fall of these teeth was effected during the life of the animal, and even at an epoch much anterior to death. There existed, therefore, in this branch of the maxilla, an alteration of the molars anterior to the last grinder, and of the maxilla itself, which would necessarily be very painful, and which, without doubt, forced the animal to make use exclusively of the other side of the jaw for the purpose of trituration. In such a state of things, the teeth which do not wear increase to such a degree that they encounter each other, even when the teeth at the opposite side are in actual and exact contact,

a circumstance never produced, as every one knows, in the normal state. Then the function operates according to the obliquity of contact, and the parallelism establishes itself by this friction between the tables which normally would be superposed.

This, to us at least, appears the only veritable manner to interpret this fact, of which we have had opportunities of observing two analogous examples upon living horses; but at these epochs we had not the idea of searching whether the deformity of an entire arcade was owing to the alterations of one of the molars, or to a disease of the bone.

If such cases should again present themselves, it would be interesting to make this research. It would, perhaps, happen, that we might be able to attach to the same cause the changes which often enough follow—in the least degree, it is true—in the direction of the planes of the dental tables.

B. There is another kind of deformity of the arcades not very unfrequent. We have stated above, that the superior molar teeth were stronger and more voluminous than the inferior. This excess of mass of the former over the latter is, perhaps, the cause of the exaggerated wear of the inferior teeth by the friction of the superior, which is so often observed. We see in this case, that the tables of the inferior arcades, in place of presenting themselves upon the same level from the first to the last, offer a kind of curve, of which the concavity most profound corresponds to the middle teeth. This curve is formed and elevated from the beginning of these teeth to the last grinder, which experiences a less energetic friction on account of its position.

In the upper jaw the plane of the table presents a disposition directly inverse, that is to say, it forms a salient convexity below, of which the most prominent part corresponds to the middle teeth.

This kind of deformity, so frequently met with, does not place any obstacle to mastication; but a period arrives when the convexity of the superior arcades, becoming more and more salient, imprints itself more and more deeply in the concavity of the inferior arcades; the middle teeth are then worn down to the edges of the alveoles, and the destruction of the gum and the bone causes such pain to the animal, that the trituration of fibrous aliments becomes impossible.

This alteration in form of the dental arcades, and this wear of the edges of the alveoles, is more especially common in old horses.

C. The inequality of the length of the dental arcades becomes the cause, in horses a little advanced in age, of a particular kind of deformity of the first superior molar and the last inferior, which manifests itself very often. In general, the upper range of grinders

passes that of the lower jaw by some lines. Sometimes, also, the lower row passes the upper by the same distance at the temporo-maxillary region.

From this disposition may be presented the deformity which will obtain with the increase of age on account of the want of friction upon that part of the dental table subtracted from wear. The phenomenon which manifests itself under these circumstances is identical with that which is so often at the *corners* of the superior jaw, from the age of seven to eight years, that is to say, that the part of the table of the first molar teeth, which is submitted to the friction, is dug into, whilst the anterior part suffers an indiscontinued elongation from the want of use. So long as this elongation does not acquire the height of the inferior first molar, the mastication suffers no obstacle; but if once the exuberance of the superior molar becomes such that it can attack the gum in front of the inferior and the sharp border of the maxilla, it digs into the substance of their tissues, and thus produces intolerable pain.

The same effects manifest themselves under the influence of similar causes at the posterior part of the buccal cavity, when the difference in the length of the dental rows is in favour of the inferior arcades.

D. When one tooth is entirely or in part deficient in one of the jaws, either in consequence of fracture, of evulsion, of caries, or of an arrestation in its development, the correspondent tooth in the antagonist jaw acquires an elongation exactly proportioned to the vacuum that it encounters. This void not being complete, as in the case of partial fracture, of caries which has destroyed only one portion of the organ, or of arrestation of development, the exuberant tooth is arrested before the obstacle which it encounters, and wears against it; at the same time that it also wears the partially deficient tooth in the approaching of the jaws; but as the healthy tooth—if we may use such an expression—has an advantage over the other on account of the greater length that it has acquired, and preserving this length in virtue of its growth, which nothing arrests, it finishes by shaving, or rather grinding, down to the alveole the stump against which it rubs, and often even then it determines inflammation and tumefaction of the edges of the bone which it attacks.

When there exists a complete void in one of the dental ranks, as this void is never obliterated by the approach of the neighbouring teeth, the tooth which is opposed to it always growing, at length finishes by filling it, and then, having once acquired the dimensions sufficiently considerable, it imprints itself upon and destroys the bone by its friction.

When it is the first superior molar that is deficient, then is manifested a very curious phenomenon. In this case, in fact, the anterior molar of the inferior jaw, obeying the laws of its indefinite growth, elevates itself and passes the level of the neighbouring tooth. It then acts upon the palatine vault like a battering ram, striking continually against the roof of the mouth in the alternate motions of right and left made by the jaw in mastication. Its reiterated and powerful contusions furrow along the thickness of the bone, which it finally perforates, and a hole is made resembling that made by a projectile body through a body resistant. "I have had," says Solleysel, "a mule which had one of the grinders of the under jaw of an extreme length. As the tooth above had fallen out, the one below mounted into this void, and pierced the palate of the thickness of a finger, a thing which caused him a great difficulty when he drank. I have brought forward this example as extraordinary, and to shew that the teeth when once the borders pass each other, and that they are not used one upon the other in masticating, increase extremely, until they pierce the palate, as I have said."

4. *Caries of the Teeth.*—The molar teeth of the horse are more frequently than is generally admitted or supposed attacked with a profound alteration of their substance, which has been called caries, although, nevertheless, there may not be a perfect analogy between this affection and that similarly named when situated in the bones.

Caries of the bones implies an active labour in which the vascular apparatus plays an important part. It is a phenomenon of interstitial suppuration under the influence of the inflammation which has set in play the capillary system of the organ. In order to explain the caries in the teeth we cannot invoke inflammation and the modifications which it induces in the tissues which it attacks; nor to say that inflammation implies an active circulatory movement, an afflux of liquid, an alteration, nervous, &c. Now, in the teeth we know that there are neither nerves nor vessels: if they are living, the laws which preside over their vitality are entirely unknown to us; how, then, penetrate into the secrets of the alterations which they experience, when the conditions of their normal existence are still enveloped in such obscurity? Neither is it possible to resolve the question as to the essence of the affection designated by the name of caries.

We are about to make known only the different modes of expression relative to it.

The caries of the teeth seems to attack in preference the hoarly-like substance. Under its influence the ivory takes on a dark brownish or blackish colour, and disseminates a stinking odour,

which, perhaps, is as much owing to the putrefaction of the saliva in the excavation in the tooth as to the osseous decomposition. When this alteration has commenced, it progresses incessantly between the folds of the enamel, which is more resisting, on account of its greater density, to the dissolving action, but which, nevertheless, takes on the blackest tint of the altered ivory, and becomes sufficiently softened to allow of its being sliced by a cutting instrument. Sometimes even the planes of the enamel also dissolve, and then the cubic mass of the tooth becomes so much altered that it resembles a deep cavity, blackish, of which the parietes are formed by the planes of enamel laid bare by the caries, and which disseminates a remarkably fœtid odour *sui generis*.

Most ordinarily the caries commences in the dental table between two folds of the enamel. Sometimes it attacks the tooth on one of its four surfaces; at others it commences at the root in the alveolar cavity; but whatever may be its primitive seat, the blackish veins which discover its presence extend always into the substance of the ivory, thus isolating the plies of the enamel.

Carious teeth rarely preserve their form and their volume. They become ordinarily at their roots the seat of an hypertrophy, or, to speak more clearly, of a veritable exostosis. This effect does not manifest itself until the caries, having undermined all the layers of the ivory substance which it has encountered, has penetrated even to the root of the organ. Then the alveolar dental membrane, irritated by the continual contact of altered matters which penetrate down into the alveole, increases and aggravates its secretion, and deposes in the circumference of the altered tooth a thick layer of osseous matter, which concretes irregularly upon the normal layers anciently formed. The root, augmented in volume by these new *stratæ*, can no longer be contained in the interior of the cavity which did enclose it, and tends, by an incessant mechanical effort, to separate, after the manner of a wedge, the osseous parietes of this cavity: hence one cause of the intolerable pain and particular alterations in the osseous tissues and the adjacent parts, to which we shall return by and by.

The deposition of new osseous layers does not always take place in the circumference of the root; in some cases it is only at isolated places that this secretion of the alveolo-dental membrane occurs: then the root presents a succession of large osseous tubercles, which bar in the tooth, and render its evulsion very difficult.

Finally, when the irritation caused by the caries upon the membrane of the alveole has been from the first onset sufficiently active to determine in it suppurative inflammation, the normal secretion

is suspended, and pus assembles in the interior of the alveolar cavity around the root, which then ceases to augment in volume.

Whatever may be the manner of alteration and deformity of the tooth under the influence of caries, it is rare that the bone upon which it is implanted does not itself become the seat of a pathological state, variable in gravity and extent, according to the intensity and duration of the cause which determines it.

It is also necessary to take into consideration the position of the diseased tooth in order to appreciate the extent of the lesions which a simple caries can determine in the bones of the head and in the cavities which these bones assist in forming. The caries of the teeth, of which the roots are immediately subjacent to the sinuses, is often complicated with alterations exceedingly grave in the interior of these cavities.

In the inferior maxilla they may be complicated with lesions of the bones identical for all the alveoles, whatever may be the position of the diseased teeth, since the organization of the bone is the same in its entire extent.

When a tooth is carious, and its root is become the seat of an exostosis by the augmented secretion of the alveolo-dental membrane, it determines, we have said, a forced separation of the parietes of the alveolar cavity; the osseous tissue, violently distended by this constant effort, tumefies, and becomes excessively painful: then, the action of the cause continuing, suppuration establishes itself in the interior of the alveole; the membrane which lines it is destroyed in part, and leaves the bone naked, exposed, without shelter, to the maceration of pus, and to the irritating contact of the altered matters which continually penetrate into the alveole by the dental fistula. In these conditions the bony tissue sphacelates upon the borders, where its substance is the most compact; and its spongy tissue, which forms the depth of the cavity, soon becomes the seat of an interstitial suppuration, that is to say, in fact, of veritable caries. It is then that the swelling may extend throughout the entire extent of the maxillary branch, and that mastication is decidedly rendered impossible.

It can now be foreseen, an alteration of this nature being set in action, how the phenomena of the nutrition of the bone may be modified in their direction to the point of producing osteo-sarcoma.

Such is the march of lesions, which a persistent caries can determine in tissue of the inferior maxilla.

In the superior jaw, the phenomena are in principle the same; that is to say, the tissue of the bone mortifies and becomes carious in the same manner, under the influence of a forced distention of the tables of the alveoles and the suppuration which

establishes itself in the areoles of the spongy tissue; but in this case (when the upper jaw is the seat of the disease) the vicinity of the nasal cavities and the sinuses induce complications, the study of which is exceedingly important.

In this place it is necessary for us, in order completely to facilitate this study, to take carefully into consideration the seat of the diseased tooth. The two first molars do not communicate with the sinuses of the head, but their roots are immediately applied upon a partition exceedingly thin, and which separates them from the principal parts of the nasal cavities. We can, therefore, conceive how, in the consequence of caries of one of the teeth, the inflammation can extend itself even to the membrane which lines these cavities, and, also, how it is possible that a perforation of the osseous partition may establish a communication between the mouth and the nose.

Under the influence of interstitial suppuration determined by caries in the spongy tissue of the alveole, the osseous membrane can, in fact, be destroyed to an enormous extent; the alimentary matters then find a road open through the dental fistula to penetrate into the nose, and to be rejected by the nostrils with the product of the morbid secretion of the pituitary membrane.

The third molar approaches the maxillary sinuses, from which the root is separated by a thin diaphragm; but it deserves to be separately noticed, on account of an anatomical particularity, which renders the caries of this tooth very much to be dreaded. We wish to speak of the position of large fasciæ of the fifth pair of nerves, which makes its exit upon the face by the submaxillary foramen, and which is placed immediately upon the extremity of the third molar. It is easy to have a *presentiment* of what terrible pain and what nervous complications must be produced by the caries of this tooth, when it has determined in the tissue of the alveole such grave alterations as those of which we have just spoken.

The position of the last of the superior molars, immediately below the vast maxillary sinuses, from which their roots are separated only by an osseous pellicle, gives to the caries of these teeth, and to the complications which it induces, a special character, which demands that we should speak of it with some detail.

Where the caries is prolonged to the roots of the three last molars, and has induced an explosion of this inflammation, of which we have just spoken, into their alveoles with such thin parietes, the partition that separates them from the sinus does not resist very long. Destroyed by the dilatory effort of the hypertrophied root, and by the influence of the caries, it gives way and permits to the altered matters of the mouth a free access into the cavities of the sinuses. Under the influence of their contact

the membrane of the sinuses irritates, vascularises, and thickens by a serous infiltration in the early stage; then, the primitive cause of this modification continuing its action, it hypertrophies considerably, and, in a short time, upon this mucous membrane, owing to its vascular system being richly developed by the inflammation, are elevated large vegetations of the nature of *polypi*, which do not delay to fill the sinus and to determine a swelling out of their parietes by efforts that they exercise against them, on account of the incessant augmentation in their volume.

In the same time that the membrane of the sinuses thus becomes the seat of an abnormal vegetation, it secretes an abundant quantity of purulent matter, of which the part most liquid drains out below, and finds an external issue by the conduits of the nasal cavities; while the most concrete part of the pus sojourns in the sinus between the polypous vegetations. It then suffers a transformation according as it loses its serosity, and, at the end of a certain time, it displays the aspect of cadaveric grease, which it again much resembles in its repugnant odour.

Between the disease that determines this particular lesion and that of glanders exists a great analogy, as we shall see in the Symptomatology.

SYMPTOMATOLOGY.

Symptoms common and particular to different Alterations and Diseases of the Dental Apparatus.

The first symptom which presents itself when an alteration in the dental apparatus is arrived to a degree sufficient to inconvenience the mastication, is the difficulty with which this function is executed. The animals, excited by the sensation of hunger, seize with avidity the aliments placed before them, and endeavour to chew them; but, it may be remarked that the movements in approaching the jaws are made with a certain degree of caution. The lateral motions of the inferior maxilla are executed with a sort of hesitation, and often only at one side.

When the animals eat hay, the mouthfuls which they have seized, imperfectly ground by this mastication, and performed without energy, cannot arrive at a sufficient degree of preparation to go through the narrowness of the gorge, and are rejected into the manger impregnated with a great quantity of saliva, in the form of "cuds," or flattened pellets. This first effort being unavailing, they return to the rack with an avidity still again increased by the excitement of desire, recommencing to chew, but uselessly, and rejecting a new pellet. Then continuing thus during some time, until fatigued with unavailing efforts, they finally altogether re-

nounce the attempt. They then remain before their mangers full of food, and *seem* to have no appetite.

Oats, an aliment more divided, and which the animals prefer to all others, are often swallowed before they have been sufficiently ground or bruised; they, however, take a very long time to eat it, which contrasts strikingly with the number of their efforts. The nose plunged into their feed, they fumble and nibble a long time at it, and damp it with an abundance of saliva, without appearing to diminish sensibly the quantity. At this degree of imperfection in the masticatory apparatus, wet grains, or those held in suspension in water, or gruel, are the only aliments that can freely pass the narrowness of the pharynx.

It may easily be conceived that, if such a state of things is prolonged, the whole economy does not delay to feel its baneful influences. The insufficiency of nutrition soon produces, in fact, a general meagreness; the coat tarnishes; becomes dry and staring; the muscular energy diminishes, and, with it, as a natural consequence, the capability for the performance of labour. The least exertion makes the animals sweat, and they are heedless of the use of the whip: the mucous membranes become discoloured; the pulse weakens, and, sometimes, cold infiltrations appear in the extremities. To see animals thus transformed in so short a time, persons would willingly believe in the influence of some grave organic lesion having worked a most injurious change in the entire constitution.

All these symptoms are common to the different diseases of the dental apparatus, and are already sufficient to lead to a positive diagnostic; but this diagnostic can only acquire all its precision and rigour when the buccal cavity shall have been explored. We obtain by this examination the particular signs of each of the alterations that opposes itself to the functions of mastication.

In examining the interior of the mouth, kept open by the aid of a *speculum oris*, or even by the drawing out of the free part of the tongue, and holding it with the third and fourth fingers and thumb, the index being straightened and placed between the inner side of the lip and the gum of the anterior part of the upper jaw, at the space between the grinders and tushes, while the other hand is left free to aid the inspection by taxis, the inquirer easily recognises the cause which places obstacles to mastication.

If it be one or another of the irregularities that we have above signalized, such as the exuberance of a tooth, the vicious inclination of the tables, the projections too marked of the columns of separation of the canulæ, &c., the sight is ordinarily sufficient to recognise them, insomuch as that the teeth are frequently soiled by the greenish remains of aliments at the side where the obstacle

to trituration exists; but often even the cheeks at this side are filled with the accumulation of mal-ground food, which sojourns there. The attention being once called to this region, the mouth must be cleaned with some injection, and then the evil appears in full force.

If, however, we cannot recognise with the eye the nature of this evil, on account of its situation being far back in the mouth, and the motions of the base of the tongue from one side to the other intercepting the view of the back molars, it will be necessary to explore by the touch. The mouth being held open by the aid of a suitable speculum oris, or other machine solidly fixed, the hand must be introduced into the buccal cavity, and the fingers conducted rapidly either within or without the arcades, but never *on* the dental tables, because in the latter case there is much danger of serious injury by the motions of the jaws grinding the fingers of the operator between the teeth. Indeed, whatever may be the degree of forced dilatation of the mouth, it is never sufficient to determine a very great separation of the jaws in the region of the last molar, and the animal, in the constant efforts which he makes in order to conquer the resistance of the dilating machine, elevates the lower jaw, at the depth of the mouth, sufficiently to bring the dental tables of both jaws almost into apposition at the point of junction of the arcades.

The exploration by the fingers generally removes all doubts left in the mind of the operator by the examination with the eyes. In fact, one can perfectly perceive by the touch the projections, the inequalities, the vicious inclinations of the dental planes, the exaggerated usure, or the fracture of the teeth, which places the crowns of the latter on a level with the gums, the swelling of the alveoles, &c.

When the buccal membrane has been excoriated by the contact of unequal teeth, and when the gums are vividly inflamed by the friction that they suffer, and when the bones of the jaws have been contused, and they sphacelate or suppurate, there are some modifications of the general symptoms; in this case the animals ultimately lose their appetite and cease to try to seize their aliments; they are dull, "crest-fallen," and agitated with febrile action however little the heart of the inflammation may be extended.

The saliva which dribbles from the mouth is stringy, and even fœtid when it is mixed with pus; the mouth is hot, its membrane is injected, and in those regions which have been the point of departure of this diffuse inflammation, may be remarked lesions in relation with the action of the cause which has produced them; such as bad wounds at the internal face of the cheeks, when they

have been torn by the *canellures* of the teeth, a turgescence of the gum at the region where it is inflamed, a tumefaction of the bone with a greyish tint at the point where it is denuded and about to exfoliate; or else, fistulæ abutting into the heart of the suppuration in the spongy tissue of the jaws. Finally, and in a word, inflammation once established in the mouth, under the influence of great irritation determined by the irregularity of the teeth, may pursue all the stages of its development, and produce a series of disorganizations in strict relation with the mode of action of its efficient cause.

Particular Symptoms of Caries.

Caries of the molars is characterised by peculiar symptoms of which some are common to caries of the teeth in general, while others belong to this kind of alteration in some molars in particular.

The position of the teeth, as we have indicated in speaking of the anatomical lesions, should be here especially taken into consideration, in order to give greater precision in the diagnosis.

Besides the symptoms common to all the diseases of teeth that we have indicated, caries of the teeth in general, whatever may be their situation, present as diagnostic signs—

1. A fœtor very remarkable and *sui generis* of the buccal cavity, and of the saliva which humefies it.
2. Dribbling of a long stringy saliva in abundant quantities.
3. The existence upon one of the faces of the tooth, and principally on its table, either of a blackish excavation, or a large cavity of the same colour, according to the extent of the disease.
4. The extreme pain that the animal evinces, when struck with a hard body upon the tooth thus excavated.

If the caries is of long duration, and has determined from the side of the root of the organ, the modifications and complications of which we have above spoken, other and more special symptoms manifest themselves; the bone in which is implanted the diseased tooth tumefies considerably, and becomes painful to the simple pressure of the fingers; the gums are affected with turgescence in the neighbourhood of the caries, and bleed from the least contact; all the buccal mucous membrane reflects a red tint, which witnesses the diffuse inflammation of which it is the seat. In the mean time fever becomes excited, and manifests itself by all its ordinary and general symptoms.

Caries of the first and second superior molars may complicate itself with lesions of the nasal cavities, when, by the agency of its ulcerative process, a communication is established between these

cavities and the mouth; then the pituitary membrane irritates, and secretes at one side only abundant mucosities with which the alimentary matters become mixed, and thereby giving to them a characteristic green tint, but at the same time very different from the product of secretions furnished by glandered animals. Unless at a very careful examination, pathologists would find it difficult to confound the jetage determined by the caries of one of the first molars with the specific jetage of glanders.

But the case is not the same in the complications induced in the nasal cavities by the caries of the back molars. There exists, in fact, such a close resemblance between the symptomatic expressions of the nose, consecutive to caries of the teeth, and those consequences of the disease called glanders in its chronic form, that nothing is more common or facile than error and confusion in these cases. It is, therefore, highly important to search out the differential signs which exist between these affections, so essentially different in their causes and effects, as well their nature and treatment.

When caries of one of the last superior molars—say the fourth, fifth, or sixth—has determined the transformation of the membrane that lines the corresponding sinuses, polypous growths at its surface and the secretion of a quantity of pus in the cavities which it lines, a jetage is established at one side of the nose—that of the diseased teeth and sinuses. This jetage is white, lumpy, and very abundant, and its quantity augments in exercise. It gives off a fœtid odour analogous to that of caries.

The sublymphatic ganglions become engorged and hard, but remain indolent, and generally roll under the finger. The zygomatic tables of the upper part of the superior maxillary bone, and also the nasal bone, swell at the region of the affected sinuses, and give a dull sound to percussion.

At the first appearance of this group of symptoms, one would be tempted to admit the existence of glanders in the sinus; but a more attentive examination will not allow us to be long satisfied with these conclusions: and first we shall doubt their correctness on exploring the nasal cavity at the side of the discharge, and where the lining membrane will be seen to be polished, smooth, and uniformly rosy, with its normal follicular openings; when, on unfolding the superior wing of the nostril, it is remarked that the salient border of the cartilage is perfectly neat and polished, *without any little pimples or morbid tint.* Now, we know that it is in those places, especially that in glanders, even of the sinus, which is often unaccompanied by chancres or other ulcerations, certain specific morbid signs may be recognised, which, although very superficial, and with difficulty perceivable by the eye, are, nevertheless, of

the greatest value in the diagnostic. Such is that peculiar aspect of the salient border of the wing with a vivid red tint—such are those little superficial erosions of the lining membrane, entirely hidden under the fold of the cartilage, and such again are those small granular projections called tubercles. Now, in the jetage determined by caries nothing at all of this kind is apparent. And, finally, let us add, *that the odour so specially fœtid of this discharge establishes between it and that induced by glanders, in almost the totality of cases, a very marked difference.* In fact, in the grand majority of cases of glanders *the odour of glandered matter is almost null.*

If, after this attentive examination, a doubt is still conceived as to the specific nature of the nasal secretion, it will soon disappear, and give place to a true diagnosis, when, on gathering together the different considerations and exploring the buccal cavity, the operator has been able to assure himself as to the nature of the case to which he may be able to attach the series of symptoms that he has observed.

It is more especially relative to diseases of the teeth that is recognised the truth of the old maxim in surgery, *sublatâ causâ tollitur effectus.*

Let us consider, therefore, what are the means necessary to be had recourse to, in order to induce the disappearance of the obstacles to mastication, and re-establish the regularity of the digestive functions.

When the difficulty in mastication is owing to simple asperities of the borders of the dental tables, either on the inner or outer sides, or to the commencement of too great an inclination or slanting of these tables, the regularity in the masticatory apparatus may be produced by making the animal chew a rasp. This operation, simple and old as farriery itself, consists in introducing a common flat rasp into the mouth, and holding it between the dental tables during some ten or fifteen minutes, during which time the animal continually chews the instrument, and thus himself wears down the angular parts. It is necessary to have the precaution, in order that this manœuvre may be as efficacious as possible, to place the rasp in perfect apposition with those parts of the tables where the most angular asperities exist. The operation should, of course, be repeated each succeeding day, until the levelling of the teeth shall have been re-established.

But, although this mode of procedure is safe and generally efficacious in vulgar hands, it is too slow for the veterinary surgeon, who should use a coarse tooth-file, made especially for the purpose, with a very long handle—say 20 or 24 inches—while the cutting part may be about six inches, concave in a transverse di-

rection where the teeth of the file are placed. In using this latter instrument it is necessary to have the mouth kept open, and the tongue drawn out at the contrary side to that where the defect exists, in order to give the operator full scope to use his strength to advantage in filing down the inequalities.

However, both these modes of operating can only be efficacious in those cases where the projections exist in a slight degree. When the difficulty in the performance of mastication is caused by too considerable an exuberance of a molar in one or other of the arcades, the two operations which we have just described would occupy too much time in their employment; and, however great the perseverance may be in their use, perhaps the desired result would not be obtained, or, at least, there would be much danger of injuring the dental apparatus in acting so long a time on so hard and dense a structure. Moreover, we may add, that the employment of the rasp would be entirely useless where there exists a wolf's tooth, or *sundent*, according to the French, that is to say, a deviation of one of the molars either within or without the arcades. In these circumstances it is better to have recourse to chiselling off the projecting tooth, by means of the tooth-gouge.

To practise this operation, the animal may either be thrown or remain standing. The latter position, when the animal is sufficiently docile, is preferable to all others, being more convenient for the operator, while it permits the more easy rejection from the buccal cavity of the fragments detached by the gouge.

If we operate standing, the head of the animal must be elevated and held nearly in the horizontal position, and the mouth kept open by a vigorous assistant with the speculum iris, or a common balling-iron if this cannot be procured; the tongue must then be drawn out and held aloft by the assistant at the opposite side to that where the operation is to be performed.

A second assistant should place himself behind the operator armed with a heavy hammer or light sledge, and whose office is to strike a smart but limited blow on the head of the gouge at each command to that effect. Every thing being thus arranged, the operator should assure himself by touch of the position of the exuberant tooth, and the dimensions of its projections. This examination being finished, he introduces the gouge, and slides it along the tables up to the projecting tooth, and then applying the cutting edge of the instrument to it, at the same level of the other dental tables, and holding it firmly in this position, he commands the assistant to strike. If the blow has been fairly made, the tooth breaks, and the fragment falls from the mouth; but if the first percussion has been insufficient, the manœuvre must be repeated.

It seldom requires more than two or three well-directed blows even for the thickest teeth to be shot out.

When it is the first molars, either superiorly or inferiorly, that require the operation, there is a precaution very necessary to be observed, if it is not desirable to loosen the tooth in its alveole. In this case, instead of "jumping" out the tooth at one strong blow, it should be chiselled down by a series of light blows until it arrives at the proper level. If, in fact, the gouge be placed too near the root of the organ, it might happen that, instead of being broken, it would be violently shaken in the alveole, and suffer considerable luxation.

The indications are similar for one or more teeth, and for those situated either above or below. When the last molar is to be operated upon, it is necessary that the operator be perfectly master of the gouge at the moment of its being struck, lest in escaping it might strike against the velum palati, and cut it through.

Immediately after the operation, the speculum oris should be removed and the animal's head liberated, who, by his champing and reiterated undulatory movements of the tongue, rejects the detached fragments.

When it is necessary to cast the animal for the operation the head should be maintained resting on the occiput, and the manœuvres of the operation are similar to those just mentioned. But we cannot be too rapid in disengaging the head immediately after the blow which has broken the tooth, for in the position in which the head is placed, the fragment has a tendency to fall into the depth of the mouth, and may be swallowed. Whether the operation is to be performed on one or a number of teeth, above or below, or on one or the other side at the same time, the manœuvres are the same, and do not demand any particular indications.

As to the irregularity of the jaw which results from an excess in the length of one of the arcades over the other, the latter being almost completely worn to the level of the gums, there is not any remedy for such a deformity, it being generally the ordinary consequence of excessive old age.

It sometimes happens that the bony and fleshy structures of the mouth are not well proportioned, and very evil consequences then result when the animal is put into work, especially if the tongue is too large for the space between the branches of the maxillæ. A remarkable case of this kind lately came under our observation in a horse, the property of the Earl of Clonmel. The animal was a remarkably fine one, but a very hard puller, in consequence of the bit not coming in sufficient contact with the sensitive bars: and also, besides, the transversal distance of the

tusks from each other was so small as to make their teeth interfere with the tongue, which, after the animal had been ridden with restraint by a horse-breaker, was found to be nearly cut through at each side by the tusks. The consequence of this was, that the tongue became swollen to an enormous extent, and the presence of the tusks still irritating it more and more, rendered it necessary that they should be removed, which was done by cutting them off to the level of the gum with a bone forceps; which being done, the tongue itself was scarified, and a cold lotion having been applied, the animal was fit for work at the end of a week. Perhaps, at first, it might seem better practice in such a case to draw out the tusks entirely; but when the great length and obliquity of their roots, coupled with the fact of their being situated in the weakest part of the jaw are considered, it will be obvious that such a procedure would, in all probability, be followed by the most fearful consequences, such as fracture of the jaw, osteo-sarcoma, &c., the former of which happened under our own observation.

Another deformity is not very uncommon in the incisor teeth of horses, although by no means so frequent as in the human subject: it is the presence of a tooth isolated and situated either within or without the regular row, and most commonly in the upper jaw. When it is situated in front of the row of incisors, it interferes with the prehensile functions of the lips, so importantly exercised in gathering food into the mouth, and sometimes excites inflammation and sloughing of the internal part of the lip itself. In this case it is necessary to have recourse to the operation of extraction of the tooth, which, from the direction of the root, may be done with perfect safety with a pair of forceps.

If, however, the tooth be situated within the incisive row, it will, as soon as it attains a certain length, become a material hinderance to mastication, inasmuch as it will prevent the free motion of the tongue, which it will, in all probability, excoriate and inflame. In this case the operation of extraction cannot so easily be had recourse to, nor is it so safe as when the tooth is situated anteriorly to the incisors. For our part, in the most of such instances, we prefer cutting it to the level of the surrounding fleshy parts with the bone forceps, the mouth having been previously arranged with the speculum oris, and the tongue held, &c. There are, however, some cases which demand the extraction of the tooth, and in such instances a pair of crank forceps should be used.

TREATMENT OF CARIES.

The only remedy for caries of the teeth, in the immense majority of cases, is the evulsion of the diseased organ.

Certainly, if we were called upon to treat this affection at its *début*, it would be possible to arrest its progress by cauterising deeply the blackish excavation, which is one of the first cognizable symptoms of this disease; but if caries does not manifest itself by sensible symptoms until the disease has sufficiently progressed to attack the dental bulb, and so exalt its sensibility even unto acute pain, it may have undermined almost the entire extent of the tooth before we dare put in practice means capable of stopping its ravages. Under those circumstances, extirpation is the only remedial means at the disposal of the surgeon.

In veterinary surgery we have very powerful means of practising the extraction of the molar teeth; the key of Garengeot, constructed on a grand scale by Delafond, &c.; the peculiar instrument invented by M. Plasse, and Professor Simonds' elegantly constructed lever-forceps, are, most assuredly, instruments whose force and power of action are well proportioned to the energetic resistance against which they must be applied: and in a great number of cases they will be found to be of much assistance in the hands of the veterinary surgeon, and fulfil perfectly the objects for which they have been recommended.

For a description of these instruments, and the indications as to their employ, we would refer the reader to the Memoirs on the subject by Messrs. Delafond and Plasse, published in the "Recueil de Médécine Vétérinaire," vol. viii, page 182, and vol. ix, p. 317, and to the observations of Professor Simonds, made in the Veterinary Medical Association and published in THE VETERINARIAN.

The transcription of these Memoirs, of which we most willingly adopt all the conclusions, would not, we conceive, be of any utility in this place, and we shall therefore proceed.

We will direct attention to cases in which the employment of those instruments is rendered quite impossible, either by the diseased tooth being situated far back in the depth of the mouth; by the small rise that it makes without the alveole, or on account of its enormous resistance to the efforts made for its extraction; cases in all which it is necessary, in order to extirpate the organ, to have recourse to other modes of operating.

Instances, in fact, present themselves, in which the carious tooth can neither be seized by the hooks of the key nor the fangs of the forceps no more than by the screw-mouth of Plasse's apparatus. When, for example, the last molars, either above or below, are

affected, how can evulsive instruments be applied to the one or the other? The continual approaching of the two jaws by the powerful contraction of the masticatory muscles makes these last molars so crowded together towards each other, in spite of the dilatation of the mouth by the speculum, that it is frequently impossible to slide the instrument along between them. Moreover, let us add, that the tongue, however well fixed it may be without the mouth, has still the power to displace the instrument by the play and energy of its undulatory movements at its base. Still, again it should be borne in mind, that the hinder molars, as we stated in the beginning of this Memoir, ordinarily have less of their bodies above the gum than the others, and, therefore, offer less hold; and, finally, that the obstacles which oppose the application of extirpating apparatus to these teeth are nearly insurmountable.

In other cases, the tooth excavated by the caries is destroyed almost to a level with the gums, and the part above the gum is then so small that it does not offer any point *d'appui* to the claws of the instruments.

Lastly, in some cases the *exostosis* of the root of the tooth is so great, that it is as if wedged in the interior of the alveolar cavity, and resists the most violent efforts at its extraction.

Still, however, what is to be done? The caries persisting may lead to grave local complications, and, consecutively, the most dangerous general disorders.

In such a case we would advise having recourse to trepanation of the diseased sinuses, and, by the aid of an opening made upon the parietes of these cavities, punch by its root into the mouth the tooth which could not be wrenched out by a direct effort.

In his memoir on the evulsion of the teeth, published in 1831, Monsieur Delafond admits that this operation, before recommended by D'Arboval in the first edition of his *Dictionnaire de Médécine Vétérinaire*, "was only practicable upon the three most anterior molars, seeing that, in order to trepan the sinuses above the three last molars, it would be necessary to incise the *zygomato-maxillaris* muscle, and the nervous plexus which clothes it." We, however, are not of the same opinion. We think that, applied to the three first molars, the operation of which we are speaking is most ordinarily entirely useless, and that it may even be rendered eminently dangerous by the contiguity of the facial portion of the fifth pair of nerves, which makes its exit upon the face just above the roots of these teeth; whilst the trepanation made in order to reach the three posteriormost molars not being below the insertion of the masseter, but, on the contrary, well above it, can be practised without including or interesting this muscle, and without lesion of any important organs or parts.

This operation appears to us to offer the double advantage, on the one hand, of rendering possible the evulsion of the organ, the principal cause of the derangements to be combatted, and on the other hand, of giving access into the sinuses which are the depôts of purulent collections and pathological productions, against which it is necessary to act directly and with great energy.

This latter consideration is of very great importance, since, even though we might by the ordinary means obtain the extraction of the diseased tooth, it would still be necessary to trephine the sinuses, in order to evacuate the pus which they enclose, and modify the state of the membrane which secretes it.

This operation being very unusual, and the observance of some rules requisite for practising it, we will consider it somewhat in detail:—

The carious tooth once recognised, and the impossibility to extract it by the mouth well established, either from the state of the diseased parts or from the vain attempts with the ordinary instruments, the animal should be cast upon the side opposed to that where the disease exists. The operator then assures himself anew, by direct exploration with the hand in the mouth, of the exact situation of the carious tooth.

If, as sometimes happens, the swelling at the corresponding sinus is little sensible, it would be well to be guided by a head prepared in advance, with the sinuses laid open, in order to find the exact place necessary to apply the trephine; this is always to be directly above the diseased root. When the diagnostic is precisely determined on this point, a large V incision, or a crucial one, must be made, and the trephining instrument manipulated until the sinus is properly laid open. Now, this opening into the sinus must not be confined, but, on the contrary, very extensive; and it is more convenient to apply upon the parietes of the sinuses three crowns of the trephine tangent reciprocally at their circumferences; then, by the aid of a very sharp cutting instrument and a small hammer, the angles may be removed from the borders of the opening.

The sinus being thus laid open, we observe the interior to be filled with pultaceous matter, much resembling curds, and of a particularly fœtid odour; this matter must then be extracted, and the sinuses completely cleaned out with injections, which may be composed of a weak solution of chlorinated lime, in order to destroy the extreme fœtor.

As soon as the mucous lining membrane of the cavities has been laid bare, the transformations which it has suffered may be observed, as also the vegetations springing from it. At the bottom of the sinus, towards the alveolar border of the maxilla, and in the midst of these vegetations, may be recognised a surface, hard,

granulated, dry, and resistant to the touch; of a greyish tint, analogous to that of a sphacelated bone. This is the summit of the root of the tooth deprived of the osseous partition that in the healthy state closes and separates it from the interior of the sinus.

The operator then arms himself with an iron punch rounded at the point, which he applies to the extremity of the root in the sinus, and having dilated the mouth by a few turns of the speculum oris, in such a manner as to place the superior and inferior arcades at a distance from each other, he commands an assistant to strike the head of the punch in *short* hard blows, after every one of which he assures himself whether the tooth loosens, in order to proportion the force of the succeeding blows to the resistance. The adhesion of the tooth soon gives way under this treatment, and is punched into the mouth, generally in two fragments, according to the direction of the caries.

Sometimes, from the great length of the tooth, and the arcade of the under jaw being exactly opposite that to be operated upon, the diseased organ cannot be punched completely into the mouth, because the distance between the two dental tables is not sufficient to allow of the entire length of the loosened tooth to be pushed through into the mouth: it is then necessary to twist or wrench it out with a pair of long pincers, the handles of which must be separated from each other to increase the power of the operator.

The operation terminated, the vegetations of the mucous membrane, as far as they can be reached, must be excised; then, in order to arrest the abundant hemorrhage which results from this excision, and at the same time to modify the state of the membrane—pledgets of tow moistened with a diluted solution of nitric acid or some other caustic, should be applied.

It is really extraordinary with what rapidity structural destructions so considerable as those resulting from this operation are repaired by the wonderful workings of the organic economy. The first time that we were called upon to perform it, we considered the animal which had been submitted to it as almost entirely incurable; in fact, that it was nearly impossible. The sinuses laid open by a large breach of nearly two and a half inches in diameter communicated with the mouth by an enormous opening corresponding to the alveole in which was lodged the tooth, whose root had acquired nearly treble its normal volume. Again, the lining membrane of the maxillary sinuses, as also of the frontal, had suffered the transformation that we have above described to its greatest degree. And, finally, we should remark, that it required efforts almost beyond belief to loosen the tooth and force it from its alveole. Still, however, to our great surprise, the animal made a good recovery.

The treatment consecutive to the operation must principally consist in assiduous attention to cleanliness. On the first day the animal should be entirely deprived of all solid or fibrous food, which would require efforts of mastication. It is necessary to frequently gargle the mouth with acidulated fluid, which may be easily done by using the ordinary syringe. In fact, the animal should get nothing but a little thin gruel, and have his mouth washed after its use. Bleeding is often indicated, the quantity to be extracted being governed by the energy of the reaction consequent on the operation. The day after the operation the dressing must be raised. The interior of the sinus cauterized by nitric acid, or other caustic agent, will reflect a blackish tint. The vapour which it exhales disseminates a most repugnant odour, and there are generally some remains of putrid and altered alimentary matters mixed with the clots of blood enclosed in the cavity of the sinus. Detergents should be injected into the interior of this cavity, such as Lebarraque's clorinated solution of soda, mixed with a gentian wine. The mouth should be cleaned with acid gargles; and we should introduce a firm pledget of tow, chlorinated, into the space of the alveole, to oppose as much as possible the passage of any thing from the mouth to the sinus. The regimen should consist of gruel only, and the gargles should be continued often during the day. On the second, the borders of the opening of the sinus will be a little swollen. The work of reaction has commenced in the cauterized membrane; the eschars detach themselves, and leave naked a rosy surface of a laudable aspect. The odour that escapes from the cavity is less repugnant. Continue the same aromatic detergent injections, and the same food, with the addition of a little bran, and gargle often. But as the suppuration begins to establish itself, the dressings should be repeated twice or three times during the twenty-four hours.

It is not our intention to indicate the progress of the wound and the attentions it demands day after day. We would only remark in a general way that, according as the day on which the operation was performed becomes more distant, the tumefied bones and other structures proportionally lessen in the neighbourhood of the wound, and the membrane of the sinus takes on a uniform rosy tint, and a glistening humid aspect, proper to a mucous membrane; and, finally, the nasal flux ceases completely, the matter which may be secreted finding an exit into the mouth by the alveolar opening; then the opening made by the trepan contracts itself by degrees, at the same time that the tables of the alveolar borders approach each other, and so tend to obliterate the cavity which formerly lodged the root of the diseased tooth.

This work of repair ought to be aided by detergent dressings,

whose number of applications must be regulated by the quantity of suppuration of the sinus, which diminishes daily, and changes its aspect according as the pyogenic granulations disappear from the surface of the membrane. By degrees this membrane loses its inflammatory turgescence, and gradually finishes by throwing off only a muco-purulent secretion in small quantity.

However energetic may be the work of cicatrization under these circumstances, it is never sufficiently complete to entirely repair the structures cut away in performing the operation: for, in the first place, although the parietes of the sinus, in ordinary cases of trephining, do throw out callus at the border of the opening made by the trepan, and in time, by the process of extension and ossification, close the aperture, yet in the case of the operation which we have above described, the loss of structure is too great to be ever entirely replaced. This inconvenience, however, is more than counterbalanced by the advantages derived from its application. By its employ we have, in fact, obtained the cessation of the discharge from the nose which rendered the animal suspected of glanders, which disease, indeed, we feel confident is often excited in consequence of the persistence of the former malady; and the *modus operandi* of the production of glanders in such a case has a very plausible explanation on the grounds of the absorption of unhealthy pus acting on a bad constitution by the effects of the dental disease—effects which have placed the animal entirely beyond the capability of service.

With respect to the opening at the facial region, that may be easily hidden by a leather or metallic plate attached to the check of the bridle. Again, its inconvenience is greatly counterbalanced by advantageous opportunities of injecting the sinuses, and preventing any unhealthy secretion from them.

If, now, we consider this operation relative to one of its principal advantages, namely, the cessation of the jetage *caused by a pathological modification of the membrane of the sinuses* and the accumulation of pus in their cavity, we are struck with the efficacy of its results, especially if we compare them with the results of trephining in the case of collections in the sinus under the influence of a *specific cause*, namely glanders.

Wherefore this difference so complete?—Is it justly attributable to the cause being specific in the second case, and to the simplicity of its local action in the first? But we every day see the farcy, which may be considered as a *glandered* affection of the skin, recover under the influence of the different modifying agents that we employ; but the glandered eruptions of the nasal cavities recover sometimes either by a spontaneous effort of nature, or by the action of our medicinal agents, when there do not exist in the sinuses

collections which are the causes of unceasing fluxes. Why, then, with the aid of cauterization, or any other agent, do we not in a case of glanders whose seat is definitely circumscribed in the sinuses, procure the cessation of the nasal discharge; while we can obtain so easily this result when the collection in these same cavities is caused by simple irritation? This difference in the phenomena, is it not attributable in the first case to the circumstance of the suppuration always finding a ready issue through the alveolar orifice, necessarily situated at the most dependant part of the cavity; while the opening made by the trepan is not situated conveniently for a free passage to the whole of the pus, of which a part always runs off below through the communication between the sinuses and the nasal cavities?

Would it not be worth trying, if the extirpation of a tooth, combined with trephining, in the case of a collection circumscribed to the sinuses (in fact, what Professor Sewell calls *glanders of the sinus*), without alteration existing in the nasal cavities, would change the negative results met with in simple trephining? We certainly shall have recourse to this experiment when an opportunity may offer, and the results shall be duly recorded. Many cases, however, have fallen under our own immediate observation, when simply trephining the frontal and maxillary sinuses, and injecting detergents and antiseptics have induced recovery: while in by far a greater number this treatment was unsuccessful; yet we feel inclined to think that if, in addition to simple trephining, a tooth had been extracted, and a communication established between the sinus and the mouth through the alveole, the results would have been more favourable.

Caries persisting in the Maxillary Bones after the Extraction of the Tooth.

When the caries of a tooth has induced consecutively interstitial suppuration of the spongy tissue of the alveole, it is possible that, even after the evulsion of the diseased tooth, this alteration of the bone may continue and make new progress. Then, more than ever, may we dread tumefaction of the tissues and sarcomatous alterations, which are ordinarily the result of a persistent suppuration in the areoles of the spongy substance of the bones. To prevent these dangerous consequences, it is necessary to have recourse to the cauterization of the alveole with the actual cautery, and, if it be possible, to make a counter-opening by trephining that part of the bone correspondent with the depth or end of the alveole, which is the seat of the suppuration. In some cases that fell under our observation this mode of treatment produced the most happy re-

sults. If, however, the actual cautery cannot be had recourse to on account of the peculiar circumstances of the case, a strong solution of argenti nitras may be most advantageously substituted, and applied with pledgets of tow or lint.

Deglutition of the evulsed Tooth, or one of its Fragments.

The falling into the throat of a tooth, and its penetration into the digestive canal, may be followed by the most serious functional derangements, and even induce death. Two instances of this serious accident have happened under our observation.

In the first, the horse succumbed in a tympanitic affection, accompanied by extreme pain, and death was produced by asphyxia.

In the second case, death was the consequence of an ulceration of the point of the cæcum, which was entirely traversed from part to part; and at the *post-mortem* examination the tooth was discovered in the peritoneal cavity, in the midst of a quantity of alimentary matters effused into it. Such, however, are happily not always the results of the deglutition of a tooth or its fragments; but the possibility of such consequences is sufficient to excite a dread lest they might be met with again. Moreover, the presence of a tooth, or a part of one, may induce the most serious consequences at some distant period. We allude to the formation of those productions called intestinal calculi by the swallowed tooth, on account of its being indigestible, acting as the nucleus for the future calculus, as, indeed, any hard substance may also do; which has been clearly proved by Professor Morton, of The London Veterinary College, in his splendid paper on the formation of "Calculous Concretions in the Horse," published in *The Transactions of the Veterinary Medical Association,* vol. i.

The greatest care should be observed to avoid the escape of the tooth into the mouth after its evulsion from the alveole. In the majority of cases this indication may be fulfilled if, immediately after the operation, the speculum oris is removed with rapidity and the animal's head left at liberty: the tooth is then ordinarily rejected by the motions of the tongue.

If, however, it was swallowed, it would be necessary to endeavour to prevent the consequences of its sojourn in the digestive organs by exciting the whole canal with a drastic purgative, followed by the exhibition of gentle laxatives, until the foreign body may have been rejected: perhaps, by these means the dangers which we have above signalized might be avoided.

Complications of Operations upon the Mouth.

One of the most ordinary complications of operations practised in the mouth is the excoriation of the bars, especially those of the lower jaw, by the friction of the speculum.

When the jaws are forcibly separated by this instrument, the muscles which approach them contract with energy to overcome its resistance. Under the influence of this useless effort the lower jaw obeys with a continual movement of diduction across the inferior branch of the speculum, a movement which almost infallibly operates in wearing the buccal membrane upon the sharp borders of the bars, and even denuding the bone itself.

This accident is often attended with serious consequences. The denuded bone frequently exfoliates throughout the entire extent of the surface which has suffered contusion, and the exfoliatory process may prolong itself for more than a month, during which time the animal is almost or entirely useless, especially if he is adapted to the saddle, or an irritable creature. To avoid these frequent consequences of the use of the speculum, it cannot be too strenuously recommended to envelope the transverse bars of this instrument with tow or other elastic matters in order to form a cushion at that part resting on the buccal membrane; and, moreover, the different explorations of the mouth should be practised as quickly as possible.

Hemorrhages.—The hemorrhages excited by operations on the dental apparatus are never so abundant as to be justly considered serious. We have never seen, neither have we heard, that even after the evulsion of a bad carious tooth, the bleeding was sufficiently considerable to cause inquietude. Yet there are some veterinary surgeons who think that the life of the animal might be thus compromised. If such a case should perchance occur, pledgets of tow, wet with a solution of nitric or sulphuric acid, stuffed into the alveole, would be the means indicated to arrest the flow of blood.

General indication of the care demanded by animals after operations on the mouth.—Immediately after the performance of operations, whatever they may be, it is necessary to calm the irritation of the buccal membrane by the employment of acid gargles frequently repeated, and the wounds in the mouth should be deterged from time to time with a mild solution of alum.

Regimen.—For the first few days the diet should consist of well-boiled gruel, carrots, and such like matters. Fibrous aliments are injurious in the beginning, on account of their irritating effects when brought in contact with the injured and highly sensitive

membrane of the mouth, and on account of the masticatory efforts which they require.

This kind of regimen must be continued during a time whose duration is proportional to the extent of the wounds made by the operation, and to the nature of the deformity of the masticatory apparatus. It is for this reason that it is necessary to insist on the use of aliments easy of mastication when the level of the dental tables is much deranged, or they are worn down to the level of the gums.

When one of the molars is deficient, the tooth correspondent to it in the opposite jaw, from its indiscontinued growth, and not being worn by its antagonist, becomes, one day or other, an obstacle to the performance of mastication by striking against the opposite gum, or preventing the free lateral action of the jaws, by locking itself between the two teeth situated at each side of the empty alveole. It is, therefore, necessary to see from time to time the animals that have been so operated upon, in order to re-establish the level of all the molars when that which is not worn becomes exuberant.

Such are the considerations that this subject has appeared to us to merit; but, to render them more complete still, we shall place on record some accounts of cases extracted from our practice, in which may be found proofs of the efficacy of the operations, and other treatment, that we have recommended.

[To be continued.]

HEREDITARY PHTHISIS IN AND TUBERCLES ON THE PIA MATER OR TUNICA ARACHNOIDES, OF A BULL CALF.

By Mr. W. A. CARTWRIGHT, *V. S., Whitchurch, Salop.*

ON the 20th January, 1844, I was called in to attend a bull calf, about nine months old, of the short-horned breed, the property of G. Gill, Esq., of the Twemlows. He had been noticed a day or two before as unwell, on account of his hanging out his tongue, and was consequently brought home.

Symptoms.—The principal ones that attracted our notice were, hanging his tongue out four or five inches, and slavering considerably. He would occasionally draw his tongue in, but it gene-

rally hung out. Respiration and pulse about natural, and abdomen in a great measure empty, as if he had not eaten much recently. On examining his mouth, I found in it a large flat slice of turnip, and I do not believe he could get it out. After removing it, I examined the mouth very carefully, which was moist, and of a natural colour, but could not detect the least disease in it. I also passed my fingers a little way into the œsophagus, but could not detect any obstruction; nor could I find any thing externally down the course of the œsophagus. On pressing my hand on the front of the thorax near the œsophagus, I fancied that he flinched a little. His gait was tottering, and his general appearance low and debilitated.

Diagnosis.—I must say that I never was more puzzled in deciding what was amiss with a patient than in this instance; but, on the whole, I was almost inclined to suspect that a portion of sliced turnip was impacted in the œsophagus low down, and which permitted gruel or water to pass. I merely ordered gruel to support him, and promised to call again on the morrow, and then to pass the probang.

21*st.*—This morning I saw him again, and found him a little weaker; the pulse and respiration about natural. I again examined his mouth, and found the tongue hanging out as usual, but I could not detect any thing with the probang. On looking at him in the face, I fancied that he was blind of the off eye, and, on presenting the hand to it, I found such to be the case. With the other eye he could see the movement of the hand, and which drove him away. On lifting up his head, he fell down, and a fit took place. He struggled considerably. On looking at his eyes, I found that they were contracted under the sides of the orbit, and a continual spasm of the muscles took place. In five or ten minutes, without my doing any thing to him, the fit left him, and he got up. I then blistered the top and sides of the head and neck, and ordered him to be supported with milk and oatmeal gruel, as he could not eat the least thing.

22*d.*—No better. I sent four ʒss doses of hyd. chlor. formed into boluses, one to be given every six hours in gruel, and, if no better to-morrow, to be bled to two quarts.

24*th.*—He has been bled, and the blood came from him very freely. He is hanging his tongue out as usual, and much saliva is issuing from his mouth. He can see a little, I fancy, on the off eye, as he winks on moving my finger towards it. The end of his tongue is very cold. The blister has made him sore, but I do not see any vesicles on the parts. He can walk about better and firmer, but he cannot eat any thing. I think he is griped a little, as he curls his tail about, but he does not lie down. Continue to supply

him with gruel, and, if griping comes on, give him some cordial medicine. His pulse is rather quicker than it was. Respiration natural.

28*th*.—But little difference in him, except becoming more debilitated. There is now a considerable quantity of matter about his eyes. He cannot eat. Do nothing to him but support him with gruel, and keep his bowels open with boiled linseed.

February 2*d*.—Last night he died, and it is supposed that he had been struggling very much prior to his death.

Examination.—I removed a portion of the skull and cervical vertebræ, in order to examine the brain. The dura mater had a very vascular appearance. After removing the dura mater, and separating the nervous connexions of the brain, I cut the medulla oblongata across, when an ounce or two of serum escaped. I found that the pia mater contained a great number of softish granular tubercles on it. I took the brain home with me, and examined it more carefully. On raising and separating the pia mater from the brain, I found that the tubercles existed in a great measure on that membrane, on the sides and base of the cerebrum and cerebellum and medulla oblongata, and also deep within the convolutions of the cerebrum and cerebellum. A few were found on the other parts of the membrane. The tubercles appeared to be growing from the external surface of the pia mater, or tunica arachnoidis, and projected against and indented the surface of the brain. They were in size from a pin's point to a pin's head, and almost in close contact with each other on the membrane, and of a yellowish colour. The pia mater was very vascular where the tubercles were situated, and bloodvessels could be traced to them. There were no tubercles within the lateral ventricles, and but little serum. The tubercles were very numerous about the superior part of the base of the cerebrum and the cerebellum. The membranes covering the medulla oblongata were considerably thickened with lymph and tubercles. The spinal marrow was not examined.

On separating one of the shoulders from the body a large gland was completely brought to view, containing, in a firm sac, a quantity of yellow hard cheesy matter. Other smaller similar ones were seen on dividing the symphysis pubis. On laying open the abdomen, the peritoneum was found to have on its surface a great many tubercles from the size of a pin's head to larger than a pea. The liver was firmly united on the off side to the peritoneum, between which great numbers of tubercles were found, and the liver was not by any means in a healthy state.

From some cause or other the small intestines were highly inflamed, especially on their mucous surfaces, and they contained

much bloody-looking secretion. The external surfaces of the stomachs, intestines, and peritoneum, had a dirty appearance, and I thought at one time there must have been a rupture of some of the stomachs or intestines, but which was found not to be the case. There were also small curious pendulous tubercles or secretions attached to the first stomach—something of the form of the linseed, but larger. There were likewise tubercles on the pleuræ, and within the substance of the lungs, but they were not very numerous on the former. I saw no appearance of any worms in the bronchial tubes. I am sorry I had not time to examine the spinal cord, or to devote more attention to the examination generally, that it demanded.

Observations.—This calf, among many others, had been hoosing for some time, but he was thought to be getting better of that complaint, and nothing more was considered to be ailing him until he was seen hanging his tongue out. It is a fact that this calf came out of a fine short-horned cow that died on the 26th of May last of tubercles in her lungs, and on the pleuræ and peritoneum (which I examined after death)—in short, of phthisis. This calf was not allowed to suck his dam for above a fortnight or three weeks, but was put on another cow, and remained there for some months.

Now here is a clear case of a cow dying of tubercular disease, and, to all appearance, her produce inheriting it from her, and dying of it, in conjunction with some other attack on the brain, not very discoverable, but probably connected with the tubercles. The first day I saw this calf I really did not know what was amiss with him, as he did not shew any symptoms of diseased brain, there being only salivation and hanging out of the tongue, and not the least appearance of disease about the mouth; but on the following day, in consequence of lifting up his head to examine it, and also to pass the probang, I discovered that he was then partially blind, and immediately afterwards a fit came on with great spasmodic action of the extremities and of the eyes, which clearly developed the nature of the complaint.

This tubercular disease is very common in my neighbourhood, and goes under the expressive appellation of being "graped." I have opened a great many of these cases in cows, but seldom in so young an animal as the present. It is well known to butchers here, that, if a cow continues to hoose, or even does not, but does not improve in condition, the probability is that she is "graped," and, as a general rule, it will be folly to keep her any longer at expense. I have known many of these calves put up for stall-feeding, and also to grass, that have improved for a short time only, and then became stationary. No method that could be devised could then put any more flesh on them, and they have been

slaughtered, and the disease found to exist. It is astonishing to what an extent this disease may exist in an animal without causing its death; for frequently I have seen nearly the whole surface of the pleura costalis, and the pleura pulmonalis in a lesser degree, and also the peritoneum, mesentery, and omentum, covered with these tubercles. They are more frequently found on the pleura costalis, and in greater clusters, actually lying one on another, from the size of a pin's head to that of a walnut, and many are pendulous. Sometimes they assume more of a solitary character, and are dispersed one here and there, as on the omentum and mesentery, leaving the intervening spaces beautifully sound.

I have seen, in some few cases, as much pleura and peritoneum containing these tubercles peeled off as would fill an imperial bushel measure. Sometimes the substance of the lungs contains a great quantity of these tubercles, but not generally. The tubercles are, if of much size, of a yellowish colour and of a cheesy consistence, and somtimes feel as if spiculæ of bone was in them. In a similar case to the present, Mr. Morton, of the Veterinary College, analyzed some of these tubercles, and found them to consist of the phosphate and carbonate of lime, with a little magnesia. It would appear that this disease, in a great measure, has its seat on or under serous surfaces, such as the pleura, peritoneum, and tunica arachnoidis. In this instance they certainly extended into the sulci between the convolutions of the brain; and, if so, we must conclude that they were formed on the pia mater, unless we admit that the arachnoid membrane extends into these depressions, which is contrary to the opinion of anatomists. I have never before examined the brains of animals that have been "graped" in the chest and abdomen, but will do so the next opportunity; and it is highly probable that the brain, being affected and pressed on, may be the principal cause of their not improving in condition.

From the foregoing observations, I think we may infer that it is highly improper to rear calves from cows that are supposed to have this tubercular disease, or, indeed, that are affected with any chronic disease; as the probability is, that, after keeping them for a long period at expense, they may die and disappoint us at last.

MR. KARKEEK, AT ST. AUSTELL FARMERS' CLUB, CORNWALL.

THE second annual meeting of this club was held at the latter end of February. In the morning there was a ploughing match in a field about a mile from the town, where a number of farmers

attended. Some implements were also shewn on the ground, several of which were considered to exhibit valuable improvements.

Mr. Karkeek, at the request of the chairman, then commenced the delivery of a lecture which was illustrated by a large number of tables. We offer a brief abstract of it.

LECTURE ON ORGANIC CHEMISTRY,

In its application to Physiology, and the Rearing and Feeding of Animals, by Mr. Karkeek.

He began with an account of the principal elementary substances, such as carbon, hydrogen, oxygen, nitrogen, sulphur, phosphorus, with a few of the alkaline, earthy, and metallic bodies of which all organized substances were composed, shewing how these—moulded into being by the hand of creative wisdom, and endowed with the mysterious and incomprehensible principle of life—became converted into the endless race of animals and vegetables. There was this difference, he said, in the assimilating powers of vegetables and animals,—that a plant could grow at the expense of the elements by which it was surrounded, and where no living substance ever previously existed; but animals, on the contrary, could only exist upon matter previously organized, either by plants or other living beings. The lecturer then shewed how, by the union of those simple elementary bodies, according to certain laws which he briefly explained, proximate elements were formed, which were divided into two groups, the azotized, and non-azotized,—vegetable, fibrine, albumen, casein, animal fibrine, and albumen, constituting the first group, and fat, gum, sugar, starch, &c., constituting the latter. In the first there were four of the ultimate elements, while in the latter, only three, the presence or absence of the azote or nitrogen constituting the difference.

He then went on to shew that vegetable and animal fibrine, albumen, and casein, were composed of the same ultimate elements, and, in fact, were identical in their chemical composition. This fact he illustrated by numerous tables, containing the analyses of these different substances by Playfair, Boussingault, Liebig, and others.

He next explained some of the laws, vital and chemical, which regulated the metamorphoses of these elements, and of the interchange of atoms which occurs between the blood and the structures in the process of nutrition, plainly and distinctly shewing the farmer, that, in the rearing of young animals, substances rich in nitrogen, such as peas, beans, oats, barley, &c.,—these articles of

diet, containing a large per centage of albumen—are particularly required for the growth of the various parts of the body. In the rearing of horses in particular, where the object is to produce a great development of muscle, the young stock should be sufficiently sheltered in the winter, and have a fair allowance of hay, oats, peas, &c., which contain from 8 to 20 per cent. of albumen, and it is from the want of these requisites that so many thousands of horses are yearly rendered altogether worthless. "The young animal," he said, "is placed on our globe tolerably perfect from the hands of the Creator, but its degeneracy is frequently owing to the treatment pursued in the rearing. Only compare a yearling colt that has been well housed and properly fed during the winter with one that has been turned out and exposed to the weather, and fed chiefly on hay, straw, and turnips, the two latter articles containing little more than 1 per cent. of the fleshing principle, and good hay containing 8 per cent. of albumen; and although equally fine and clear in their respective points when separated in the autumn, yet they will bear no kind of comparison, either in size or beauty, in the spring." "Again," said he, "pursue the same plan on the following winter, and you fix the shape for life,—the one a handsome, clean-grown, muscular animal, the other a coarse and plain one. It is by proper feeding, and a proper degree of shelter given to the young stock, during the first three winters especially, that some horses are got to the high perfection at which we sometimes see them, having clean limbs, large powerful muscles, and good action; for had those identical colts been kept hard and exposed to the weather, they would never have attracted any attention In the rearing of breeding cattle, the same method of feeding was desirable, since the object of the breeder was not to obtain fat, but muscle, in which the weight of flesh, strength of constitution, and the capability of propagating their race chiefly depended; while in the rearing of store cattle the same care is not required, the object of the feeder in this instance being to obtain as much profit as possible from the food which the animals consume, substances containing fatty matters, such as Swede turnips, straw, &c., answering the purpose. Even in this case he wished the farmers particularly to understand that nearly the whole of the fleshy part of an animal that will afford any profit to them is assimilated chiefly during the period of its growth, which depends on its age and breed. The addition made to its bulk afterwards is chiefly an accumulation of fat which surrounds and is intermingled with the substance of the muscle; and, as the animal body is incapable of producing an elementary one, such as nitrogen, out of substances that do not contain it, it obviously follows that the larger the per centage of these elements contained in the

food, the greater will be the growth of the animal. Hence the object of the farmer is, to force on his stock during the period of their growth by such kinds of food as will produce the largest quantity of muscle at the least expense."

This part of the lecture was illustrated by a table, which shewed at a glance both the fleshing and fattening properties of various kinds of food contained in an acre, either of beans, peas, oats, hay, potatoes, carrots, Swede turnips, wheat straw, oat straw, and barley straw, &c. With reference to this table he explained that, although the per centage of albumen, gluten, and casein—the fleshing properties of food—appeared to be exceedingly trifling in the turnip when compared with that of peas, beans, or barley, yet the immense weight of these roots which could be grown on an acre, frequently as much as forty tons, gave a much larger quantity of albumen than any other crop. Thus, an acre of peas, calculating twenty-five bushels to the acre, will give 380 lbs. of this substance; while an acre of white turnips, calculating only twenty tons to the acre, gave 6,000 lbs. The Swede yielded a larger proportion of albumen than the white turnip; so that these roots might well be called the raw material for the manufacturing of beef.

He then went on to shew how the carbonaceous kinds of food, such as turnips, hay, carrots, &c., might be economized on a farm. "Animal heat," he said, "was the produce of the union of the starch, gum, and sugar, contained in the food, with the oxygen of the atmosphere in the lungs; and the amount of nourishment required for any animal would depend on the quantity of oxygen consumed in the system in this manner. In the winter months, the air being more condensed than in the summer, the same volume of air in the winter contains a larger volume of oxygen gas than in warm weather, when it is more rarefied; hence, a larger supply of food is required to keep up the proper temperature of the body during the cold weather." In this respect the lecturer compared the animal body to a room heated by a furnace, which, in order to be kept up to the same degree of temperature at all times and at all seasons, required to be constantly supplied with fuel. So with the living animal; if the vital functions are to be maintained alike at all seasons, the heat of the body must be maintained by a proper supply of food: and this may be done in either of two ways,—by adding fuel to the living furnace, or by protecting its body from the cold, in which case a less quantity of food would be consumed. This part of the lecture was illustrated also by tables.

The following table which he exhibited was a very valuable one, the experiment having been instituted by Lord Ducie on the feeding of sheep in sheds on "Whitfield Example Farm," which proved to a demonstration the principle of Professor Liebig, that warmth

is an equivalent for food; and cold, on the other hand, renders necessary a greater supply of food, by carrying off rapidly the heat which its combustion engenders. It also shewed that motion is always accompanied by waste of matter in the body—that, in fact, every motion, every manifestation of force, is the result of a transformation of the structure or of its substance; and it naturally followed from this, that an economy of food was necessarily the result of an economy of motion. This experiment, which it appears was instituted at the request of Professor Playfair, in order to test the value of these theories, afforded a most powerful practical illustration of them.

There were five lots of sheep, each lot consisting of five sheep; and the following table will give their weight at the commencement and termination of the experiment, with the increase of mutton and value at 6d. per lb.; the weight of roots eaten valued at 8s. per ton, and the difference between the increase and cost of the same. It should, however, be previously stated, that each of the sheep were allowed one pint of oats, but were supplied with as many Swedes as they felt disposed to eat. The weight consumed was accurately determined by Mr. Morton, who conducted the experiment:—

LOTS, 5 Sheep in each.	Average life weight per sheep, November 18.	Average life weight per sheep, March 9.	Average increase in the life weight for 16 weeks.	Average value of the increase at 6d. per lb.	Weight of roots eaten.	Average cost of roots eaten at 8s. per ton.	Difference between increase and cost of roots.
	lbs.	lbs.	lbs.	s. d.	lbs.	s. d.	s. d.
No. 1.—Fed in the open field.....	108	131 1/8	23 1/3	11 8	1,912	6 9 1/2	4 10 1/2
2.—Fed under an open shed.....	104	132 2-5ths.	28 2-5ths.	14 2 1/2	1,394	4 11 1/3	9 3
3.—Solitary under an open shed, each sheep being confined to a space 3ft. by 4ft.	108	130 1-5th.	22 1-5th.	11 1	1,238	4 5	6 8
4.—Placed under a close shed in the dark	102	129 4-5ths.	27 4-5ths.	13 10	886	3 1 1/2	10 8
5.—Kept dark and solitary like No. 4, except each sheep was confined to a space of 3ft. by 4ft.	111	131 3/4	20 3/4	10 4 1/3	886	3 1 1/2	7 3

In the consideration of the cost of this experiment, the roots only are to be taken in the account, and it will then be seen that the first lot, which were exposed to the cold, ate more than double the

quantity of food consumed by the sheep fed in No. 4, where they were placed under a close shed in the dark; proving to a demonstration that a want of warmth and shelter is equivalent to a waste of food, and if we apply this to the want of shelter to our sheep while feeding upon turnips during the four winter months, when in some places the temperature of the nights is frequently below the freezing point of water, we shall find the loss very considerable.

In the course of making this calculation, it was shewn that, supposing the stock of sheep in Great Britain to be according to M'Culloch's estimate, 32,000,000, and taking the difference in the consumption of turnips and the increase of mutton to be as much as is represented in this experiment of Lord Ducie, between No. 1 and No. 4, during the four winter months, it would amount to the enormous sum of £9,333,000.

With respect to the other lots, Nos. 3 and 5, according to Professor Playfair's opinion, in consequence of the sheep being separated their usual placid disposition was disturbed, and they were observed to fret and lose their appetites when thus separated, which also proves the truth of Liebig's theory, that every thought, every conception, is accompanied by changes in the animal economy.

At the conclusion, some conversation arose on subjects treated of in the lecture. In reply to the chairman, Mr. Karkeek said, it would be economical, with respect to milch cows, to carry their fodder to them, particularly in winter; and in summer, if they were taken into the straw yard, and there fed on roots and grass, they would yield a greater quantity of milk than if turned out to search for food themselves. In reply to Mr. Drew, he said that he certainly wished farmers to understand that protection from cold was equivalent to food. Mr. Wheeler asked if the *quality* of the meat was equally good? and Mr. Karkeek replied "there could be no doubt of it," and proceeded to observe, that his remarks on the economy of stall feeding were only intended to apply to stock intended for the butcher. He had always endeavoured to shew the mischievous consequences of fattening *breeding* cattle. Mr. Karkeek spoke further of the necessity of young animals having a proper amount of exercise for the development of their muscle. Mr. Prater wished it were possible to impress on the Cornish farmer the necessity of obtaining an improved breed of horses, and spoke in approval of the Yorkshire mode of breeding. The breeders there bred from fillies of two years old; and thus got two colts from them before they were brought into work at four years old. A fine breed of horses was thus obtained, the produce of mares when young, and before broken by work. In Cornwall, and not in Cornwall only, the young animals were crippled by in-

judicious treatment before they came to maturity. They were put to work at two or three years old. He thought it would be advisable to take two colts from the young mare before she was put to work, as was done in Yorkshire, from which county some of the finest horses were produced.

Mr. Karkeek said, he believed there were, at present, a miserable set of trashy horses, not only in Cornwall, but throughout England. There were, perhaps, as many good horses now as there were fifty years ago; but the number of bad ones had greatly increased. M'Culloch had stated that there were a million and a half of horses in Great Britain; and he (Mr. K.) believed he should not be far wrong in affirming, that two out of every ten were not worth the food they consumed. He believed, also, that eight good horses would do more work than ten bad ones. (A member called out, "more than twenty.") He had taken the lowest possible calculation. If by an improved system of breeding, and the introduction of better horses, they could get rid of only one horse out of ten, there would be a saving to the country, in the rearing only, of more than £2,000,000 a year, reckoning the cost at £5 annually: an equal amount would also be saved annually after the rearing to three years old, supposing the cost of keeping the horse to be £15 per annum. In reply to Mr. Prater's observations, Mr. Karkeek gave it as his opinion that a two-years old filly was too young to breed from. Her powers were not properly matured. He thought they ought not to breed from a mare under three years old. With reference to the Yorkshire horses, Mr. Karkeek said that, at the last meeting of the Breeding Society at Doncaster, they boasted of their having the best sheep and cattle in the world, but acknowledged that their breed of horses had deteriorated during the last fifty years.

From the Cornwall Gazette.

A CASE OF APOPLEXY IN A HORSE.

By WILLIAM PERCIVALL, *Esq., M.R.C.S., Veterinary Surgeon, First Life Guards.*

THOUGH medical men whose judgments have been matured by practice may vauntingly ask, in the same philosophic spirit that our bard of Stratford did, "what's in a name?" those young in practice, and persons out of practice, have been wofully misled by names given to diseases, and by no one appellation have veterinarians been misled more than by that of "staggers." This

remnant of barbarous pathology—staggering or *stakkering*, supposed to owe its origin to *stack*, signifying sticking or hesitating by the way—has had, in a medical sense, all sorts of meanings: let a horse but *stagger*, move or stand unstably, no matter what be the cause, he is in a moment said to have "the staggers." In our own time and among ourselves, staggers has been generally considered to be a disorder of the brain, or else one of the stomach, there being such a compound as *stomach-staggers;* but even with this understanding, phrenitis, apoplexy, megrims, hydrocephalus, &c., to say nothing about gorged or tympanitic stomachs, have all been confounded under the generic and convenient appellation of "staggers." With a view of rescuing one of these diseases from this incongruous jumble, and one whose discovery when present is of vast importance to us, and of still vaster to our patients, I send the following detail, as furnishing an example of what is, and what, in my opinion, *alone* ought to be called, *apoplexy in the horse.*

A chestnut well-bred hackney, aged, the property of F— L—, Esq., about eleven o'clock on the morning of the 31st January, 1843, suddenly fell prostrate in his stall. My assistant, who happened to be doing something in a stable adjoining, heard the noise occasioned by his fall, and instantly ran round to see what was the matter. There he lay, motionless, insensible, and to all appearance dead. "I had no sooner, however," says my assistant, "got to his head, than I heard him breathe, and ascertained that he had a pulse beating quick and boundingly. I hesitated not a moment to draw blood: I first opened one jugular; but the blood not flowing very fast, in the position in which the patient was lying, from that, I opened as well the temporal artery of the uppermost side." This sent forth a *jet de sang*, and both vessels were suffered to bleed until so much blood had flowed that—no return of motion or sense appearing—danger from loss of blood began to be apprehended; and then both bleeding vessels were pinned up. I was out riding at the time the attack took place, but returned about noon, and then found the patient, who had recovered the faculties of sense and motion, experiencing violent fits of convulsion (with intervals of quietude) during which he thrust his head against the wall underneath the manger, burying his nose in the straw and breathing with the loud and characteristic stertor of coma. To my inquiries, the groom assured me that the horse had shewn no previous indisposition whatever. He had taken his exercise this morning early, led with the other horse, with his usual cheerfulness, had fed well over-night, and had, in fact, up to the moment of attack appeared in perfect health. Lying in the position in which he was, prostrate upon his belly with his limbs doubled underneath him,

and with his head underneath an iron manger, against which, every time the fit came on he dashed his poll and orbital projections with cruel violence, contusing and wounding his head sadly, I had him, by means of ropes, turned, or rather dragged over—the stall being too narrow to admit of turning him round—into the gangway of the stable, previously thickly littered for his reception. There he lay comfortably, without much chance of his doing himself harm in his struggles, and, moreover, now we could get at him without danger. His stertorous breathing had abated, though it continued sonorous and quickened, and his pulse, though frequent and strong, had lost its jerking. I opened the opposite temporal artery, suffered the blood to flow in an ample stream, until the pulse grew weak and began to falter: I then stopped the bleeding. How much blood was lost either on this or on the former occasion I cannot say: at a rough guess, I should suppose hardly less than four gallons, altogether, could have flowed. At the end of the bleeding, we heard no noise, except that of mere puffing in the respiration, which had now become weaker than before, owing probably to the loss of blood; and his fits, though more frequent, had lost all that frantic, delirious character they assumed in the first instance. In fact, consciousness had evidently returned. He opened his eyes a little, disclosing a rolling of the globe, and a pupil contracted and irritable, as it seemed, to the light; he now also moved his jaw, which he had not been observed to do before, his mouth having been all the while open, but fixed. About this time he had several rigors; after which his skin and extremities, and mouth likewise, became warm, shewing that re-action was quickly succeeding. He had had one enema administered to him immediately after the first blood-letting; I now ordered another: neither, however, brought away any thing but some scanty liquid dung. I also ordered his body to be covered over with thick blankets, his legs to be flannel-bandaged, his head to be left uncovered, and to have basins-ful of cold water dashed upon his forehead and temples, and afterwards have those parts kept covered with linen cloths wetted with an evaporating lotion. It would have been not only useless, but, I conceive, dangerous, to attempt to administer medicine to him in his present state. No notice is taken by him of any thing—neither food nor water in any form attracted the slightest; nor did he move his tongue, or lips, or jaws when any water was poured through the lower part of his mouth. On these accounts I say he was not in a condition to swallow any thing. The only means of conveying medicine into his stomach with any safety appeared to be the stomach pump; but of what avail would medicine be in the stomach of an animal in his present state? None whatever.

3 *o'clock*, P.M.—He has been dozing a good deal since my last

visit, and while he has slept has had, as he has at present, some return of the apoplectic snore. Now and then, however, he suddenly wakes up and has a fit of struggling, or rather fighting, with his fore limbs. His pulse is 72, and not strong, or such as would induce one to draw more blood. His attention cannot by any means be roused or commanded. It is useless to offer him any food or drink. Give him another enema.

6 *o'clock*, P.M.—I see no alteration in him. His pulse is 76, and he is lying at one time dozing, at another struggling, as he was in the afternoon. Let him remain undisturbed, for disturbance of any kind evidently brings on a convulsive fit; and let him be set up with and carefully watched during the night, continuing the lotion to his head.

February 1*st*.—What with the frequent interruption of his dozing by fits of convulsion, as if from some pain he occasionally felt, he has passed a restless night, though to me, unless it be for the worse, he does not present any material difference in his aspect from what he did last evening. I hesitate not to say, recovery is impossible; and therefore, as the poor creature is evidently suffering either a good deal of uneasiness or pain somewhere—though that may be, partly, from so long lying, and yet he is not in a state to stand, even in suspension—I recommend that he be destroyed. His owner, however, being from home, and no one in charge liking to give the warrant for his execution, he is left to linger or rather struggle on in his misery.

At 3 *o'clock*, P.M. to-day, I saw him alive for the last time. His fits of convulsion have increased since the morning, both in violence and duration, his blowing in consequence becoming stronger. What with these fits, and his swollen bunged-up eyes, and raw head from contusions, he is altogether a pitiable spectacle. Although his body and legs continue quite warm, his pulse, which was running down in the morning, has now disappeared quite. I cannot even feel the artery. Pauvre miserable! thy sufferings cannot be of much longer duration.

At half past 6 *o'clock*, P.M. he died. For ten minutes before his death, so great was his manifestation of agony, that he made desperate efforts to raise himself up, and actually shrieked with a loudness that was heard in other houses near the spot.

Post-mortem, 2*d February*.—His head, the only part saved, was carefully examined at ten o'clock this morning. There appeared an evident fulness, even to distention, of the bloodvessels, both of the dura mater and of the membranes immediately investing the brain; but this was not accounted sufficient for, or by any means a satisfactory explanation of what had passed; nevertheless, *exteriorly*, nothing else unusual was to be perceived—the cerebrum was

sliced nearly to a level with the *corpus callosum:* its substance cut firm, but presented interiorly, as yet, nothing extraordinary. The lateral sinuses were opened; they both contained fluid, but that on the left or near side held double the quantity of the right, and yet was by no means full. Slicing the brain further down, to a level quite with the opened sinuses, there came into view, within the left hemisphere of the cerebrum, a dark, purplish, bloody place, which, on farther examination, was found to extend from the middle of the external or lateral border, inwards, towards the central part of the hemisphere, into which, bloody spots—speckling the medullary matter around the black patch—quite extended. The blackened portion, which consisted of leafy clots of coagulated blood, intermingled with the medullary matter, the latter being in a softened condition, occupied more than a cubic inch of the substance of the brain, and was shaded off internally, as I said before, by medullary matter, containing no extravasated blood, but full of large black points or spots.

It appears the *left* or near was the side upon which the horse fell in his stall, when seized with the fit. Could this effusion of blood into the cerebrum have been the result of his fall? I should say, certainly not; else what caused the fit? And, again, he fell upon litter; moreover, there was no external mark, either in the skin, or the bone, or in the dura mater, or upon the brain, to shew that the fall had injured him. Lastly, the substance of the brain contiguous to, or, as it were, intermingled with the effused blood, had become changed, softened, stained.

My notions about the case are, that, from high feeding, and no work, and from bowels suffered to become constipated, a plethoric condition of the cerebral vessels had become engendered, which had ended (the horse being an aged one) in rupture and effusion, the part wherein the rupture happened being, probably, in a previous state of disease. Had the case been one arising from external injury, I might have entertained some hopes of a survival; as it was, I had none*.

* A case in the third volume of my Hippopathology will shew that, when such symptoms arise from a blow or a fall, recovery may ensue.

AN ACCOUNT OF THE POISONING OF FOUR BULLOCKS BY EATING THE COMMON YEW (TAXUS BACCATA).

By Mr. R. Read, *V.S., Crediton.*

On Tuesday, the 20th of February, 1844, I was requested to attend at an off-farm, occupied by Mr. Lee, in order to endeavour to ascertain the cause of death in four bullocks that had died in a very singular and sudden manner. Conjectures innumerable were offered, as to the cause, both by farmers and farriers that had congregated together on the occasion.

Before my arrival, two of the animals had been opened; but nothing was found in them to cause their death—it was, therefore, considered as a certain fact, that it was inflammation. I called the farriers and farmers together, and reasoned with them on the bugbear of inflammation in all these animals as a cause of death; and said that no farrier or farmer, let his practice be of thirty years' standing, ever saw four bullocks drop and die so quickly from any inflammatory attack; but that they must look for its cause to some agency acting as a poison, and whose ultimate effect was on the brain.

I first began to examine the straw, in order to see if any dried hemlock, either the *conium maculatum* or the *cicuta virosa*, were to be found, or any other poisonous plant, as they often are harvested with the sheaves; but nothing of the kind was to be discovered. I then asked if any savine (*juniperus sabina*) or yew (*taxus baccata*) had come within their reach: on mentioning the latter, "Yes," was the immediate reply, but that it was put out of their way. We will examine the straw-yard, was my immediate observation: we did so, and many fragments of yew were found.

I then proceeded to open the stomachs in the presence of all of them, and to verify the opinion I first gave, that their death was caused by some acro-narcotic vegetable poison, producing symptoms simulating apoplexy. On making an incision into the rumen, a strong fœtor of yew was exhaled; and on taking up some of the contents of the rumen in the hand, fragments of the yew were directly evident to all present. Thus was the cause clearly traced to the satisfaction of every one; but I said, "We will not stop here: let us examine the brain, as it is impossible to have symptoms so similar to apoplexy without some evident derangement there." I then opened the cranium, when the first thing that struck the bystanders was the congested state of its membranes. It was ob-

served and confessed by every one present, that nothing could be plainer. I then said, "I have not finished yet: call your men-servants and boys." On questioning them, one of the boys confessed that he had left three or four faggots of yew in the straw-yard, instead of taking them to the wood-rick in the meadow below, as ordered to do by Mr. Lee. He let them remain over night in the yard where the bullocks were kept. They all freely acknowledged the cause would not have been rendered so plain, had it not been for my investigation. The stomachs of two of the cows had been examined before my arrival; but, strange to say, nothing particular was observed, yet in the very same I found a quantity of yew. I had now the pleasure of seeing the countenances of those who stood around beam with satisfaction, while only a short time before sorrow was depicted on the countenances of several, who feared that it was some malignant disease that was breaking out amongst their cattle, and each dreading whose turn might come next.

THE SYMPTOMS OF POISONING BY YEW are nearly alike in all animals in its simulation of apoplexy. Mr. Tremlett, of Holcombe Barton, saw two beasts die in the space of five minutes, although they had been observed by him eating straw heartily previous to the commencement of the attack. "Then, all at once," he says, "they began to turn round, stagger, fall on their haunches, and then on their side, and quietly die." Since these cases have occurred in my vicinity, others are spoken of. One gentleman informed me that he had a horse at plough, and doing his work well, when, at a moment, he was seized with a giddiness, fell down, and died in a few minutes: on opening the stomach, a hat-full of yew was taken out.

The effects of the poison of yew are the same in sheep,—vertigo, and reeling, sometimes preceded by stupor; and then, in from fifteen minutes to half an hour from the beginning of the attack, they are dead.

Professor Viborg says, the horse dies suddenly, and without any previous suffering, from taking yew. Mr. James Beeson, V.S., says, in THE VETERINARIAN for 1835, two horses died suddenly, while at their work, from eating yew. Many other cases of sudden death are recorded in the volumes of THE VETERINARIAN, which will well repay for perusal: in fact, in all animals the poison's last influence is on the brain and the nerves that originate therefrom for the performance of vital action.

GENERAL POST-MORTEM APPEARANCES.

The stomachs all had slight blushes of inflammation, here and there; but what was very singular, was the easy manner in which the gelatinous coat of the rumen and of the maniplus could be de-

corticated or peeled off. The contents of the stomachs were normal, and contained a due admixture of mucus, with nothing that indicated a suspension of digestion. In two, the lungs were congested, and likewise the muscles of the neck, which exhibited a very injected state. The viscera, except those before mentioned, were in a healthy state.

The brain was, in two of the bullocks, rather softer than usual, and the membranes could with ease be separated. The spinal marrow I did not examine, but came to the conclusion, that it was not affected, either primarily or secondarily, from there being no paraplegia, either complete or incomplete, evinced in any or either of them. Had its action begun in the medulla oblongata, rambling and paraplegia must have been a result.

Remarks on the Action of Yew Poison.

Numerous are the cases afforded in THE VETERINARIAN in which yew has been eaten with impunity. Mr. Youatt says, in his work on Cattle, in some cases they give cattle yew mixed with food, to hasten the fattening process. Mr. Simonds gave yew to the horse, mixed with oats, and no ill effect followed; and numerous other cases are recorded, in which animals have eaten it without the least effect; but from all I have read I draw this conclusion,—that the action of yew poison, or its influence, is lost on animals when they have a liberal supply of food that is well charged with albumen, or, in accordance with Liebig's nomenclature, "azotized:" such was the case in the experiment made by Mr. Simonds, and it is also likely, as recorded by Mr. Youatt. When given to fatten animals, it is mixed with food of a farinaceous nature. In theory I advance this, that, as no vegetable poison is destitute of nitrogen, a liberal supply of azotized food prevents the absorption of its poisonous principle, from there being an excess of azotized food in the stomach, which retards its absorption, and a sufficient quantity of azotized matter is produced from the farina for the oxygen to act on, instead of the animal tissue: thus absorption is retarded. On the other hand, animals that are feeding on leguminous food, such as the bullocks were, but very little azotized matter could be extracted by them in the process of digestion for the maintenance of a waste of the tissues from the attack of oxygen: consequently, in them, absorption was vigorous; and, as soon as the yew entered the stomach, being charged with nitrogen, it became a prey for the absorbents, and its poisonous elements entered the system. The Duke of Richmond lost two hundred deer, during a severe winter, from eating yew. At that season of the year they can have only a very scanty supply of vegetable al-

bumen, or azotized food. Many other cases I have gleaned, and in all it has occurred when they have been deprived of food containing the nitrogenous product; and in the cases of recovery, or, in other words, in which it does not act as a poison, is in accordance with this. When the yew is eaten, whether such animals are living on food that is albuminous or azotized in the maximum, or on food in which there is a deficiency of the nitrogenous principle. I lay claim to being the first who has hinted a theory in conformity with this opinion as to the action of vegetable poisons on animals, and trust that this very interesting subject will be followed up by more able hands than mine.

Donkeys, some say, are obnoxious to the poison of yew. Be it so: allowance must be made for the small portion of food they take in at any time, knowing that they will browse for hours on a few bramble-leaves. Others say that they have known cattle and sheep eat it; but the season of the year must be taken into consideration, and it has happened, on questioning them, that this has occurred at a time when the graminous food is well impregnated with vegetable albumen.

Some, again, say that it is the male yew that is poisonous. I leave it for you to speak as to its character, having sent you a sample of the yew—a portion of the tree that poisoned those which afforded this subject matter. I hope this will, through the medium of THE VETERINARIAN, give publicity as to its fatal effects; and, as Mr. Spooner justly observes, such cases cannot be made too widely known, as they tend to public good.

In concluding this subject, I was glad to find Mr. Morton's Chart on Poisons bears me out in the sudden way in which death takes place from vegetable poisonous agents.

A CASE OF RUPTURE OF THE DOUBLE COLON IN A HORSE.

By Mr. W. ERNES, *London.*

A BLACK cart horse, five years old, the property of the North Country Coal Company, was, on the 22d of February last, ordered to lay by for a few days, and have a dose of opening medicine. The physic operated moderately, and, after it had set he was allowed to walk about the stable during the day, for exercise, and to consume the remains of the provender left by the other horses, from twenty to twenty-five in number.

On the 4th of March he was observed to be dull and disinclined to feed. I found that he was labouring under a severe attack of indigestion, and treated him accordingly, and ordered him to be kept without food for the remainder of that day. On the 5th there was no amendment. Continue the treatment. On the 6th he was much worse; lies down frequently, but does not roll about—sits on his haunches—the vertebral column is arched upward—he evinces great pain on pressing the right hypochondriac region—points with his nose to his flanks—the pulse 60, and small and feeble—his mouth moist, but clammy; its temperature, as well as that of the body, rather below the normal standard—the tongue coated—the respiration regular—appetite lost—extremely costive—urine not small in quantity, but thick, and of a dark colour.

Diagnosis.—Obstruction in the abdominal viscera, the precise nature of which I cannot determine. The prognosis unfavourable.

Give solutio aloe ℥viij, in haustus & hydrarg. chlor. ʒj, in bolus with medicated enemas every ten minutes, and apply hot fomentations to the abdomen. The rectum was also explored, and was found empty and of the same temperature as the body, that is, rather below the natural standard. On auscultation, no borborygmus in the abdomen. On the 7th, 8th, 9th, 10th, and 11th, the treatment, consisting of purgatives, laxatives, sedatives, and, occasionally, antispasmodics, with stimulants, internally as well as externally, was most actively followed up without the least beneficial effect. On the 12th he died without a struggle, at half past eight, A.M. What seems extraordinary is, that he was not in any very violent pain, though he seemed uneasy; and when led out he walked without any indication of weakness or staggering, and even looked lively, though for nearly a week he had not had any evacuation per anum, nor taken any nutritive food.

Autopsia Cadaveris.—The whole extent of the double colon highly inflamed—its colour nearly black—its vessels gorged with dark blood—it was distended to its utmost with dry food consisting of bran, chaff, and beans: at its anterior flexion there was a rupture extending about eight inches in a transverse direction; and so crammed was the intestine, that through this enormous rent not a particle of food had escaped into the abdominal cavity, which only contained a small quantity of bloody serum. The stomach was nearly empty, and healthy in appearance, likewise the small intestines and cæcum. The single colon contained a few dung-balls, and had participated but little in the inflammation of the double colon. The rectum was healthy, as well as the remainder of the abdominal viscera.—Query: did the rupture exist from the time the horse sat on his haunches, or did it occur only a short time previous to death?

A CASE OF RABIES.

By H. BATEMAN, *Esq., M.R.C.S., Islington.*

[This truly interesting account is abbreviated from that reported by Mr. Bateman in the improved and highly valuable periodical, *The Lancet.*]

A BRICKLAYER, going home to his lodgings on the 24th of last December, observed a dog following him, who came into the house, and placed himself under his chair. A little time afterwards, on looking on the dog with a candle, the beast seized his hand, and bit him severely. The dog was driven out of the house, and nothing more was thought of the matter.

About a month ago the man complained that his finger was painful, and, by the advice of a relative, he applied some diachylon plaister to it, after which it appeared to be quite well. On the 18th of February he complained of pain in the wrist and hand. On the following day the pain was worse, and he was delirious two or three times, and could neither eat nor drink. Mr. Bateman was sent for, and told of the bite. He found the man with a countenance expressive of horror, and complaining of pain in the chest and the region of the diaphragm. He was desired to swallow a little tea, which he gulped down without losing a drop, and then convulsively started back two or three paces. His respiration was hurried, with a frequent convulsive jerking action. Medicine, both purgative and sedative, were prescribed, and he became delirious three times in that day. He would now have injured those around him, or, perhaps, have destroyed himself, for he attempted to get at the poker for some such purpose. He was confidently secured by a straight-waistcoat. He had repeated expectorations and vomitings, spitting about the room, and, apparently, as if purposely on the hands of those around him. About every two hours the symptoms were worse. He died on the 24th, a day less than nine weeks from the time he was bitten, and three days from the first accession of pain in the hand.

The external appearance of his body was livid. The tunica arachnoides was thickened—the pia mater congested, and the plexus choroides gorged with blood. The air-passages, from the glottis downward, were filled with bloody froth to a strange extent. The blood was, apparently, secreted of that colour, and not formed so by its mixing with any fluid. The fore finger—the part bitten—did not present any morbid appearance whatever. The marks of the wound in the skin were barely discernible, and there was not the slightest hardness in the cicatrix.

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CONTRIBUTIONS TO ZOOLOGICAL PATHOLOGY.

By JAMES MERCER, *M.D., Fellow of the Royal College of Surgeons, and Lecturer on Anatomy, &c., Edinburgh.*

[Continued from p. 209.]

V.—*On the normal Structure and abnormal Conditions of the Larynx in the Horse, and domestic Animals generally.*

UNDER the general head of the organs of respiration are embraced a series of structures, all conducing to the performance of the essentially vital process of aëration and purification of the blood. It therefore includes the intrinsic aërating organs, the lungs, with their inferent tube, the trachea; and, appended to this latter as a subsidary structure, are the series of cartilages and a bone constituting the larynx or organ of laryngeal voice.

Situated, then, as this latter organ is, at the anterior part of the air-tube, and forming, as it does, the immediate entrance to the lungs, it will follow, that if any change occurs in its normal structure, or any derangement happens in its mechanism, an immediate effect will be produced on all the phenomena of respiration, and, through them, on the organs of circulation and of enervation. Indeed, it may be with truth affirmed, that, in a physiological point of view, the ultimate bronchial vesicles are of the greater importance to respiration and to life in the ultimate; but in a pathological point of view the integrity of structure and mechanism of the laryngeal apparatus is of a still greater and more urgent importance to the proximate and immediate well-being of the animal.

The immediate importance, therefore, of this organ to life, and, even when the existence is not actually endangered, to the comfort and well-being of the animal, must render any deviation from its

healthy and normal condition, in the highest degree interesting to the pathologist; but, as it has been observed, "though the organ is comparatively small in size, and composed of few and apparently simple structures—its functions so obvious that any imperfection in their performance could be quickly perceived and readily understood—it would appear only reasonable to suppose that its various pathological conditions should have been observed, and the symptoms connected with them long since collected and arranged. Yet such is not the history of the pathology of the larynx; on the contrary, it presents itself to us with all the interest of a new discovery; and whatever is known on the subject is the result of investigations made within the last few years*."

As many of these abnormal conditions cannot be fully understood without a perfect acquaintance of the normal structures and mechanism, I have deemed it advisable to consider, in the first place, the healthy anatomy of the organ. It is, indeed, to be regretted that, in the works of the generality of comparative anatomists, the descriptive anatomy of the larynx of domestic animals has received so small a degree of attention; for, with the exception of the excellent descriptions given by Mr. Youatt, in his lectures delivered at the University of London†, I have not found the description of other anatomists and the dissection of the recent parts to correspond; and even the descriptions, as usually given by them, by no means afforded a true knowledge of the actual structures of the organ.

In the following description of these parts I have ventured to differ slightly from Mr. Youatt; but this I have only done after numerous and carefully repeated dissections, from which the descriptions have been entirely compiled.

Special Anatomy of the Larynx.

The larynx is situated at the anterior and inferior part of the neck, and between the angles of the rami of the lower jaw. It is composed of a bone, common to it and the tongue; of four cartilages and a fibro-cartilage, connected by ligaments and synovial membranes, and acted on by a complicated series of muscles. Internally it is lined with mucous membrane peculiarly arranged, and all are abundantly supplied with vessels and nerves. All of these structures will require a special description.

* Porter, on Diseases of the Larynx; also, Cycloped. of Anat. and Physiol. Art. Larynx, abnormal Anatomy of.

† Veterinarian, vol. v, pages 425 and 447.

Osseous Mechanism.

Its osseous mechanism is composed of the following parts: the

Os hyoides
Thyroid cartilage
Cricoid cartilage
Arytenoid cartilages, with their cuneiform appendages
Epiglottis, with its lateral appendages.

The os hyoides is situated at the base of the tongue, and between the angles of the rami of the lower jaw. It consists of a central portion or body, of two larger cornua, which project upwards and backwards from the body towards the cervical vertebræ, and of two smaller cornua, which project upwards and forwards to the sides of the base of the tongue, where they articulate with the extremities of the styloid processes of the temporal bones. These latter processes of the temporal bones have usually been described as the appendages to the os hyoides; but they ought rather to be viewed as appendages of the temporal bones, inasmuch as they are joined intimately to the latter bones by a strong, though elastic, fibro-cartilage; and to the former by a distinct articulation, possessing a synovial membrane. In the human individual they correspond to the stylo-hyoid ligaments, which I have occasionally found so perfectly ossified, as to form, in miniature, a perfect resemblance to these styloid bones. On these considerations, therefore, I have not included these structures as portions of the os hyoides. The *body* of the bone is situated in the mesial plane, between the two lesser cornua; and when joined with the greater cornua bears a considerable resemblance to a horseman's spur. Its superior and posterior surface is concave, and looks towards the epiglottis, to which it is attached by a dense band of yellow-elastic ligament; and from its anterior and inferior surface projects forwards an elongated and flattened spinous process, to which are attached the intrinsic muscles of the tongue, and the elevators and depressors of the os hyoides. On the external surface of the body are two small condyloid processes, covered with cartilage, for articulating with the lesser cornua, and continued backwards, are the greater cornua, flattened upon either side, and terminating superiorly and posteriorly in cartilaginous points, which articulate by means of strong bands of ligamentous fibres with the anterior cornua of the thyroid cartilage. The *lesser cornua* project upwards and forwards, along the side of the tongue; their inferior extremities being thick and rounded, and articulating by means of small facets with the body of the bone; and their superior extre-

mities terminate also in rounded points that articulate with the apices of the styloid appendages of the temporal bones. The entire bone is developed by five centres of ossification. Anteriorly it gives attachment to the base of the tongue; posteriorly it is articulated to the anterior cornua of the thyroid cartilage, and superiorly it is suspended to the temporal bones by means of their appendages.

The thyroid cartilage is the largest of the cartilages of the larynx, and forms a kind of box for the reception and protection of the others. It consists of two lateral portions—the alæ or wings—that meet in front at an acute angle, and form a large projection, the pomum adami in man, immediately behind the os hyoides and between the angles of the lower jaw. Each ala is of an oblong quadrilateral form: the external surface is convex and smooth, and presents along its superior part a ridge, oblique in its direction from above downwards and forwards, and giving attachment to the thyroideal portions of the sterno-hyo-thyroideus, the thyro-hyoideus, and the constrictor pharyngis posterior: a little in front of this ridge, and towards the anterior border of the cartilage, is a large foramen that transmits the deep branch of the anterior laryngeal nerve. The internal surface is concave, and along its mesial line gives attachment to the pedicle of the epiglottis and the chordæ vocales. The anterior edges are more or less horizontal, and give off at their superior angles the anterior cornua, which articulate with the greater cornua of the os hyoides; and along its entire margin is affixed the thyro-hyoid membrane. The posterior edge, along the mesial plane, is scooped out and concave, and when viewed in junction with the opposite ala, forms the crico-thyroid space in which the operation of laryngotomy is performed. Above, and behind this, the margin is convex, and overlaps the cricoid cartilage, and its superior angle terminates in a rounded condyloid process, which articulates with the concavity on the side of the cricoid cartilage.

The cricoid cartilage is a ring of cartilage contained within the thyroid, contracted below, forming the ring, and broad and expanded above, forming the body. Its external surface is very irregular. At the junction between the ring-like process and the body there is a large concavity for the reception of the corresponding articular process of the thyroid cartilage. This cavity is covered with an articular cartilage, and lined with a synovial membrane. Along the superior, or pharyngeal surface of the body of the cartilage, there is a considerable elevation or ridge, giving attachment to the œsophagus and the posterior constrictors of the pharynx; and on either side of this there is a large depression that gives origin to the crico-arytenoideus posticus muscle.

The internal surface is smooth, and lined with the laryngeal mucous membrane.

The posterior edge of the body sends back two cornua for articulation with the first ring of the trachea, and anteriorly it presents two oblique articular surfaces, placed upon its side, for articulating with the arytenoid cartilages. The anterior edge of the ring-like process gives attachment to the crico-arytenoidei laterales muscles, and corresponds in direction to the true vocal chords: it is concave in the mesial plane, and gives attachment to the dense elastic membrane—the crico-thyroid.

The arytenoid cartilages, two in number, are situated on the anterior edge of the body of the cricoid cartilage, and of an irregular triangular form. Their base is broad and hollow, in the form of a sigmoid cavity, and is articulated to the cricoid cartilage; and their apex, stretching forwards, gives attachment to the cuneiform cartilages. Their internal surface is smooth, and covered by the lining membrane of the larynx; and their external surface is divided into two portions by a very prominent ridge, that gives attachment behind to the crico-arytenoideus posticus, and before to the crico-arytenoideus transversus. The anterior of these surfaces gives attachment to the anterior and posterior thyro-arytenoidei, and the crico-arytenoideus lateralis; and the posterior is occupied by the attachment of the arytenoideus muscles. The anterior or superior edge of either cartilage is thin and pointed to the mesial plane of the larynx, and is separated from the opposite cartilage by a large oval fissure, occupied by a quantity of loose fat and cellular tissue, that is covered within by the lining membrane, and without by the tendinous arch of the arytenoid muscles. The anterior or external edge of either cartilage is directed downwards, forwards, and outwards, in a line with the ring of the cricoid, and gives attachment to the yellow elastic tissue of the true vocal chords, to the ligamentous termination of the appendix of the epiglottis, and at the apex to the aryteno-epiglottideus muscle.

The cuneiform cartilages, or the appendages of the arytenoid cartilages, consist of elongated, pointed, and falciform masses of dense yellow elastic tissue and fibro-cartilage, placed on the apex of either arytenoid cartilage. Their base is firmly amalgamated with the apices of the arytenoids, and their points extending upwards and backwards, and overlapping these cartilages, thus elongate the superior angle of the chink of the larynx in the form of the spout of a pitcher, from whence the name arytenoid has been derived. To their anterior edge is attached the aryteno-epiglottidean fold of mucous membrane, and which also expands over their outer sur-

face; and their internal surface forms the superior angle of the chink of the larynx. In structure they are distinctly fibro-cartilaginous at their base, and at their apex they contain a considerable quantity of the yellow elastic tissue. A considerable number of mucous crypts are also contained in them along their internal margins, and, giving rise thereby to the appearance of a glandular structure, they have been named, though improperly, "*the arytenoid glands.*"

The epiglottis is the fibro-cartilaginous valve situated at the base of the tongue, and covering the entire entrance or superior aperture of the larynx. In its usual direction it is vertical; but, during the act of deglutition, it becomes horizontal. In the horse it consists of three portions—a body and two appendages. The body has somewhat the appearance of a cordate leaf, the pedicle being attached to the inner surface of the angle of the thyroid cartilage, and the base, slightly convex and drawn to a point, is free, and projects above the surface of the base of the tongue. The anterior surface is convex, and connected to the base of the tongue and the os hyoides by a dense band of yellow elastic fibres and the hyo-epiglottideus muscle. Its posterior, or laryngeal surface, is covered by the mucous membrane, and presents the openings of numerous mucous follicles that apparently perforate its substance to open on this surface. In structure it is fibro-cartilaginous, especially in the centre; but towards the edges, and in its pedicle, it contains also a considerable quantity of the yellow elastic tissue.

The appendages, or cornua, of the epiglottis are situated on either side of the epiglottis, near to its point of attachment to the thyroid cartilage. They are inclosed between the layers of the anterior or false vocal chords, for about one-half of their extent; and their apices are connected to the sides of the arytenoid cartilages, near their points, by a broad band of elastic fibres. In structure they are fibro-cartilaginous, with an abundance of the yellow elastic tissue, and they also contain numerous mucous crypts in their substance. In function they would seem to serve as links of connexion between the epiglottis and the arytenoid cartilages, and they will also tend to keep open and expanded the ventricles of the larynx, the anterior and inferior boundary of which they form.

The Articulations of the Larynx.

The articulations of the larynx may be arranged under two sets, an extrinsic and an intrinsic; the former embracing those that connect the thyroid cartilage and epiglottis to the os hyoides, and the cricoid to the first ring of the trachea; and the latter, all those

that are peculiar to the special laryngeal cartilages. Under the first, therefore, are included the

Hyo-thyroid.
Hyo-epiglottidean.
Tracheo-cricoidean.

And under the second, the

Crico-thyroid.
Crico-arytenoid.
Thyro-arytenoid
Aryteno-epiglottic.
Thyro-epiglottic.

The hyo-thyroid articulation is formed of a broad loose band of yellow elastic fibres, attached behind to the anterior edge of the thyroid cartilage; and before, to the inner surface of the body and greater cornua of the os hyoides. It is thicker in the middle and towards its margins, and has consequently thereon been divided into three portions, a middle and two lateral ligaments.

The inferior surface of the middle portion is covered by the thyro-hyoid, and the sterno-hyo-thyroid muscles; and the superior surface forms a floor for the reception of the epiglottic gland. The lateral ligaments are short, thick and rounded, and attach the extremities of the greater cornua of the os hyoides to the anterior cornua of the thyroid cartilage.

The hyo-epiglottidean ligament is formed of an irregular band of very elastic fibres, attached before, partly to the concave surface of the body of the os hyoides, and partly to the linea albescens, or tendinous raphé of the tongue; and behind, becomes inserted into the convex surface of the epiglottis, beneath the hyo-epiglottideus muscle. By its elastic properties it tends to keep the epiglottis securely in the vertical position.

The tracheo-cricoidean articulation.—The posterior margin of the cricoid cartilage is connected to the first ring of the trachea by the same ligamentous fibres that connect the individual rings of the trachea to each other. In the mesial line below it is denser and stronger than above, and fills up the space between the edge of the cricoid cartilage and the trachea—the tracheo-cricoid membrane. As this membrane is attached around the inner surface of the cricoid cartilage, when the trachea is drawn forwards, the first ring slips under its cover.

Under the extrinsic laryngeal articulations might also be included those which exist between the smaller cornua and the body of the os hyoides, and forming *the chondro-hyoid articulation.* These articulations consist of distinct capsular ligaments that connect the tubercles on the body of the bone to the facets on the extremities of the smaller cornua: they are lined within by perfect

synovial membranes, which permit a considerable degree of depression and elevation to take place between them.

The crico-thyroid articulation.—The cricoid is articulated to the thyroid cartilage at two points; first, between the alæ of the thyroid and the opposed margin of the cricoid, forming the crico-thyroid space; and, secondly, upon either side, by the posterior cornua of the thyroid and the sides of the body of the cricoid. The first of these, *the middle crico-thyroid articulation*, is formed of a thick and very strong yellow elastic filament, attached, behind, to the edge of the cricoid cartilage, and before, to the inner surface of the angle and the great wings of the thyroid. Upon its inferior surface lie the crico-thyroidei muscles, having a space, however, between them, which is separated from the integument by the mesial edges of the sterno-hyo-thyroidei muscles. Its superior surface is covered by the mucous membrane of the larynx, and its margins give a partial attachment to the inferior thyro-arytenoid muscles. *The lateral crico-thyroid articulations* belong to the ginglymoid variety of the diarthrodial class of articulations, and resemble in miniature that of the lower jaw. The condyloid processes, or posterior cornua, of the thyroid cartilage are surrounded by capsular ligaments, thicker and stronger upon their external surfaces, and which ligaments are also attached to the margins of the glenoid cavities on the sides of the body of the cricoid. Internally there are cartilages of incrustation and distinct synovial membranes. The *movements* of this articulation are depression and elevation of the thyroid from the cricoid cartilages; these are best seen if the larynx be removed with its ligaments entire, and then reversed in its position, when the greatest resemblance will be observed between the movements of this and those of the temporo-maxillary articulation.

The crico-arytenoid articulations.—The oblique articular surfaces on the anterior margin of the body of the cricoid cartilage are received into corresponding depressions in the bases of the arytenoids. These are surrounded by capsular ligaments, the crico-arytenoids, and internally each is lined by a distinct synovial membrane. *The movements* of these articulations consist of *oblique eversion and inversion* of the arytenoid cartilages. *The axis of this latter movement, if carried forwards, would pass along the opposite side of the epiglottis;* as, for example, if the right arytenoid cartilage was carried forwards into the anterior aperture of the larynx, its apex would pass in the direction of the left side of the epiglottis. Besides these ligaments, there is another strong band of yellow elastic tissue, stretching between the anterior edge of the body of the cricoid cartilage and the bases, and opposed edges of the arytenoids. This membrane I would denominate

the *crico-arytenoid membrane;* it fills up the space between the cricoid and arytenoids (in which space the latter cartilages move laterally, or become approximated), and on either side continuous with the elastic tissue of the true vocal chords.

The thyro-arytenoid ligaments, or *chordæ vocales*, are two in number on either side—the anterior, the false ligaments of the glottis or false vocal chords, and the posterior, the true ligaments of the glottis, or true vocal chords. Between these, on either side, are contained a large space, the ventricles of the larynx. *The anterior or superior arytenoid ligaments* are smaller than the posterior, and are formed internally by the appendages of the epiglottis and their ligamentous connexion to the arytenoid cartilages; externally to these latter, and between them and the thyroid cartilage, are situated the anterior thyro-arytenoid muscles; and internally they are covered by the mucous membrane, which forms folds that are attached anteriorly and inferiorly to the angle of the thyroid cartilage at the insertion of the epiglottis, and posteriorly to the sides of the arytenoids. *The posterior arytenoid ligaments*, or *true vocal chords*, are larger than the former, and project more into the cavity of the larynx, leaving only a small space between their free edges—*the rima glottidis*. In structure they consist of a thick bundle of yellow elastic and white fibrous tissue, attached inferiorly to the posterior edge of the thyroid cartilage, and to the crico-thyroid membrane; and superiorly to the bases of the arytenoid cartilages, their capsular ligaments, and the crico-thyroid membrane. Externally to them are situated the posterior thyro-arytenoid muscles, and internally they are covered by the mucous membrane, which, behind their opposed edges, passes backwards over the cricoid cartilage into the trachea.

The aryteno-epiglottic ligaments are not true ligaments of the larynx; they only consist of duplicates of the mucous membrane attached inferiorly to the margins of the epiglottis, and superiorly to the appendages of the arytenoids. Between their opposed edges is the anterior aperture, or pharyngeal chink of the larynx, and between their folds are contained the fibres of the aryteno-epiglottidei muscles.

The thyro-epiglottic ligament consists of a band of fibres that connect the pedicle of the epiglottis to the anterior margin of the angle of the thyroid cartilage, and binds the former to the latter, so as to retain it in the vertical position.

[To be continued.]

EFFECTS OF MEDICINE ON HORSES.

By Mr. Wm. Percivall.

BARYTES.

Baryta, or barytes, was introduced into this country in the latter part of the last century by Dr. Withering, who found it abounding in the lead-mines of the northern parts of England; and from him the mineral in its native state obtained the appellation of *Witherite*, it having been, before that time, known to the chemists of the continent by the name of *terra ponderosa*, or heavy spar. It occurs naturally both in the state of *carbonate* and *sulphate:* in the former, however, in this country, more generally than in the latter.

Witherite, or the native carbonate of barytes, is used in medicine principally for the purpose of obtaining two barytic salts of comparatively high medicinal powers to any possessed by the carbonate itself,—the *nitrate* and the *chloride of barytes*, the latter only being admitted into the London Pharmacopeia. The former, however, besides being potently medicinal, is very useful as affording the readiest means of procuring *pure barytes*, a form in which it is virulently caustic, and, like unslacked lime, absorbs water with avidity, becoming then comparatively harmless. From the apparent success of some of my experiments on the efficacy of barytes as an antidote for farcy and glanders, I was induced to take the pains of preparing the mineral in its pure or caustic form for myself, and found the process by no means either a difficult or a tedious one. Sir H. Davy, by the force of his galvanic power, extracted from the pure barytes a metallic base, which he named *barium;* proving that what we regarded as "pure" was nothing beyond a metallic oxyde, or compound of oxygen and barium.

Carbonate of Barium.

Case I.—A brown mare has been in the infirmary for some weeks on account of an attack of farcy in the near hind leg, for which she has been treated in the ordinary way, having been latterly taking the farcy ball*. In spite of all that has been done, however, the disease has been of late making advances; and now, some tumefaction of the submaxillary gland, also, of the near side, has taken place, accompanied by a slight discharge from the cor-

* A composition of sulphate of copper, antimony, and common turpentine.

respondent nostril. The mare, notwithstanding, keeps in fair condition.

Sept. 30*th*, 1820.—The farcy limb much swollen below and to some extent above the hock—cords of tumefied lymphatics running along its inner side; painful, when handled, and causing excessive lameness; the submaxillary tumour is also painful to pressure. Her appetite, however, at present is good. Let her take, morning and evening, made into balls with linseed meal and treacle, carbonate of barytes ʒiij.

Oct. 1*st.*—Having refused part of her feed of corn this morning, the ball is omitted.

2*d*, 3*d.*—Reduce the dose to ʒij morning and evening, and let her walk out twice a-day.

4*th.*—The limb is more swollen. The inguinal glands have become tumefied. Both nostrils are discharging bloody matters occasionally, and both submaxillary glands are enlarged. She feeds well, however. Let her continue her two-drachm balls twice a-day, and her exercise.

5*th*, 6*th*, 7*th*, 8*th*, 9*th*, 10*th.*—Ball continued twice a-day.

11*th*, 12*th*, 13*th.*—Ball given thrice a-day.

14*th*, 15*th*, 16*th*, 17*th*, 18*th*, 19*th.*—ʒiij thrice a-day.

20*th*, 21*st*, 22*d.*—ℨss thrice a-day. No better.

23*d.*—Rather off her feed. Continue the ball in the evening.

24*th*, 25*th*, 26*th*, 27*th*, 28*th*, 29*th.*—Disease advancing. Continue her medicine.

30*th*, 31*st*, *Nov.* 1*st*, 2*d*, 3*d.*—Her appetite holds good, though farcy and glanders are consuming her.

13*th.*—The mare was destroyed, suffering acute glanders to suffocation, in addition to a limb frightfully affected in every part with farcy.

Chloride of Barium

Is the salt that has especially been used in human medicine; the one which, to the exclusion of all the others, is admitted into the last edition of our London Pharmacopeia under this in lieu of the old name, *muriate of barytes.* So potent is it, medicinally, that to human patients it is—like arsenic and bichloride of mercury, and other virulent poisons—commonly prescribed in the form of solution. To the horse it may be exhibited either in solution or substance.

Case II.—A brown gelding, eight years old, in fine condition and—with the exception of his glanders—apparently in excellent health, shewing a discharge of a glutinous quality from the off nostril, with vesicles apparent upon the septum of the same side, such as betoken approaching ulceration, and tumefaction of the

submaxillary lymphatic glands of the same side, which symptoms he has had for six weeks past, was submitted to the following trial of the above medicine.

June 26*th*, 1816.—Let him commence with a drachm of the chloride of barium, made into a ball with linseed meal and treacle.

27*th*.—He has refused his feed this morning. Omit his morning dose, but give him the ball in the evening:—ulceration in the place of the vesicles.

28*th*.—He has recovered his appetite. Continue the ball morning and evening. The discharge from the nose appears diminished.

29*th*.—Again off his feed this morning. Let him take the ball in the evening.

30*th*.—His appetite has returned. Give the ball twice a-day.

July 1*st*.—Ball morning and evening. Ulceration spreading.

2*d*.—Augment the dose to ʒiss twice a-day.

3*d*.—Again refused his morning feed, and his pulse has got quick: the discharge is not so copious, though the pituitary membrane has a blush upon it. Let him take the ball at night.

4*th*.—Feeds pretty well again, and is regular in his urinary and alvine evacuations. Rub the submaxillary swollen glands with infus. lyttæ, and give the ball morning and evening.

5*th*.—Give him ʒij of the salt morning and evening.

6*th*.—Augment his doses to ʒiij each.

7*th*.—Let the ʒiij be given again. It was too late discovered, after this morning's dose had been administered, that even last night the horse had refused his food; nor has he eaten any thing since. No symptoms, however, of alarming illness were manifested before noon to-day; then he was seized with dyspnœa, accelerated pulse, and other dangerous symptoms, which, in the course of the day, were succeeded by violent diarrhœa, painful and laborious respiration, and death.

Post-mortem.—The appearances upon the mucous membrane of the stomach and intestines—more intense upon the former than upon the latter—were such as are ordinarily produced by poisonous substances. The lungs were quite black, being to appearance in a state of mortification. The frontal sinus of the off side shewed its lining membrane greatly thickened, inflamed, and covered with a coating of purulent matter.

Case III.—A black gelding, seven years old, in good condition, was admitted on the 3d July, 1816, with an attack of farcy in the near hind leg. The lymphatics running up the thigh were corded, and in some places had broken out in ulceration. The submaxillary gland of the near side was tumefied, and there was a slight discharge from the near nostril, upon the septum in which

on the following day a small ulcer became visible. A "farcy-ball" was administered on the 4th, and that had taken him rather off his feeding.

July 5th.—Being in appetite pretty well again, he was ordered to take, morning and evening, barii chlorid. ʒss, cum farin. lini. et theriacâ.

6*th.*—Being to appearance a strong-constitutioned horse, and his appetite now excellent, he was ordered to take ʒiss of the chloride morning and evening—to have his submaxillary glands blistered, and his farcy ulcers cauterized.

7*th.*—Augment the dose to ʒiij. This took him off his feed; the evening ball had to be, in consequence, omitted. Two ulcers, of an indolent rather than active character, are visible upon the inferior part of the septum nasi, with appearances betokening the presence of others higher up upon it.

8*th.*—He feeds better. Let him take a drachm only, and that at night.

9*th.*—Feeds well again. The ulcerations upon the septum below have coalesced, and formed one large square ulcer. Let him take ʒiss of the salt, morning and evening.

10*th.*—He was again taken off his appetite last night, and had to omit the ball. Reduce the dose to ʒi.

11*th.*—His appetite has failed again. Omit the medicine this morning, but give the ball in the evening.

12*th.*—His appetite is renewed; the evacuations are regular; the ulcer in the nose seems dried up on its surface, and the farcied limb is making progress towards recovery.

13*th*, 14*th*, 15*th.*—He has continued his drachm doses up to this morning; now, being off his appetite, the ball is remitted till night.

16*th*, 17*th.*—Continue medicine.

18*th*, 19*th.*—Augment the dose to ʒiss. This again took him off his feed this morning. The ulcer in the nose exhibits a perfectly dry even surface, though a bloodless one. The farcy is disappearing: to-night the ball is omitted.

26*th.*—No medicine has been given since the morning of the 19th. Nought but a white cicatrix remains, where the ulcer was, upon the septum nasi; and the farcy ulcers are quite healed, and skinned over. The horse is, in fact, recovered, and is therefore discharged: with an injunction, however, that he be kept for some length of time to come apart from other horses. Afterwards he was sold, and so escaped my future observation.

Case IV.—A large bay coach-horse, 24 or 25 years of age, in low condition, was admitted into the infirmary on the 24th July, 1816, for a general attack of farcy, which has terminated in

glanders, now of the sub-acute character; however, there is fœtor from both nostrils: the odour from the off one is quite offensive, there being upon this side of the septum nasi an ulcer apparent. Both sets of submaxillary glands are swollen. Let him take of the muriate of barytes ʒss morning and evening.

July 25*th.*—His appetite is indifferent. Continue the ball.

26*th*, 27*th*, 28*th.*—Both his appetite and spirits have amended under the operation of the medicine, which he has been taking regularly twice a-day. Farcy-buds are now apparent upon his thighs, hips, neck, and fore-legs: in fact, hardly any part is totally free from them.

29*th*, 30*th*, 31*st.*—The dose has been augmented to half-a-drachm, morning and evening, and this for the last two days has affected his appetite. Many of the farcy-buds are now in a state of suppuration. The ulceration in the nose has a cleaner aspect.

August 1*st.*—Omit the ball this morning; apply the budding-iron to his farcy sores, and blister his submaxillary tumours.

2*d.*—The ball given last night has again caused him to loathe his food. Remit the medicine until night.

3*d*, 4*th*, 5*th*, 6*th*, 7*th.*—Until the 7th—on which day the ball was remitted until the evening, from his appetite becoming defective—the medicine has been regularly administered in ʒss doses, morning and evening. The farcy has not been making any fresh incursions; and as for the ulceration in the nose, it certainly appears upon the surface disposed to become dry and scab over. The discharge from the nose also is diminished.

9*th.*—Omit the medicine to-day, on account of the want of appetite.

10*th*, 11*th.*—Ulceration in the nose and appearances of farcy elsewhere *in statu quo*—certainly making no progress.

14*th.*—The owner feeling disheartened at the fluctuations from day to day, and requiring such assurances from us as we felt we could not give him, ordered his horse for slaughter.

Post-mortem.—There was no appearance of disease in the sinuses of the head; its attack proved confined to the nose, indeed almost to the off side. The lungs proved to be sound; a remarkable circumstance, considering the animal's great age.

Case V.—A brown mare, seven years old, was admitted on the 26th May, 1817, with symptoms of febrile catarrh. She lost her febrile disorder; but continued running at the nose so long, that, on the 21st of June following, it was deemed prudent to remove her out of her present box into a foul one. The discharge, which is of a thin mucous character, continues from both nostrils, neither copious nor particularly unhealthy. Within the off side of the nose one ulcer is to be seen, and within the near, two: and the

schneiderian membrane has a blush upon its surface. There is also a swelling underneath the jaw, which has been blistered, and thereby brought to a state of suppuration, for which it has been opened. The case is not without suspicion, and yet it has not altogether the character of glanders. Indeed, the suppuration of the submaxillary gland is, as far as that goes, evidence that it is not one of glanders.

June 23*d.*—Ordinary treatment having failed, it was resolved this morning to make trial of the chloride of barium. Let her take a drachm made into a ball with linseed meal and treacle morning and evening.

24*th*, 25*th*, 26*th*, 27*th.*—The appetite continues good, notwithstanding she has regularly taken her medicine.

28*th.*—A fresh vesicle has this morning made its appearance in the inside part of the off nostril. The discharge is thicker—more purulent in its character: continue ball morning and evening.

29*th.*—The vesicle has burst, leaving moisture and rawness of surface. The appetite continues so good, that we venture on giving her ball thrice a-day.

30*th* .. } The discharge is diminished, and the ulcers appear
July 1*st* } disposed to heal.

2*d.*—Fresh ulcerative action is set up in the place where the vesicle arose. The glands under the jaw continue swollen, but feel loose. Let her take ʒij morning and evening.

3*d*, 4*th*, 5*th.*—She has regularly taken her balls. The ulcerations in the nose are assuming a white aspect.

6*th.*—Has left part of her morning's feed. Omit the ball until evening. Discharge becomes scanty and principally mucous.

8*th.*—She took her medicine twice yesterday, and it has thrown her off her appetite to-day. There is not any issue from the nose; and where the ulcers were, the places have the aspect of white cicatrices.

10*th.*—In consequence of a return of the nasal flux, and her appetite becoming repaired, the ball, reduced to a drachm, is given her again twice a-day.

11*th*, 12*th*, 13*th*, 14*th.*—She has regularly taken her balls, and under their administration the discharge from the nose has again ceased. The ulcers appear quite healed up; the submaxillary glands, however, continue enlarged.

15*th*, 16*th*, 17*th*, 18*th*, 19*th.*—The medicine in diminished doses of ʒiss each has been regularly given twice a-day; and she has fed well. The nose is free from issue—and the glands, since last report, have been blistered.

20*th*, 21*st*, 22*d*, 23*d.*—The dose, morning and evening, augmented to ʒij. She has not failed in her appetite until this last morning.

In this manner—diminishing and again augmenting the dose according as she would bear it—the administration of the medicine was persevered in until the 30th of August; altogether, nearly ten weeks. The result was, the mare left the infirmary, to every outward appearance, "cured" or recovered of her disease. Whether her disease was glanders or not, I shall leave to others to determine. The nasal discharges were never put *to the test* of inoculation. I shall select one other case in which the chloride was given; and it shall be one in which it proved fatal. It will serve to shew in what a sudden and unexpected manner death occasionally happens during the exhibition of this poisonous mineral.

CASE VI.—A bay horse, admitted on the 8th of March, 1820, with symptoms, not altogether decidedly marked, of farcy. He was, when I examined him on the 20th of the same month, low in condition, and appeared debilitated either from the disease, or what had been done for it. I found ulcerations within both chambers of the nose; but they were, although unhealthy in character, of an inactive or chronic description. There was a viscous yellow issue from both nostrils, also tumefactions of the submaxillary glands of both sides. Both hind limbs were swollen as high as the thighs, and exhibited cords of tumefied lymphatics upon their inner parts. There also was present a swelling, most unusually hard to the feel, of the sheath, which ran for some way along the abdomen.

In this case I resolved to try the medicine *in solution.* I therefore ordered the horse to be kept short of drink, and to have mixed in his pailful of water a fluid ounce of the LIQUOR BARII CHLORIDI, and this to be done morning and evening, keeping him without water at mid-day.

23*d*, 24*th*, 25*th*, 26*th*.—He drinks his water—has had ℥iss of the solution mixed with it, morning and evening.

27*th*, 28*th*, 29*th*, 30*th*, 31*st*, *April* 1*st*, 2*d*.—Has drunk ℥ij morning and evening in his water, and has been regularly exercised. There appears less discharge from the nose, and of a better character. The hind limbs are less swollen.

April 3*d*.—He purges, and has failed in his appetite. The ulcers have certainly a cleaner aspect, and the submaxillary glands have in some measure diminished.

4*th*, 5*th*, 6*th*, 7*th*, 8*th*.—Continue medicine as before.

9*th*.—Purges again, and very much off his feed. His farcy has undergone amendment: but, in respect to the nasal affection, that seems one day better, another day worse.

11*th*, 12*th*, 13*th*, 14*th*.—Recovered his appetite, and has continued his medicine.

15*th*.—This morning the groom had exercised him as usual,

and on his return had tied him up in his box. Five minutes afterwards, he found the patient had in his absence dropped down dead.

Post-mortem.—The lungs were sound—the right lobes full of blood, from lying upon that side—the vascular lining of the stomach certainly redder than usual, and yet presenting nothing amounting to inflammation produced by poisoning—the intestines and other viscera healthy—the membrane covering the septum nasi and turbinated bones having the worm-eaten aspect denoting chronic ulceration. Both frontal sinuses contained white purulent like matter, but presented no ulceration.

The fatal operation of the medicine appears to have been on the nervous system. In substance it affected the alimentary mucous membrane differently from what it did in solution. In the latter form it dangerously insinuated itself into the system.

EXTRACTION OF THREE MOLAR TEETH—ONE SWALLOWED—NEW INSTRUMENT USED.

By Mr. W. A. Cartwright, *V.S., Whitchurch, Salop.*

On the 24th May, 1843, a mare was brought to me, about thirteen years of age, that was a quidder. She would bite the grass off, or chew the hay for a short time, and then drop it out; and, of course, she was very poor. I examined her mouth, and found that a part of the inside of the farthermost molar tooth on the near side of the lower jaw was very long and sharp, and projected against the upper jaw; that a portion of the inside of the fifth molar tooth, on the off side of the lower jaw, was very sharp and uneven, and projected out against the tongue; also, that the posterior molar tooth, on the same side, was very long, and projected against the upper jaw.

I cast her, and tried to knock off the sharp projecting upper portion of the fifth molar with the end of a smith's rasp, but could not, and in attempting which I loosened it, and ultimately got it out whole by punching. Its roots were two short thin fangs, and which were evidently becoming absorbed.

I next tried to knock off a portion of the sharp point of the sixth molar, on the lower jaw on the near side, but I could not; I found, however, that I had loosened it a little. I then went to a blacksmith's shop, and had an instrument made to *pull* it out. It was made out of a piece of $\frac{5}{8}$ of an inch rod of iron, twenty-one inches long, one end of which was flattened, then split up, and sufficiently bent up towards the handle so as to grasp the back part and sides

of the tooth; its inside edges were also serrated, so as to take more firm hold. I placed it on without difficulty, and, by pulling steadily at it, the tooth came out of its socket, and fell into the horse's throat, and which he must have swallowed, as I could not find it anywhere.

Another mishap was, that, after I extracted the tooth, one of the claws forcibly caught hold in the upper surface of the tongue, and tore it a little open. I also rasped off the sharp edge of the sixth molar on the off side of the lower jaw; but I feared it would soon project against the upper jaw.

June 24th.—This day the mare was again brought to me, and it was stated that she was a little better from what I had done to her, but that she still quidded her meat; I therefore determined to endeavour to extract the sixth molar tooth on the off side of the lower jaw, the point of which I had only rasped. I again cast the mare, and, having put a balling-iron in her mouth, I examined the alveolar processes, where the two other teeth had been extracted, and found that the cavities were nearly filled up level, and covered with gum. I then, to prevent the tooth from falling into the throat, tried to fasten a piece of cord around the crown of the tooth, and after a great deal of trouble and inconvenience, caused by the action of the tongue and the pressure of the teeth against my hand and arm, succeeded in doing so; but it slipped off several times, on account of the crown of the tooth being worn uneven on its masticating surface; I at last, however, got it to stick on pretty well, and had it held by one of my assistants. I then fastened my newly invented claws on, and with little force was enabled to draw it nearly out of its socket, after which I readily removed it with my fingers. The tooth extracted averaged only an inch long in its crown, and two inches in its fangs. The mare in a few weeks improved in condition, after which she was sold, and I have never seen her since.

On finding that my new instrument answered its purpose, and that the teeth came out tolerably easy, I was led to make an examination into the shape and position of the molar teeth.

In my surgery I had hanging up the off side lower jaw of a seven or eight-year horse, where the whole surface on their inner side, was entirely laid bare. In this specimen the whole of the teeth were in a healthy state, and fully developed: many of them were three and a-half inches long. The second and third reached quite down to the edge of the lower jaw. They lay in close approximation on their upper surfaces, but their roots diverged from each other very much, leaving a cancellated space between some of upwards of an inch. With the exception of the first, which was but trifling, their roots were not divided into fangs.

On measuring the length of the upper surfaces of the teeth, I found it to be only seven inches, while the distance extending over their roots was nearly ten inches. The first tooth (on putting the jaw to rest on the table) was upright; but from this to the posterior one their roots protruded backwards and upwards, forming a similar curve to what the broad part of the jaw does.

Soon afterwards I laid bare, in a similar way, the jaw of an old horse, perhaps sixteen or eighteen years. In this specimen I found the whole of their masticating surfaces very level, and in length measured six and a half inches. Their lower surfaces, extending over the fangs, was upwards of seven inches. The length of the longest of the teeth did not exceed one inch and three quarters, and some of the others not above one inch and a quarter. The crown of the teeth measured from half an inch to three quarters of an inch, below which the remainder of the teeth divided each into two fangs, and which, in the posterior teeth especially, had the peculiar curve backwards (upwards), as in the other instance, but not by far to so great an extent, on account of the fangs being more absorbed, and being very short.

From the examination of these specimens, I am led to believe that this instrument will be found to be very useful in extracting some of the posterior molars, provided they project sufficiently above the alveolar processes, on account of the ease with which it may be put on and the small space it occupies. I think it preferable to be used in extracting the posterior molars than the anterior ones, on account of the peculiar slanting position of their roots. The anterior ones, which are more upright, can be removed by other means. I should think the saw may be used in levelling them, no matter where situated.

I must say that I was fearful of the consequences of the mare swallowing the tooth; but I made every inquiry whether any symptom of intestinal disease ever shewed itself on her, and was informed it never had during the three months she was in this neighbourhood after the operation.

In the ninth vol. of the THE VETERINARIAN is a solitary case, by Professor Renault, of a horse dying, as it was supposed, from swallowing a molar tooth, but I think it is rather doubtful that he died in consequence of it.

Messrs. Bouley and Ferguson have advised, in cases where the tooth has been swallowed, to administer a drastic purgative, and afterwards to give laxatives; but I am inclined to believe that such treatment would be highly injurious, on account of causing the fæces to become too liquid, whereby the fangs would the more easily come in contact with the intestines. I think the best plan would be to leave it to nature, or at least only give laxatives, by which means it would pass off with and be impacted in the fæces.

THE VETERINARIAN, MAY 1, 1844.

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

A MEETING of the body politic and corporate of the Royal College of Veterinary Surgeons was held by advertisement, and in accordance with the provisions of the Charter, on Friday the 12th day of April, 1844, at the Freemasons' Tavern, Great Queen-street.

The President, Mr. Tho. Turner, of Croydon, on taking the chair, opened the business with an appropriate address, in which he took occasion to congratulate the members present on the important object that had been obtained, and which, he had no doubt, would materially accelerate the onward progress of veterinary science. He remarked, that those who had been employed in drawing up the Charter had done what they could to meet the wishes and the wants of the profession, and he trusted that the constitution of the Charter would meet with their approbation.

He then directed the attention of the meeting to the object for which they were met—that of receiving the Charter, and electing twenty-four members of the body politic and corporate to form the council; and he concluded by calling upon the Solicitor to read the Charter. After which, Professor Dick, of Edinburgh, rose, and protested that, as several clauses had been introduced and others omitted in the Charter without his knowledge or consent, he should not be held as homologating the Charter by any part he might take in the business of the incorporation at its meetings on that occasion.

Some discussion then took place with regard to the mode of taking the ballot.

It was moved by Mr. Godwin, of Birmingham, and seconded by Mr. Pritchard, of Wolverhampton,

> "That each gentleman should be proposed by a member of the body politic and corporate, and that a ballot by paper or ball should take place, whether he were a member of the council or not."

It was moved as an amendment by Mr. T. W. Mayer, Newcastle, Stafford, and seconded by Mr. Withers, of Bristol,

"That the ballot be taken by list, each individual attaching the letter C against the twenty-four members he proposes should be elected on the council."

On a show of hands being taken, the amendment was carried by an immense majority.

It was moved by Mr. Baker, and seconded by Mr. Field,

"That Mr. Gabriel and Mr. Braby be appointed scrutators to examine and take the votes."

On the lists being handed in and the votes recorded, it appeared that the election had fallen on the following gentlemen, who accordingly form the council; six of whom will go out of office in the years mentioned against their respective names.

Mr. William Sewell, P.R.V.C.	Mar. 1799	1848.
Mr. William Robinson	Oct. 14th, 1800	
Mr. J. Siddall, Oxford Blues	Mar. 10th, 1807	
Mr. Alex. Henderson	July 10th, 1810	
Mr. Jas. Turner	May 18th, 1811	
Mr. W. Percivall, 1st Life Guards	July 1st, 1811	
Mr. Tho. Mayer, Newcastle	Dec. 29th, 1812	1847.
Mr. Chas. Percivall	1814	
Mr. W. J. Goodwin	1817	
Mr. W. Dick	1817	
Mr. E. N. Gabriel	July 3d, 1822	
Mr. J. H. Langworthy	July 6th, 1824	
Mr. Chas. Marshall	July 6th, 1824	1846.
Mr. Fra. King, jun.	Jan. 25th, 1825	
Mr. J. B. Simonds	Mar. 7th, 1829	
Mr. W. C. Spooner	Mar. 7th, 1829	
Mr. Chas. Spooner	July 21st, 1829	
Mr. W. Mavor	July 28th, 1829	
Mr. W. Field	1830	1845.
Mr. Jas. Home	May 17th, 1832	
Mr. G. Baker	Aug. 8th, 1832	
Mr. E. Braby	Aug. 6th, 1833	
Mr. T. W. Mayer	Jan. 6th, 1835	
Mr. W. Ernes	June 4th, 1839	

Thanks having been voted to the President, the meeting separated.

After the conclusion of the business of electing the first officers under the Charter of Incorporation of the College of Veterinary Surgeons, the president and gentlemen who had been engaged in the business of the day adjourned to the dining-room, where a solid and substantial repast having been provided, the company sat down, in number between fifty and sixty, Mr. Thomas Turner, the President of the College, officiating as chairman.

The following is a list of those who were present at this repast:—

Thos. Turner, President, Croydon
Jas. Turner, London
Wm. Field, London
Professor Sewell, R.V.C., London
Professor Dick, Edinburgh
Professor Spooner, R.V.C., London
Professor Simonds, R.V.C., London
Thos. Walton Mayer, Newcastle-under-Line
Thos. Mayer, sen., Newcastle-under-Line
Hen. Lee, Dover-street
Thos. Turner, jun., Croydon
Wm. Walter, sen.
Wm. Walter, jun.
W. Meginnis
R. Vines, 13, College-street
W. McKenna, Belfast, Ireland
Francis King, sen., Stanmore
Francis King, jun., Stanmore
W. Youatt, London
R. Hutton, Great Yeldham, Essex
Edward Turner, Reigate
Geo. Baker, Reigate
W. J. Godwin, Birmingham
W. C. Spooner, Southampton
H. J. Surmon
Alex. Henderson, V.S. to the Queen Dowager
Richard Walters, V.S., London
Langton M. Rogers, H.E.S.
Hen. Lepper, Aylesbury
S. H. Withers, Bristol
F. C. Cherry, P.A.V.S.
James Burr
W. Pritchard, Wolverhampton
W. Wallace, Wolverhampton
M. Roper, *Times Office*, for THE VETERINARIAN
F. R. Silvester
F. J. Sewell
A. Howarth
W. H. Cardwell
Jas. Turner, London
Samuel H. Withers, Bristol
Robert Hunt, London
Chas. Wallis, Staines
Chas. S. Robinson
George James Sparrow
Chas. Marshall
Wm. Baker, Sudbury, Suffolk
Wm. Powell, jun.

On the cloth being withdrawn, the chairman rose to propose the first toast, which was, "The health of her most gracious Majesty the Queen." He prefaced it by observing, that he did not think it necessary that he should say much about the event which had called them together that day, and the happy termination of which

they were met to celebrate: it was too fresh in their minds to require many words from him, and he would therefore proceed at once to the business of the evening. He should have a few toasts to give; and the first to which he would call their attention was the health of her most gracious Majesty, to whose goodness they were indebted for the boon which they had on that day received. He was sure that the company would drink her health with more than usual gratitude and enthusiasm. He concluded with giving "The Queen, with all the honours;" which, having been duly done justice to by the company, was followed by the national anthem, sung by Mr. King, junior, the whole of the meeting joining in the chorus.

The chairman again rose and said, that the next toast which he had to propose was "The health of Prince Albert, and the rest of the royal family." He considered that they were much indebted to that illustrious individual on many accounts for the patronage which he had bestowed upon them; independently of which, as the husband of her Majesty, and the father of a family that were likely one day to fill the throne of this country, they were bound to honour and respect him; he therefore proposed "The health of Prince Albert and the rest of the royal family." This was followed by a song from Mr. Godwin—"Bring me, boy, a sparkling bowl."

The chairman then said, he had much pleasure in proposing as a toast, "The army and navy:" he did think that the country was greatly bound to both these classes of men for their conduct at home and abroad.

Mr. Cherry rose to return thanks, having been connected with the army for more than forty years. He could not be insensible to the honour conferred upon him and the service to which he belonged, and begged, in his public capacity, to return thanks for the compliment paid to him. The song, "When shall man drink the ruby tide?" was then sung.

The Chairman said that he had very great pleasure in offering the next toast to the notice of the company. It was connected with a subject in which all present were interested, and with which they had all been engaged for some time. The toast which he was about to propose was "The health of the members of the

House of Commons and the Government that had assisted in obtaining their Charter." Very many had kindly taken great pains in forwarding their views in the course of this business. The gentlemen on whom the care of their interests had devolved had been called upon, on numerous occasions, to communicate their wants and wishes both to members of the Government and to many of their patrons in the House of Commons. On all occasions they had found in these distinguished individuals the utmost desire to assist and serve them in their views; and he considered that they were greatly bound to them, not merely for the kind reception which they had always experienced at their hands, but for the efforts which these gentlemen had made to do every thing that could conduce to their service. He, therefore, considered that they were called upon to mark their grateful sense of the kindness which they had experienced, by drinking the health of the various members of the Government and the House of Commons who had assisted them in procuring their Charter.

The toast was accordingly drunk with all the honours, and was followed by a song from Mr. Turner, sen., a fine healthy old gentleman of eighty-five, who, with a voice and style that would have done credit to a man fifty years his junior, gave the good old song, "My friend is a man I would copy through life," in a manner which called forth unanimous applause.

Mr. Youatt rose to propose the next toast. He said that it was generally true, if a man had once forgotten his duty in any point, that he was sure to be punished for his neglect sooner or later. What had taken place on that day was a sufficient corroboration of the truth of this axiom. He had come to the meeting, because he gloried in the cause, the successful termination of which they were met to celebrate; but he had not been there any great time before all who were not members of the College were desired to withdraw. This was, he confessed, a home-stroke, and he felt it keenly; but, nevertheless, he knew not what other course the gentleman who presided could have adopted in this case, consistently with his duty.

A toast had now been put into his hands to introduce to the company; and even this gave rise to some unpleasant retrospects. It reminded him of what he might, or perhaps, ought to have done

and of many valuable opportunities which he had suffered to escape. It told him that, individually, he was supposed to stand upon different ground to that of almost every gentleman he saw about him; and he confessed that he could not help feeling a little mortification at the position in which he was placed. He would not, however, recur, at such a meeting, to any thing unpleasant, but would direct the attention of his hearers to the noble situation in which they stood—and the glorious prospect which was now opened before them; and happy, indeed, was he to be permitted to enter upon the subject, and to express his sentiments with regard to it. They were now a Royal College, incorporated by Charter, and this evening they had met together to commemorate the noble objects which the Charter was designed to carry out. For his part, he threw all private and personal feelings overboard, and only hoped that they would continue in their glorious career, and bend all their energies to carry into effect the objects for which they were incorporated.

As regarded himself, personally, he should only say, that he felt the highest degree of pleasure in proposing the toast which had been put into his hands, and only regretted that it had not been entrusted to those who could have done it greater justice. He proposed "Success to the Royal College of Veterinary Surgeons." This was drunk with all the honours and with vehement applause.

The Chairman said that he felt himself bound to return thanks for the very handsome compliment which had been paid them. He had listened with the greatest delight to the sentiments that had fallen from his old friend Youatt, and was truly obliged to him for the manner in which he had introduced the toast that had been put into his hands. He was perfectly convinced that all those who now surrounded the board would labour to maintain the respectability of the situation in which they had now been placed. It would depend upon themselves whether the Royal College of Veterinary Surgeons would become and would continue respected and useful. He was obliged to them for the manner in which they had received the toast, and he doubted not that the memory of the pleasures of this night would be cherished to the latest hour of their existence.

Mr. King, jun., obliged the company with Moore's favourite

song, "Oh, doth not a meeting like this make amends," and he sung it with great taste and expression.

Professor Dick, of Edinburgh, then rose, and said that he had scarcely expected to have been so suddenly called upon to propose the toast which he then held in his hand, inasmuch as it was one that required no little consideration, from the circumstances in which they were placed in relation to the Royal Colleges of Surgeons and Physicians. He was sure that his hearers must see the difficulty in which he was placed when they remembered that both those bodies had hitherto stood one step above them; but there were now the Colleges of Physicians, Surgeons, and Veterinary Surgeons, all classed together—all distinctions between them having, by their present Charter of incorporation, been swept away. Nevertheless, there was still something with regard to the Colleges of Physicians and Surgeons which the present meeting could not overlook. The students were indebted to them for many acquirements, and for having shewn them the way in the road of science. He did not say that these gentlemen might not have derived much advantage, even in their own particular branch of study, by a diligent study of the anatomy and economy of the lower animals; and high as they at present stood, he was inclined to think that they would stand still higher when to their various acquirements they added this additional branch of knowledge. If he remembered rightly, there was once a difficulty in discovering how the human body was nourished, and an Italian physician found out the secret in opening a dog, wherein he had traced the food passing through the thoracic duct. Now, if the gentleman had ever opened a horse, he could hardly have failed to have found it out much more easily. This was a case in point, shewing the great advantage arising from paying attention to veterinary science. Still the meeting was highly indebted to the Colleges of Physicians and Surgeons for the encouragement they had received.

He was aware that there were those who were disposed to place the veterinary profession in a lower grade, and thought their own profession stood higher and was more advanced, because they occasionally got a lord for a patient. Now, he would ask, was it not almost the same thing? Did it not require as much ability to study the anatomy of a donkey as of a lord? the physiology of the one,

in a scientific point of view, was as interesting as the other, in shewing the handiwork of the omnipotent Creator.

It had been said that a different—a more powerful—feeling was excited in treating the human subject. He would ask, was there no such feeling excited—was there no such consideration required when they were called upon to relieve the sufferings of a noble animal? But there were other points which, if this were true, would tend to raise their profession to a level with the others. If they were to calculate by the value and cost of the animal operated on, this would at once appear. Let them look at the different value of the man and the animal; the soldier is worth to the country only the value of his discharge, at an average £30: a sound serviceable horse is worth twice that sum. If this argument, then, were to be considered good, it would follow that their science was more noble, as connected with the more valuable animal, and that, therefore, it should stand at the top of the tree. If they wanted to estimate the relative value which man puts upon his own kind and upon his horse, they had only to observe the hovels converted into human habitations, that were to be found in every part of the country, and compare them with the habitations of the horse, and it would be seen that the latter were infinitely more convenient, infinitely more comfortable than those of the human being. If, therefore, their profession were to be judged by the standard of value which men put upon their patients, it would be quite clear that their profession should be considered as occupying the higher one of the two in the scale of usefulness.

There was also another reason why the profession of the veterinarian should require as much, if not more, science than that of the physician. The patients of the latter could speak, could tell what was the matter with them, and, at least, explain their feelings. Our patient is silent. There was, however, this advantage which the veterinarian possessed — his patient never fancied himself ill—he never shammed illness, which sometimes had frequently occurred in other quarters. Leaving the consideration, then, of their relative usefulness, and putting science out of the question, still he considered his profession was greatly indebted to the Colleges of Physicians and Surgeons: they had done much for science, and he therefore proposed that the company should

drink " The health of the Colleges of Physicians and Surgeons, and prosperity to them," which, having been duly honoured by the company,

Mr. Lee, of Dover-street, rose to return thanks. Professor Dick, he said, had alluded to the benefits conferred upon the Veterinary College by the College of Surgeons. However great those benefits were, the College of Surgeons had also to acknowledge many benefits derived from the Royal Veterinary College. If we looked at the chief physiological discoveries that had taken place during the last half century, we found that the experiments that tended most to their elucidation had been connected with veterinary science, and, in England, had generally been performed at the Veterinary College. If it was evident that a debt of science was still due from the Veterinary College to the other medical institutions of the country, he might congratulate the members of the veterinary profession that they were now placed upon that equal and scientific ground which would not only enable them to proceed, unassisted, in the development of veterinary knowledge, but would enable them, by their contributions to science, to repay any debt which might have been contracted during the infancy of their institution. We might anticipate, henceforth, that the veterinary surgeon would become the rival of those who had preceded him in the investigation of the general principles of health and disease, and would not only advance his own profession, but would, in so doing, also advance the corresponding branches of science in human medicine and surgery. As the different professions, which had the same common object, were so closely united upon scientific grounds, every advance in one must, necessarily, be sooner or later felt by all; and, therefore, the prosperity of the veterinary profession could not be an object of indifference to any one who wished well to the general advance of medical knowledge. With these impressions, therefore, he could not propose a toast more consonant to the feelings of all who were interested in the present proceedings, than the health of the gentleman who had on this day been elected to fill the very responsible situation of " President of the Royal College of Veterinary Surgeons."

Mr. Turner then rose, and said that he felt most grateful for the manner in which his health had been drunk by the company. He

could say but little, as he really felt the want of words to give utterance to his feelings on this occasion. It was his most earnest desire to do the best he could for the Royal College over which he had been called to preside, and while he had his health and strength he would uphold the interests and the dignity of the institution. He felt infinitely obliged by the manner in which his health had been proposed and received by the company.

Mr. Walter, jun. then favoured the company with the song, "If I had a thousand a year," after which

Mr. King rose and said, that a toast had been put into his hands which he was quite sure would be received with the greatest pleasure by those whom he had the honour of addressing. It was the health of a gentleman to whom they owed much obligation. He would not detain them longer, but would at once propose "The health of Professor Sewell, and success to the Veterinary College."

This toast being drunk with great applause,

Professor Sewell begged to return his thanks for the honour which they had done him, and hoped that the meeting would allow him to state a few facts relative to the College and the profession, which had now been established nearly fifty years. It was about that time that the appointment of the first professor, who was a Frenchman, and who was succeeded by the late Mr. Coleman, had taken place. It was fifty years ago since the first pupil passed his examination before a board of examiners, consisting of the first surgeons of that day. The institution owed its origin to some gentlemen who had been travelling through France : of these, Mr. Grenville Penn was now the only survivor. As these gentlemen first formed the Veterinary College, so it has existed to the present time. It was governed by members selected in the same way as at present, and was called by courtesy, although it had no real title or claim to the designation, "The Royal Veterinary College." Fifty years back a charter was asked for this establishment, but was opposed by Lord Eldon, who thought that it might lead to some infringement on the liberty of the subject, and consequently it was refused. Now, however, when time had either modified or done away with these objections, public opinion had changed upon this point, and the result was, that they had now a

Charter of Incorporation, by which they had obtained certain privileges, and by which their profession had been raised to the level of others. The veterinary surgeon was now put on the same standing with other professions, and had bestowed on him the same rank and privileges as other professional men. From this time forward they would stand on a perfectly different footing. They would have the power to elect their own Board of Examiners—a power which they would soon be called on to exercise, as, in point of fact, the late Board had passed away at the last meeting, and had sent in their resignation. Dr. Paris, too, having been appointed to the President's chair in the College of Physicians, had resigned his office. He (Mr. Sewell) hoped and trusted that, in filling up these appointments, they would make a careful selection. The impression upon his mind was, that no teacher should be an examiner, and that when he became a teacher he should cease to examine. Still he should like them to be privileged to attend on those occasions, not from any ambitious views, but to see how the institution worked; and he thought that this would be advisable, as, in the event of any difficulty arising between the examiner and the student, their presence would at once afford a ready means of reference.

As regarded the late establishment, he (Mr. Sewell) thought the profession owed a great debt of gratitude to the supporters of that institution, who had come forward both with purse and in person in its favour, and also to the Board of Examiners; and, as such, he hoped he should be permitted to propose "The health and prosperity of the Governors and Subscribers to the Royal Veterinary College."

Amongst the first of these was Mr. Grenville Penn, who was also one of the first originators of the establishment, and was now the only survivor. He was quite sure that their success in obtaining a charter would be to that gentleman a source of the utmost satisfaction. It was that gentleman and the late Arthur Young who first expressed their astonishment that this country should be so late in taking up an institution of this sort. The first establishment of the school in France was near Lyons, whence it was subsequently removed to Alfort, from which establishment professors have been sent even to Egypt. Establishments similar

to Alfort have extended themselves throughout Europe, and an attempt is now making to form one in America. He hoped that before many months he should hear that the attempt was successful. He would not now farther intrude, but propose "The health of the Governors and Subscribers to the Royal Veterinary College."

The toast was drunk with all the honours; after which, Mr. King, sen., favoured the company with the song of a "Southerly wind and a cloudy sky."

Mr. Vines here wished to make some observations upon what had fallen from Professor Sewell, but, at the request of the Chairman, postponed them for a short time.

Mr. Mayer then said, I rise Mr. President and Gentlemen, to propose the health of an individual who honours us with his presence this day at great sacrifice to himself, and whom we feel proud of seeing among us. He stands proudly and prominently as an example to the members of our profession, of what strong native talent can accomplish, guided by sound discretion and persevering energy. He has not only formed his own fortunes but framed the fortunes of a school which has been thought worthy by The Highland Society of forming an appanage to that society; a society, whether as regards its constituent members or its ramifiying influences throughout Scotland, and also England, that is not inferior even to the Royal Agricultural Society of England. I beg leave to give, Sir, "The health of Professor Dick and the Edinburgh Veterinary College," with honours.

Justice having been done to the toast,

Professor Dick rose to return thanks. He was not much, he said, accustomed to public speaking, and he never felt more difficulty in expressing himself than at the present moment. It was always awkward to speak of oneself, and he felt it most particularly so then. He could assure the company that what had that day passed had suggested many good and pleasant things to his mind. When he was a young man, twenty-seven years ago, he was much inclined to get information on literary matters. At that time he had heard little of the Veterinary College, and, in fact, there were not at that time a dozen of veterinary surgeons in

all Scotland, so that science there had not greatly advanced. Having, however, heard something upon the subject, he asked a bag-man to make inquiries for him, and to see if there was really such a place. At that time, also, he had become acquainted with a medical student with whom he used to talk upon medical subjects, and who asked him if he would like to hear a lecture. In those days he (Professor Dick) knew little of the classics, and, as he had understood that the lectures were delivered in Latin, he did not hope to obtain a great deal of information from them. It happened, however, that he went to hear the late Dr. Barclay, whose name, although unknown here, was then spoken of in Scotland as one of her best anatomists. After hearing him, he had the impudence to think that it was possible that he himself might one day deliver a lecture on veterinary science: he accordingly proceeded to provide himself with books, and one of his first text books was "Taplin's Farriery Improved." [*A loud laugh.*] After that, he not only attended Dr. Barclay, but also Dr. Gregory, the celebrated medical professor, who, instead of Latin, spoke in good broad Scotch: and so he went from one to the other, until he found that, by these means, he had acquired some sort of knowledge.

Now, it is well known that Scotchmen are somewhat inclined to get knowledge wherever they can pick it up, and are, moreover, a little selfish; and it so happened that, one day, during Dr. Barclay's course of lectures upon comparative anatomy, and, when he was going on about dogs and cats, it occurred to him that it might be a grand thing to get a horse. He mentioned it to the Professor, who was delighted with the offer. Now, it so happened that he, shortly before, had met with a Shetland pony that had happened to have dislocated both his hind fetlocks in attempting to cover a big mare. These had been reduced; but in a fortnight afterwards the same thing happened again. The consequence was, that there soon became compound dislocations, with sloughing.

The beast was soon brought in, its throat cut, and the Doctor proceeded to lecture upon it; and thus he got his first lecture upon the comparative anatomy of the horse. He was, however, forgetting the predicament in which he stood, for he was away from home,

and would not detain them longer about himself, but would say that he felt most grateful to them for the honour they had done him in drinking his health.

Mr. King. jun., then obliged the company with a song, after which

Mr. James Turner rose, and hoped that he should be permitted to propose the health of a gentleman who might truly be called one of the main props of their profession. They were met that day to celebrate the obtaining of their Charter; but there were many among them who were, perhaps, not aware of the steps by which that object had been obtained, or of the individuals who laboured to accomplish so desirable a purpose. To such it might, perhaps, be new to hear that Mr. Mayer, of Newcastle, was to be truly regarded as the parent of their profession. There might be many older men; but he alone had stood forward, out of a body of a thousand strong; and, to argue the propriety of making an effort to obtain a royal charter, he came to London several years ago. He was, however, free to confess that, although he had not thrown cold water on the plan, he had been a silent observer of the efforts which Mr. Mayer was making, and that, in fact, to Mr. Mayer it must be acceded that he was the first grand mover in the undertaking. It is also certain that other powerful spirits acted in conjunction with him, and he thought he should not be doing justice to his brother if he did not bear testimony to his efforts to accomplish his noble object. Some other influential characters also played a most important part in bringing their powerful influence to bear on the great personages of the land; but to Messrs. Field, Mavor, King, and several others, whose names are, and ever will be, deeply embalmed in his memory, he considered they were principally indebted for bringing about that consummation which they were met to celebrate. They all owed a deep debt of gratitude to Mr. Mayer, of Newcastle, and he hoped they would shew they felt the obligation by drinking his health with all the honours.

Mr. Mayer thus replied:—Mr. President and Gentlemen, allow me to render you thanks for the honour done me in drinking my health, and for the very flattering manner in which my friend, Mr. James Turner, has been pleased to speak of my services. It

is true, as he has observed, that I was the originator of the movement for the Charter. At the time that we were at work in the memorial business I presumed to write to His Royal Highness the Duke of Cambridge, as Patron of The Royal Veterinary College, and to every member of the committee belonging to that institution, stating the grounds upon which we proceeded, and that we could not gain possession of our legitimate position as a professional body unless we became a chartered body, and acknowledged as a profession by the legislature of the country. On this occasion the first ground was broken for securing a Royal Charter. Nevertheless, I do not arrogate to myself the successful issue of this business. No; it is owing to our united efforts—to the concentration of our energies in your committee, and the unbounded confidence and support which you have afforded it—to the weight, influence, and character of its members; and, though last, not least, to our worthy President as the Chairman of that committee—and to his very able, efficient, and gentlemanly conduct in the performance of its duties. No difficulties (and we had our difficulties, Gentlemen) ever daunted him; but, like a valiant captain, he nailed his colours to the mast-head, and, like the lads of Derry, had inscribed upon them "No surrender!" determining either to win the victory or go down fighting into the gulf of oblivion.

Her Majesty has conferred upon us a great boon, and I trust we shall shew ourselves worthy of it. We now possess a standing and position in society. Before this we had none. Now we feel that we have a character to preserve; before we had none. By this gracious act of Her Majesty she has proved herself the salvation of our profession, for it would gradually have retrograded into the empirical hands from which it has been rescued by our late lamented and present Professor if something had not been done, as there would have been no inducement for men of education, respectability, and property, to have connected themselves with it.

It is a proud and glorious day for us, inasmuch as we have now become a Royal College of Examination, and obtained a parallel position with our sister profession. We have now the proper controlling power over the education of the student, and I trust we shall carry out his *curriculum* gradually and discreetly, and also

continue in harmony, good fellowship, and feeling, with the respective Professors of the two schools of education, that of London and Edinburgh.

We are now in a situation to petition for the exemptions and privileges which other professional bodies enjoy; and I do not hesitate to say that we shall obtain them.

The day has arrived, Gentlemen, when we must look a-head and keep a-head; for in the course of a few years we shall see, after the German plan, agricultural schools established throughout England, where every branch of knowledge bearing upon stock and the cultivation of the soil will be taught: unless, therefore, the student receives a thorough course of education, he will not and cannot retain his position in society.

I will just touch upon one other subject on which I know that some parties feel keenly, as I may not have another opportunity of expressing my feelings upon it; and that has regard to the Board of Examiners. Whenever it is formed, I do hope there will be associated with its veterinary members some of those eminent individuals who belong to a body to whom we owe an everlasting debt of gratitude, and who have hitherto effected so much for our art. They add influence, weight, and dignity, to any class of individuals with which they may be associated. I beg leave once more to return you my thanks, and wish each and all of you health and prosperity.

The Chairman then rose, and said he hoped the company were not yet tired of seeing him on his legs, for he had a toast to propose: it was the health of their newly appointed councillor Mr. Field, and the rest of the body corporate. He could only say that the election of that council has given him the greatest satisfaction. He had classed Mr. Field with the council, as during the struggle for the Charter he had not found any man who had come forward more handsomely with money, or who had acted throughout in a more generous and manly way, and who had been always ready to sacrifice his time, which, upon occasions, was infinitely more precious. In the services he had rendered them he was without a rival, more especially in the power he had, from his peculiar position, of representing in certain quarters what they wished to have done. He (the Chairman) was sure that he should

require no excuse for proposing this toast, and, therefore, without trepassing further on their time, he would propose "Their Council, and prosperity to them for their honourable conduct on all occasions."

This toast having been drunk with the utmost enthusiasm,

Mr. Field regretted that the gentleman who should have proposed this toast was obliged to leave on account of indisposition, and that the task should have devolved upon him. As regarded the Council, he was quite sure that those gentlemen would do all in their power to promote the respectability and advancement of the College of Veterinary Surgeons. If he, from the situation in which he had been placed, had been enabled to render any service to the profession to which he belonged, he had done no more than his duty. As a member of the profession, he had felt himself bound to help in the accomplishment of the noble objects in which he had been engaged.

He begged leave to propose a toast, "The health of Mr. Spooner, of Southampton, and the country practitioners." No one respected that class of the profession more than he did. He had received great information from them. The variety of cases that came under their notice was greater than the London practitioner met with. The country practitioners constituted no small or unimportant stand in the profession at large: he felt that the meeting would join with him in wishing them prosperity.

Mr. Spooner rose to return his acknowledgments of the manner in which his health had been drunk by the company. He had also to return thanks for a most important body; and when the meeting reflected on the situation in which they were placed, and the manner, with some few exceptions that he wished were fewer, in which they supported their credit and respectability, he thought they would agree that the country practitioners deserved the mark of respect paid them by the company. It should be remembered, that the country practitioner had not, like the London one, the congregated talent of the metropolis to fall back upon in an emergency, but in most of the cases confided to their care they were obliged to depend on their own resources, and he could assure their friends that in many instances they were all required to carry them through. They would excuse him for saying, that it was the country practitioners who, as a body, were principally concerned

in the business of the day, for the wealth of the metropolis would, no doubt, secure a host of talent in the practice of the veterinary art, even if we had no schools or colleges whatever; but, without these means of education, the treatment of the diseases of animals throughout the country would still be in the state of darkness from which, so far as it relates to horses, it emerged half a century ago. He (Mr. Spooner) had felt it his duty, though with much inconvenience, to come there that day to take part in its business, and to join in celebrating the auspicious occasion which had brought us together. But though the Charter was a just cause for rejoicing, they must bear in mind that it brought with it duties and responsibilities as well as pleasures and privileges. The eyes of the public would be more than ever directed to their conduct, and it became them all to take advantage of the more eminent position in which they have been placed, and survey the landscape that opens before them, and not only survey but to examine it accurately, and mark well every position that can be brought to bear on our profession; and, having so done, what then must be their cry? why, Onwards! onwards!!—Onwards in the course of improvement—onwards with the march of science,—and onwards in the career of prosperity, which from this day he hoped may attend every *worthy* member of their body politic. The great body of country practitioners were prevented by various circumstances from attending here this day; but their attention was fixed upon the Council, to whom they would look for the amelioration of those evils of which they had now so just reason to complain. He had the honour to have been elected on the Council, and was well aware of the responsibility of the duties of the station; but though he could not often attend himself, there were others that would do so, and he was quite satisfied that he should leave them in noble hands. As, therefore, he should not be able to attend the first meeting on the morrow, they would, perhaps, excuse him if he directed the attention of the Council to one or two points which he thought the profession would expect at their hands. It had not unfrequently occurred among country practitioners that they were met with distrust, advantage taken of the most trivial circumstances or unlucky coincidences, and attempts had been made by unworthy employers to crush them altogether; and sometimes, indeed, with success. He had met with such at-

tempts on more than one occasion. How satisfactory would it be, particularly to the young practitioner, to have a body like the Council to appeal to? and if, in such case, it should appear, after careful examination, that the conduct of the practitioner was free from blame, it behoved them to rise as one man to support the party so attacked; and he hoped that there would be a fund established to apply to a purpose so laudable. He was pleased to find, on a recent occasion, when in attendance on the Royal Agricultural Society of England as one of a deputation from the town in which he resided, that there were several of the profession present; for the more we can be brought into close and intimate association with that body the better would it be for us. Whether we consider its royal patronage, its princely supporters, the number, the wealth, and the rank of its members, the good it has accomplished or the benefits it seeks to obtain, it is one of the most noble and deserving which this or any other country has ever yet produced. It is by their connexion with this society, and by other means, that they will be enabled to rescue the great amount of cattle practice from the hands of the ignorant cowleech, and give it as a legitimate emolument to the man of science. Let them do this, and they will earn the lasting gratitude of country practitioners, who will join with them in blessing the day when the Charter was obtained.

In conclusion, Mr. Spooner begged permission to propose a toast, and that was the health of two gentlemen who, though each well deserving of a distinct compliment, he would yet, at this late period of the evening, couple together, and more particularly as one of them was obliged to leave from indisposition. Of him, then, he would first speak, and his absence afforded him a better opportunity of doing so. He was a namesake of his own, but unconnected by ties of consanguinity. They were, however, fellow pupils, and, he was proud to add, old friends. He could bear testimony to his private worth and honourable feelings, as they all could to his talent as a public teacher and a scientific and skilful practitioner. He thought that in the long-continued endeavours which had been made to obtain the Charter, they were greatly indebted to the teachers of our public schools for the kind and hearty assistance they had at all times rendered; and in this respect, the gentlemen whose healths he proposed were also deserving their consideration,

for they had nothing personally to gain by what had been obtained. In the presence of his brother vice-chairman he must be silent in his praise; but both publicly and privately he was well worthy their esteem, and it was pleasing to find that he supported the honours and duties which had recently fallen on his shoulders with dignity and credit. He begged to give, with all appropriate honours, "The healths of Professors Spooner and Simonds," which was drank, and duly acknowledged by Mr. Simonds.

Mr. Dick then favoured the company with a song, "John Anderson, my Jo;" after which

Mr. Simonds regretted that he suffered so much time to pass ere he proposed a toast dear to them all. He alluded to the chroniclers of veterinary records. He saw around him several persons, highly respected by the meeting, who had done much to disseminate useful knowledge, and to whom they were much indebted for their writings: he proposed "The health of Veterinary Authors."

Mr. Vines rose to return thanks. In expressing the opinions he was about to utter, he trusted the meeting would not consider that what he said was any party affair. His life had been one of industry, and during the time he had been connected with the profession few members had been more engaged than himself. To some of the observations which had fallen from Mr. Sewell during the course of the evening he had no objection to make: he agreed with that gentleman on the subject of the Charter; but with regard to the instructions given to students, it appeared to him that they would do little unless the instruction afforded them was also practical. Anatomy and chemistry were highly requisite; but these subjects should likewise be joined with physiology and the general practical treatment of disease, without which an examination would be of little avail. An Examining Committee could not impart knowledge to the student while undergoing examination, as their office was only to form a correct judgment according to knowledge previously imparted to the students by their teachers. Then, respecting the gentlemen to be elected Examiners, he trusted this would be effected with the greatest caution: no favour should be done to any man in placing him in this highly important office. Let every one elected prove himself to be properly qualified, not only from his long

standing in the profession, but likewise his general knowledge of anatomy, physiology, general treatment of disease, &c., as by his *writings* and *other efforts* towards the general advancement of the science of the profession, and the benefit of the public good. Examiners should also perform their duty with judgment towards the students, and not according to one particular mode of treating disease, because Mr. *Somebody* might have one way of looking on a particular subject, and another Mr. *Somebody* might have another way. On the contrary, let the Examination Committee act on general principles of science, and give the student a fair and honest examination, not in horse knowledge alone, but likewise the general information he has obtained in all the sciences connected with the profession, and particularly the general treatment of disease. The students should have opportunities of attending the sick horse, and also of mixing with those who did so.

With respect to the advancement of the profession through veterinary works, he should say but little, as he considered the profession and the public were the best judges. He had himself written a work on "Glanders," which was founded on facts that had occurred within his own personal experience. Some things had arisen out of that work which he should not then allude to. He had written other works which had been considered of service to the profession. What he considered as highly important in the course of education to be pursued in the College was the study of actual disease, as well as anatomy, physiology, and chemistry. The students should not only study well works on these subjects, but likewise those which treat on the general practical symptoms and treatment of disease.

Mr. Vines concluded thus:—"All that is wanted is, that they should act together for the public good, and lay aside all party feelings whatever. He did not know but some day or other they might have a museum. Should that event happen, he should be most happy to give them some specimens which would be worth their notice. The veterinary profession should possess a museum worthy of public notice, and which should surpass that of the Royal College of Surgeons. Such a place should contain the skeletons of our most celebrated horses, either as respecting speed or draught. This museum should at proper times be open to the students, and

the public should also be admitted free of any charge. Such a course, he considered, would tend to give the public a more enlarged view of the usefulness of our profession, and be the means of forcing ignorant pretenders to obtain that kind of instruction which will tend not only to benefit the public, but likewise themselves. If ever he should be wanted to accomplish such an undertaking, he should be most happy, on his part, to render all due assistance. So long as their vessel swam clear and fairly he would assist its progress; but otherwise he would not do so. For the honour they had thought fit to bestow upon him and other authors on veterinary subjects, he begged to return his most sincere thanks.

Mr. Dick then rose to propose a toast which he could have wished had fallen into better hands; but when his friends knew the subject of his observation, he should have less hesitation, particularly when he named a gentleman who had long had the charge of the veterinary department of the army. He had known him long by name, although his personal acquaintance with him had been short. The gentleman he alluded to had, by his writings, done much to elevate the standard of veterinary science to the position it then held. It was unnecessary to say more in his praise. He was known to all the meeting; and he should, therefore, content himself with proposing "The health of Mr. Cherry."

The toast being drunk,

Mr. Cherry rose to return thanks. He was, he confessed, taken by surprise, and had so much to say that he felt some difficulty where to begin and where to end. He was grateful to Professor Dick for alluding to him in the way he had done. He had, in a manner, lived apart from the profession for many years, as many things had occurred which he had disapproved. He had succeeded to the appointment he now held with the nature of it as much unorganized as at the period of its formation. He had been instrumental in annulling contracts between the public and the then Professor of the Veterinary College, of a nature most injurious to the profession, and in which no man had a greater stake than himself. His course had been a steady one, keeping the interests of the profession constantly in view.

Popular men were too often swayed by every wind: this was

not what he approved. Do your duty, and it will be sure to bring you through in the long run.

For the honour they had done him he begged to tender them his best thanks.

Mr. Sewell rose to propose, "Prosperity to foreign Schools;" and in alluding to foreign schools he observed, that that of Alfort was a most extensive one; yet he confessed that he had been better pleased with those in Germany, among which he gave the preference to those of Prussia. Still he was inclined to believe the English practice to be superior to any of them. The practice of the foreign schools was good in many respects, although their remedies were widely different from our own. In their schools the highly stimulating plan of firing was very extensively used. For twenty years he had been opposed to that practice, and he should still remain so. He trusted that he should see the milder method take the place of the stimulating practice of firing and blistering. In his practice during twenty years he had hardly fired twenty horses, and he hoped he should live to see the day when firing would be altogether discontinued. In an occasional visit to the Continent much that was useful would be seen. Regular studs were attached to many of these schools. That system could not be carried out in this country, for it would do great injury to agriculture. He considered that it would be useful for this society to go hand in hand with the Royal Agricultural Society, and carry out their views in the treatment of the diseases of cattle, sheep, and other animals. Since the decease of the late Professor, this branch of the subject had been taken up by Messrs. Simonds and Spooner, who had been lecturing upon the anatomy and diseases of these animals. As regarded the foreign schools, the Professor remarked that he gave the preference to our own. There was this difference between our schools and those of other countries:—they were there supported by their respective governments; here they were carried on by popular subscription. In this country the College had been formed by a few individuals, namely, Messrs. Granville Penn, and two others. With the exception of one occasion, they had not required to apply to government for assistance. When they had first begun to teach they

were compelled to employ foreigners, and for examiners they got the most eminent surgeons of the day. At first they had only twenty students: now they could supply teachers and examiners from among themselves; beside which, many of them had gone to South America, in addition to Egypt, New South Wales, and the Cape. The learned Professor concluded by giving "The Foreign Schools and the East India Company," which toast having been drunk with acclamation,

Professor Dick rose, and said that he could not agree with all the remarks of Professor Sewell as regarded the question of firing, which might occasionally be a good remedy. The only question was, when it ought to be employed. With regard to what had fallen from the last speaker respecting foreign schools, he himself had been at Alfort, and had witnessed the practice as it was carried on there. He had seen a veterinarian inserting a seton in a horse's shoulder, while the disease was in the foot; but this was one case out of several.

Mr. Cherry also agreed with Mr. Dick that firing was a very valuable remedy in many cases.

Mr. L. Rogers then rose to return thanks for the toast which had been proposed by Professor Sewell, who, he believed, was correct in stating, that the Honourable Company gave appointments to a greater number of veterinary surgeons than the Queen's service. After sixteen years' experience he would take this opportunity of stating, that more honourable or liberal employers did not exist, nor was there any better field for the exertions of scientific practical men. The appointment of veterinary surgeons as commissioned officers to the cavalry regiments of the Honourable Company had induced many respectable and educated men to study, with a view to entering their service; thus elevating the profession and benefiting science. He felt bound to state, that he disapproved of the mode this day pursued in electing the Council; yet felt that this meeting was the prelude to brighter and better days. With great feeling he begged the meeting to accept his best thanks for the honour they had done him and his fellow practitioners in the East Indies.

The Chairman then rose to propose the health of two gentlemen

who had contributed greatly to the obtainment of the Charter. He knew of no two individuals who had done more than Mr. T. W. Mayer and Mr. F. King. He, therefore, proposed "The health of these gentlemen," which was heartily drunk with all the honours.

Mr. T. W. Mayer thus addressed the meeting:—

I know not in what language, I know not by what words, I can convey to you, sir, and the gentlemen now present, the feelings which actuate and pervade my breast.

With the utmost sincerity I tender to you, sir, individually, my best thanks for the kind manner in which you have proposed my health and spoken of my labours in the great and glorious cause we have at heart—for the manner in which you have been pleased to respond to that toast, gentlemen, with all the truest gratitude I have I thank you.

But, gentlemen, while I wish to convey to you in language most grateful—while I seek to unburden the feelings of my heart, already pressed down by a sense of your kindness, my mind wanders in other channels: it is tempted to review the past—to consider the present—and to anticipate the future. What mighty change is this that is come over us? By what magic are we met here to celebrate the acknowledgment of the veterinary art by the Government of the greatest country in the world? and what, gentlemen, are the results which we anticipate from this?

But a few short years have passed away since you were called upon to give your sanction and support to a Memorial to the governors of the Royal Veterinary College. That memorial was commenced and carried on with no other object in view, with no other advantage to accomplish, than the amelioration and advancement of the veterinary profession. It was, as you all know, unsuccessful, and I think justly so, because (and it is what I did not know then, but it has been confirmed by Professor Sewell tonight) the Veterinary College of London is a private establishment, supported by voluntary contributions; and in the proceedings of that institution, or in any department therefrom, we had not the right to make a single observation. But do I regret the step that was taken—do I regret that you were called upon to give your sanction

to the different provisions which that Memorial contained?—far from it. It was the means, gentlemen, of bringing your wishes and the wants of many hundred members of our profession to one point; it was the means of shewing that there was a mighty spirit at work within the profession; *that there was a nucleus around which all of us could unite;* that there was a mighty feeling prevailing, which could no longer be restrained; and all this for the noblest of purposes—the advancement of veterinary science. It is owing to the manner in which you expressed yourselves,—it is owing to the generous and warm-hearted support you yielded on that occasion, that what we are now met to celebrate, has in part been accomplished. If it had not been for the feelings you manifested, you never would have had a veterinary committee appointed to watch over your interests, nor would you have found any committee so zealous in endeavouring to carry out your views.

My connexion, as the secretary of this committee, which you, sir, have in so kind and flattering a manner alluded to, I shall ever consider as one of the happiest periods of my life. Brought into immediate contact with those whom it is my privilege to know and esteem, I have been the servant of a committee, the harmony of whose proceedings have never but once been disturbed, and whose resolutions, with a single exception, have been carried unanimously. With you, sir, my connexion is one of unalloyed pleasure, and will be remembered with unceasing satisfaction. During upwards of three years, amidst difficulties and obstructions which would have deterred any other man, you have never shrunk (even at great personal inconvenience) in the performance of your duty, and have endeavoured to the utmost of your power to promote the honour and welfare of our profession.

Gentlemen, you all recollect that the veterinary committee were elected for the express purpose of obtaining a Royal Charter of Incorporation upon some such plan and constitution—I am quoting the words of the resolution—as the then College of Surgeons enjoyed. I use the word *then*, because it is my belief that a charter upon the constitution of the present College of Surgeons would have been perfectly useless.

We are met here to-day to celebrate the first fruits of the labour of your committee. It is for you to say how far the measure meets with your approbation, and in your hands I am content to let it remain.

The benefits which have been by this Charter conferred upon us, I conceive to be neither light nor unimportant. Who can tell, who can realize the effect that in a few years may be produced by the exertions of a body of men now united together for the promotion and advancement of veterinary science. And, although there may be some that look on and smile at our exertions, and others who put their hands in their pockets and forget to take them out again, saying within themselves What good will the Charter do for me or for the profession, of this I am firmly convinced, that its obtainment was essentially necessary *not only* for the well-being, but even *for the very existence* of the veterinary profession.

I sincerely trust that the Council you have this day elected, bearing in mind the great responsibility they have undertaken, will honestly and fearlessly carry on their labours in a manner that will conduce to the onward progress of veterinary science and the stability of the Royal College of Veterinary Surgeons; and I hope that whatever plans they adopt, and whatever they suggest to promote so noble an object, they may ever receive that countenance and support which you have shewn yourselves to be both able and willing to give.

Forgive me, gentlemen, for having detained you thus long, and accept, once more, my best thanks for your kindness.

Mr King said that he hoped he should be able to give a good account of his stewardship. There was one object to which he should call the attention of the meeting, for unless that was accomplished they could not satisfactorily discharge their duty. A letter had appeared in THE VETERINARIAN which told what that object was, and in what manner it was to be carried out. To enable them to accomplish their purpose, they must have certain funds. He felt himself bound to mention the subject. It was absolutely necessary that the money should he forthcoming, and they must strain every nerve to procure it. He trusted the meeting would think

that he had discharged his duty faithfully, and he hoped and trusted that the profession would do theirs.

The health of Mr. Simonds was now given. The alteration that had taken place in the Veterinary College by the introduction of lectures on cattle and sheep, and even of dogs, was highly approved. Mr. Simonds added, that what he was now he would continue to be. He was neither afraid nor ashamed of his profession, but would always be found at the post of duty.

The meeting broke up at eleven o'clock.

At a Meeting of the Council of the Royal College of Veterinary Surgeons, held at the Imperial Hotel, Covent Garden, on the 15th of April, 1844,

PRESENT,

THE PRESIDENT

Prof. Sewell	Mr. Chas. Spooner
Mr. Baker	Mr. Langworthy
Mr. Gabriel	Mr. King
Mr. Henderson	Mr. Chas. Percivall
Mr. Braby	Mr. Tho. Mayer
Mr. Ernes	Mr. Tho. W. Mayer
Mr. Simonds	Prof. Dick
Mr. Home, 2d Life Guards	Mr. Jas. Turner
Mr. Chas. Marshall	Mr. W. J. Goodwin.

On a ballot taking place, the following gentlemen were elected Vice-Presidents:

Mr. William Sewell	Mr. Goodwin, sen.
Mr. Cherry	Mr. Chas. Spooner
Mr. Jas. Turner	Mr. Edw. Turner, Reigate.

Mr. Fras. King, jun. was elected Treasurer; and
Mr. Gabriel, Secretary.

It was then moved by Mr. T. W. Mayer, and seconded by Mr. Gabriel,

"That those persons who have entered as students at the Royal Veterinary College of London or the Veterinary College of Edinburgh prior to the 8th day of March, 1844, and who wish to become members of the Royal College of Veterinary Surgeons, shall be allowed to present themselves for examination on producing from their teachers a certificate according to the form herein-after agreed to; and having passed their examination to the satisfaction of the examiners, shall have the diploma of the College granted to them, and be duly admitted members of the Royal College of Veterinary Surgeons."

FORM OF CERTIFICATE.

We certify that Mr. has attended our School of Veterinary Medicine [partially or entirely] during , and has completed in it, the prescribed course of study.

Signed,

It was moved by Mr. T. W. Mayer, and seconded by Mr. Simonds,

"That, from the 8th day of May, 1844, no individual who shall enter at either of the veterinary schools of London or Edinburgh shall be eligible to become a member of the Royal College of Veterinary Surgeons unless he can produce such certificates, signed by the Professors of the Veterinary College of London, or of the Veterinary College of Edinburgh, as the Council of the Royal College of Veterinary Surgeons may appoint or require."

Moved by Mr. Gabriel, and seconded by Mr. Chas. Marshall,

"That a mixed temporary Board be appointed to examine those pupils attending the Royal Veterinary College of London and the Veterinary College of Edinburgh, who now are, or who, between this and the 1st day of October next, may be ready for examination."

Carried unanimously,

The following gentlemen were then appointed to form the temporary Board of Examiners :—

Joseph Henry Green	Prof. Simpson
Dr. Bright	Prof. Graham
E. Stanley	Prof. Henderson
B. Cooper	Dr. Gillespie
R. Liston	Dr. Knox
W. Percivall, M.R.C.S.	Dr. Robertson
W. J. Goodwin, M.R.C.S.	Dr. Mercer
James Turner	Mr. Grey, sen. Edinburgh
W. Field	Mr. M'Robie, Stirling
E. N. Gabriel, M.R.C.S.	Mr. Tindal, Glasgow
George Baker, M.R.C.S.	Mr. Fulton, Ayr
J. H. Langworthy	Mr. Brown, 6th Carb.
Sir George Ballingall	Mr. Wilkinson, 17th Lancers
Prof. Lizars	Mr. Hallen, 6th Dragoons
Prof. Muller	Mr. Williamson, Edinburgh

Carried.

It was resolved,

"That Mr. Braby, Mr. J. Turner, Mr. W. J. Goodwin, Mr. C. Spooner, Mr. Field, Mr. E. Gabriel, and Mr. Simonds, form a Sub-Committee, for the consideration of a Seal and Diploma for the R.C.V.S.; three to form a quorum."

It was resolved,

"That the President, Mr. Jas. Turner, Mr. W. Percivall, Mr. W. Field, Mr. C. Spooner, and the Secretary, form a Sub-Committee to draw up by-laws and regulations for the governance of the body politic and corporate, such by-laws and regulations to be printed and circulated amongst the members of the Council prior to their being submitted to a general meeting."

It was resolved,

"That Mr. Goodwin, M.R.C.S., Mr. W. Percivall, M.R.C.S., Mr. Baker, M.R.C.S., and the Secretary, be appointed a Sub-Committee to watch the progress of the Medical Reform Bill about to be introduced into Parliament, with the view of obtaining the privileges and exemptions petitioned for."

It was resolved,

"That the sum of three guineas, which the students of the Veterinary College of London have to pay for their examination, and the sum of one guinea, which the students of the Veterinary College of Edinburgh have to pay for their examination, be paid into the general fund of the body politic and corporate."

It was resolved,

"That Messrs. COMPTON and RITCHIE, of Middle-street, Cloth Fair, Smithfield, be appointed printers to the Royal College of Veterinary Surgeons, and that the Secretary be empowered to obtain a book to enter the minutes and proceedings of the body politic and corporate."

It was resolved,

"That the Secretary be requested to return the thanks of the Council to the Medical Members of the Veterinary Committee for their past services, and to inform them of their election on the Board of Examiners of the Royal College of Veterinary Surgeons."

The Thanks of the Council having been voted to the President and to Mr. T. W. Mayer, who had acted during the meeting in the place of the Secretary, the meeting separated.

The following is a list of SUBSCRIPTIONS *and subsequent* DONATIONS *already forwarded towards the Expenses connected with the Charter of Incorporation.*

Name and Residence.	Subscription. £.	s.	d.	Subsequent Donation. £.	s.	d.
Amis, S., Wisbeach	1	1	0			
Anderson, Wm., Glasgow	0	10	0			
Aitkin, Wm., Kilmarnock	0	10	0			
Allen, Newton Mearns	0	10	0			
Bartlett, J., Dorking	2	2	0	5	5	0
Brown, Melton Mowbray	1	1	0	4	0	0
Braby, E., London	2	2	0	5	5	0
Barrow, R., Newmarket	1	0	0			
Batchelor, Grantham				1	0	0
Burley, jun., Leicester				3	3	0
Beeson, J., Amersham	1	1	0			
Bailey, E., Leicester	1	0	0			
Byron, R., Bradford	2	2	0			

Name and Residence.	Subscription. £.	s.	d.	Subsequent Donation. £.	s.	d.
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THE members of the profession, convocated in obedience to their Charter, have held their first general meeting—the first meeting they ever held, as a body, for professional purposes—the Council have been chosen—the President confirmed in his seat—the Vice-president elected—Examiners appointed;—great and glorious events, in the veterinary world, and happening in the month of April 1844. The grand business of the general meeting was to choose the Council; an elect body of twenty-four members, to whom they—the other members—confide their trust, and who, under the provisions of the Charter, are invested with great power and authority. They are, in fact, the *governing body:* they have the nomination of the President and Vice-presidents; "the entire management and superintendence over the affairs, concerns, and property, of the body politic and corporate;" the making of all "orders, rules, and by-laws;" and the appointing of "the times and places and manner of examining students," as well as the fixing on "the sum or sums of money to be paid by such students," &c. So far as the Charter itself goes, after careful and deliberate perusal of it, we hesitate not to say, that, taken as a whole, it is calculated to produce a great amount of good to the veterinary profession. As in our practice of medicine, however, there is nothing capable of doing much good but what may, misapplied, do a great deal of harm, so the benefit we derive from our charter must greatly depend upon the *working* of it —upon those who have the carrying of its good intentions into execution—in a word, upon the COUNCIL. This being the state of the case, we feel no small pleasure in adding, that we think we may with reason congratulate the members of the profession on the happy selection they have made in choosing their *first* councillors. The right of election they have exercised on the occasion must have made them fully sensible of the value of that glorious principle—*the representative*—upon which their Charter is founded. That great right which the surgeons have been for nearly twenty years, and are still at this very moment striving to obtain, the veterinary surgeons call their own at the commencement of their *authorized* professional career.

We have just received the information that the Council have appointed a "Temporary General Board of Examiners," to consist of twelve members, seven of whom are to be veterinary surgeons, and the remaining five human surgeons; and that the said Board are to be in commission from the present period until October next.

Edit.

ON NEPHRITIS.

By Mr. J. Relph, *Sebergham, Cumberland.*

It seems to me that few local inflammations present themselves in the horse under more varied appearances than nephritis; and, without questioning the accuracy of the general symptoms recorded by modern writers, perhaps some good may result from drawing the attention of practitioners to the more general concomitants, especially as, in the first Number of the present volume of The Veterinarian, a respectable writer asserts that symptoms simulating those of colic rarely exist.

In most of the cases of inflammation of the kidneys that have occurred in my practice, symptoms of abdominal pain were shewn by pawing the litter, frequently lying down, stretching themselves out, and rising again. Several late writers have noticed the same. I have seen one case accompanied with severe lameness in the hinder fetlock joint, like that narrated by Herr Korber: nor are paralytic symptoms unusual. The legs are extremely fine; there is often an aversion to drink, or to eat mashes, while hay or straw is eagerly devoured in the intermissions. The urine, at first high coloured or bloody, is frequently passed in small quantities, and then becomes loaded with mucus*, albumen, or gelatine, and nearly suppressed, and the blood presenting, after detraction, a very unusual quantity of buff.

Can the albuminous appearance of the urine, or the excess of buff in the blood, be in any way connected with the non-elimination of nitrogen through the suspension of the functions of the kidneys?

The manner in which the functions of an organ are performed is mostly indicative of the state of that organ; and although we have diabetes in the horse and hematuria in horses and cattle pri-

* I have tried tests, but without a satisfactory result.

marily dependent on derangement of the digestive apparatus, yet I look upon the albuminous appearance of the urine with tenderness of the kidneys and fever as diagnotic of nephritis, and in all doubtful cases avail myself of an exploration of the pelvic and lumbar regions. The tongue and pulse have not been observed by me to be contracted, as in enteritis. The diseases with which it may be confounded are apoplexy, enteritis, hepatitis, cystis, colic, &c.

The indications of cure are, to subdue inordinate arterial action, and unload the vessels of the part by free venesection, purging, and counter-irritation; to equalize the circulation, and attempt to restore healthy excretion by sedatives; and, if the latter is not accomplished by these means, as soon as the inflammatory diathesis is removed, to exhibit such agents as stimulate and force the kidneys to resume a healthy action.

As a cathartic, I generally give aloes ʒiv vel ʒvj, ol. lini ℥xx vel ℥xxx, with acidi hydrocyanici M. xx (Scheele's), assisting its action with an enema; and following up this with repeated doses of ant. pot. tart., veratri, or ipecac., if satisfied that the alimentary canal is sound; but if irritable, the prussic acid as a sedative, and aloes a nauseant, are available. For answering the third intention, the balsam of copaiva is highly valuable. I mostly give it in the following form: ℞ ℥iss bals. copaiva; ʒiv camphor.; ʒij āā ant. pot. tart. et p. ipecac; ʒj opii; farina q.s., ft. mass for four or six balls, one per diem. If much debility exists, cascarilla or myrrh may be added.

As counter-irritants, linimentum ammon., lin. diniod. hydr., and the mustard poultice, are useful. On two occasions I employed dry cupping, previous to the embrocation, with good effect, and have frequently applied hot salt, &c., and also a sheep's skin; but if the skin is rendered irritable previous to applying the latter, a blemish is likely to ensue.

Diet.—I allow plenty of linseed tea and scalded bran, and often use the muzzle to restrain indulgence in dry fodder.

The annexed cases may illustrate my views:—

Mar. 13*th.*—Called by Mr. Rook, Trayson Tree, to an aged draught-mare in foal, the fattest I ever met with. Had refused water on the 13th; fed indifferently; occasionally evinced pain by stamping and lying down.

14*th.*—Much the same. Bled freely. I found her temperature pretty regular, so was the respiration; the countenance lively. Pulse about 65°, and round. Stands with one hinder limb relaxed: shifts, and shews uneasiness, as before alluded to. A small quantity of glairy urine was drawn from the bladder by the catheter. On passing the hand, tenderness of the right kidneys was

expressed. Abstracted three quarts of blood, and gave aloes ʒiij, ol. lini ʒxxiv, acidi hydrocy. M.xx. Embrocated the loins with lin. ammon., clothed her well, and threw up a simple clyster.

16*th*.—Found her easier. The purge has not acted. Tobacco fumes were injected, which appeared to affect the heart's action, and produce some degree of faintness. Gave ant. pot. tart. with hydr. chlor. twice a-day, adding aloes as appeared to be needed.

18*th*.—Reported to be much better, but the urine still scanty and ropy. Sent glob. bals. copaiva, as above. Recovered quickly.

On the 17th of the same month I was called to a foal-mare at Uldale Hall, that had been running out during the winter, and for the last six weeks was seen to pass thick slimy urine, and to go stiffly: but her general health was unaffected until a few days ago, when she was taken up and put to the plough; after which she was very lame, mostly lay stretched out, and fed badly. Abortion took place on the 16th, and on the next day I found her lying on her side. We got her up with some difficulty—much stiffness in the loins—urine mucus-like. Pulse 70, and rather soft. Subtracted some blood, and ordered aperient doses of aloes, with embrocations to the loins, &c. The case being a bad one, and twelve miles off, I did not see her again, but learned from the owner that she suddenly got much worse on the third day, and died; and that the kidneys and adjacent parts were black, and, as he thought, much diseased.

It would appear in this instance that subacute inflammation of one or both kidneys had existed for some weeks.

THE WINDSOR STEEPLE CHASES.

WHATEVER admiration a horse with his rider, who have performed "wonders" as steeple-chasers, may elicit from us as "sporting men," we must all of us, on reflection, sincerely deplore the sad and fatal accidents to which both are more liable in this than in any other description of sport. The late steeple chases at Windsor furnish us with three additional melancholy instances of the truth of this remark. Out of a score of horses that ran during the first day's racing, two had their "backs broken," one his shoulder bone fractured; and all three had an end put to their days at the place of contest, to save them from protracted suffering, their cases being altogether irremediable. Of the two with "broken backs," both occasioned by leaping, one was a mare named JESSIE, six years old, the property of Captain Sutton, of the 7th Hussars;

the other was a horse belonging to Mr. Newton, of Windsor. As all veterinarians now know, *broken back* consists in fracture of the bones of the spine—commonly of some of the posterior dorsal or anterior lumbar *vertebræ*. In the case of Jessie, the third, fourth, and fifth lumbar vertebræ were broken—the dorsal remaining whole—the fourth so shattered that the upper segment of its arch was completely destroyed, leaving the spinal marrow, for the space of some inches, exposed, or rather contused and crushed by the fragments of bone pressing upon it. The consequence, of course, was, entire loss of mobility and sensibility in the hind quarters: the mare had no power whatever of standing upon them—but, when they were raised and supported by men on either side of her, and she was made to step forward with her fore limbs, she dragged her hind parts, or rather they were carried, after her. Her owner, Captain Sutton, unwilling to believe her case hopeless, and most anxious that every thing should be done likely to relieve her, had her got into a shed that stood upon the race-course, and sent to the Life Guards' Barracks for slings and assistance: all, however, to no purpose. No sooner was she placed upon the suspension-girth, than, unsupported behind, she fell back, which the Captain witnessing, no longer hesitated, but at once humanely ordered her to be shot in the shed.

Of Mr. Newton's horse, NAPOLEON, aged, who fell into other hands, hopes of recovery were given; and therefore, with great care he was removed, upon one of Messrs. Reid's low and convenient drays, into Windsor town, and deposited upon a comfortable bed in Mr. Newton's own stable. There, fresh-flayed sheep-skins were, without loss of time, applied to the loins, and every means taken which the parties in attendance imagined likely to benefit him. As in poor Jessie's case, however, all was to no purpose. He, whose namesake had subdued empires, was doomed to death from a broken back. After suffering, for the remainder of that day and the following night, unremitting pain and agony, his his owner, persuaded that his case was desperate, gave the order for his execution, with an expression of regret that he had not done so before. The post-mortem inquiry proved his spine, also, to have been fractured.

The fractured shoulder, which occurred in Lord Glamis's STRANGER, presented some particulars worthy of notice. Like the two fractures of the spine, it occurred in leaping; but it happened in an unusual manner. Stranger, who was very narrow chested, in alighting, had pitched upon the ground with the off fore-foot ledged upon the side of the coronet of the near one, in which it had made a sad gash; and the consequence was, the tilting of the body on one side, and the throwing of the entire weight upon the

near limb, which was at the time deprived of all power of breaking the concussion of the descent by being pinned—as it were—to the earth, by the imposition of the off foot. The fracture extended directly through the spherical head of the humerus, from before backward, splitting it into two nearly equal parts, and extending to the depth of six inches from the summit through the shaft of the bone, ending there in splinters.

It has become a matter of some surprise among the sporting gentry present at these races, that accidents of such magnitude should have occurred, the leaps in the course, so far from being great or "tremendous," hardly exhibiting the usual appalling character. Indeed, there was but one very broad leap—a brook—which, by being dammed up, had been made fifteen feet in breadth, and eight feet deep, and there nothing happened, save that some of the chasers got in and bemudded themselves. Neither did there exist any anchylosis in the spine to account for the fracture. Reasoning, *en philosophé*, we know that it is not the actual extent of the leap that causes a horse to break his back, but the *effort* he makes in taking the jump. The bones are broken by muscular action, not by external injury or by concussion. When a horse that is cast fractures his spine, he does it by violently struggling while down, and not—commonly at least—in falling: so with a steeple chaser; he breaks his back in the extraordinary muscular effort he makes in taking his leap, and not in alighting upon the ground. And therefore, although, certainly, he is more likely to break his back going over a broad or high leap than over an insignificant one, he may, from extraordinary effort, do so at a mere trifle. Mr. Turner was riding a horse out hunting that broke his back simply in crossing a field. His hind feet unexpectedly slipped into a grip or draining hollow, and in his sudden and violent effort to save himself, he fractured his spine behind the saddle-place, throwing his rider, at the time, over his head. Jessie, it appears, leaped into the brook, and must have broken her back in her efforts to get out again. Napoleon met with his accident in flying over a hedge and ditch, taking an extraordinary leap to clear the fence. I believe that brook or dyke leaping is more dangerous than fencing, more backs being broken in the efforts at incurvation or roaching the loins than in those of springing upward and forward. When the cast horse breaks his back, it is during the forced curvature of the loins, which, commonly in aged horses being in an anchylosed condition, readily crack. Fracture of the spine is an interesting subject—one that the recent observations of veterinarians have tended to throw much light upon; and one concerning which I suspect we have still something to learn.

A Lover of Field Sports.

ON THE ADMINISTRATION OF IODINE IN CASES OF DIABETES AND HYDROTHORAX IN THE HORSE.

By Mr. THOMAS MATHER, *V.S., Edinburgh.*

DIABETES (or profuse staling) in the horse is often the effect of some morbid anomaly, either arising in a secondary form, from derangement in the digestive organs, the effect of which gives rise to increased function of secretion in the kidneys, or otherwise these organs may be of themselves affected, independent of the previous cause. In whatever form it may arise, it proves annoying to both the human and veterinary practitioner, and often baffles them in their attempts to effect the recovery of their patients; or, even when subdued, will still leave behind it a lingering emaciation that takes a considerable period of time ere the patients are able to recover from its baneful ravages.

This disease is not of so rare occurrence as some of our writers are disposed to think, especially it is not so in this part of the country; for there are some districts and particular localities in which we find it scourging the animals more than in others. This has lately been the case in some of the towns in Lanarkshire, where this malady is of frequent occurrence in the horse; and it is with great difficulty (notwithstanding all the remedies the practitioner can try) that he can effect a radical cure. The frequency of its appearance in those parts, I am disposed to think, might either probably arise from the chalybeate waters which the animals drink, and which are so abundant in that extensive mineral district, or from some other acrid irritant acting upon the kidneys, such as heated oats, or the mow-burnt hay that has been ricked up too green in the stalk. The state of such provender is found by the laws of chemistry to be an acetate of potassa, formed in the alimentary tube, and which is, assuredly, the cause of the disease. Be, however, the cause as it may, the primary object is to remove it, and then give a gentle dose of physic. This may sometimes succeed, but not in every case, and especially in those where it is attended with great emaciation and thirst. Iodine will then be found a very powerful agent in stopping its ravages. It will speedily allay thirst, and have almost a specific effect in checking the profuse staling in so short a period as the fourth or fifth day.

I recommended it to a practitioner in that part of the country where the disease is of very common occurrence. He put his patients under a course of iodine. It completely checked the increased secretion, and the animals regained their wonted health and strength, although they had been reduced to mere skeletons.

In one case of my own, where the horse had been greatly emaciated and a very great variety of medicinal agents had been tried in vain, I afterwards administered the iodine, combined with linseed meal, &c., which soon began to shew its beneficial influence, and the animal has continued to be well and in good condition. Considerable care, however, is required in its administration, watching its effects, and regulating its doses. Knowing its undoubted efficacy in this disease, as well as its power in stimulating the action of the absorbent vessels, it occurred to me that a trial might be made of its effects in hydrothorax, or dropsy of the chest.

In drawing the attention of the profession to the power of iodine—previously unknown—in absorbing effusions of serum within the cavity of the thorax, I must allow that my experimental trials have not been so extensive as in the former disease; but I hope to be able to give more ample details of my experience at a future period when an opportunity may present itself of treating this disease. From what I have already witnessed of its decided advantages in hydrothorax, little doubt remains on my mind. My object at the present time is merely to ask other members of the profession to give it a fair trial.

In recommending it, I must advise the practitioner to be careful in its administration; for it enters the system in the form of an hydriodate, and when it accumulates, dangerous and sometimes fatal consequences arise, which will rather appal the practitioner, and lead us to doubt the action of the medicine. Notwithstanding this, however, iodine and its compounds has come into the veterinary world, both in its application externally, and its administration internally in chronic enlargements of glandular structures, long standing tumours, and even ossific deposits or morbid enlargements of every description; and, lately, it has been advocated by some eminent veterinarians as arresting tubercles in the lungs. Its power in checking diabetes and hydrothorax ranks it in therapeutics as a powerful and valuable medicinal agent; and although its effects are sometimes slow, yet it has a sure and permanent action, whether it be applied in a direct or an indirect manner.

Some objections have been raised to its being given uncombined, and in all the cases wherein I have tried it, I administered it with some other ingredient. The first case in which I suggested a trial of it occurred several months ago. The patient had been labouring for a considerable period under pleuro-pneumonia (which, I may mention, has occurred very frequently of late), and had terminated in hydrothorax, and was as well a marked case of this disease as I ever saw. In order to make myself more certain, I took with me another practitioner, who might examine the case, which he did, and was convinced that it was one of effusion of serum

within the chest. I related to him the new plan of treatment which I intended to pursue, but he seemed rather dubious as to a favourable prognosis. He suggested *tapping;* but I was determined to put iodine to the test of experiment in this case. I, accordingly, prescribed a ball, to be given twice a day, composed of iodine and linseed meal; and, before the sixth day, there was a manifest improvement in the case. The animal began to get more lively, and to take some food, with an abatement of the gurgling sound of the water in the chest. I now ordered the medicine to be given once a day, and, before the termination of the second week, a perfect recovery was effected.

The other case presented a still more obvious testimony of the therapeutical action of the medicine. The patient had been seized in the same manner, and to the same extent, as in the former case, and as decided a benefit was the result in a very few days. Not long afterwards the animal was perfectly restored to his usual hilarity of spirits, and good working condition.

From such cases I have come to the conclusion that its action in hydrothorax will be decidedly beneficial; but at present I leave it for others to experiment on the subject.

ON FLOODING AND INVERSION OF THE UTERUS.

By T. Herbert Barker, *Esq. M.R.C.S. Bedford.*

Sir,—It is well known that the cultivation of a knowledge of comparative anatomy and physiology has thrown great light upon the functions of the human system, and instances are not wanting of a similar service rendered to human pathology by the careful examination of some analogous diseases as occurring in the lower orders of animals. With the view of eliciting information on a point of obstetric pathology, connected with the lower animals, I am induced to lay the few following observations before yourself and your readers.

If you or any of your numerous readers will favour me, through the medium of your journal, with any facts bearing upon the subject of the following remarks, I shall be greatly obliged; and it would be needless to offer any other inducements for such communications, after stating that your or their experience may tend to set at rest some difference of opinion on a point of human obstetricity, as expressed in many valuable works on that branch of

medical science. I will endeavour to make myself as intelligible as possible, by avoiding all the technicalities which are ordinarily used by medical men.

Between two and three months ago I attended a woman in her confinement, and labour proceeded to a natural termination. The *after-birth* came away without any trouble or untoward symptom, and I was preparing to leave the house, when the nurse called me to my patient, stating that she was in a fainting fit. I went to the bed-side, found her extremely exhausted, and, suspecting flooding to have occurred, proceeded to satisfy myself on this head. Blood was flowing away at a fearful rate, when I introduced my hand with the view of immediately arresting it. My hand came in contact with a tumour, which was at once recognized to be the inverted womb. In fact, the womb *was turned inside out.* After a time, by compressing the tumour, and exerting some degree of pressure upwards, it was reduced, and my patient did very well. In consequence of the rarity of this accident, and of the discrepancy in most of the standard works on midwifery with regard to the cause of inversion of the womb, the accompanying flooding, and the precise mode of effecting the reduction, I was induced to publish the case, with a few observations, in the London Medical Gazette*.

Most of the systematic writers on midwifery state that inversion of the womb is caused by imprudently pulling at the navel-string, in order to bring away the after-birth, and deny its spontaneous occurrence. Now, the case which came under my notice was clearly one in which the inversion came on spontaneously, inasmuch as there was no inversion at the time the after-birth came away; and it was not until nearly half an hour had elapsed after its expulsion that pain and flooding indicated any preternatural occurrence.

In a conversation a few days ago with Mr. Thomas Partridge, a highly respectable farmer, of Leegrave, in this county, I found that the turning inside out of the womb occasionally, though rarely, happens to the cow and sheep; and he related the particulars of an interesting case which occurred to a sheep on his farm some years ago, in which the womb was turned inside out, after the natural expulsion of the lamb and membranes. He reduced the tumour; but no sooner was it returned than strong bearing-down efforts immediately caused the entire mass again to protrude. This was reduced, and again protruded for three or four successive times, when he determined upon attempting to prevent its protrusion by sewing together the edges of the orifice of the vagina, or external passage;

* See Nos. for April 5 and 12.

a plan which, fortunately, succeeded, and the poor animal ultimately did well. I particularly questioned Mr. Partridge as to the case having been one of inversion—turning inside out of the womb, or of prolapsus of the womb, or mere falling down of that organ, with the mouth of the womb in the most dependent part of the tumour. He has no doubt of the case having been one of complete inversion, and illustrated the case by comparing it to the finger of a glove turned completely inside out.

In two or three other cases which have come under his observation death has taken place from mortification of the protruded part.

1. It will be interesting to know if the womb occasionally becomes turned completely inside out in the lower animals; and if such accident at any time occurs spontaneously, and without the interference of attendants.

2. If the accident is known to occur among cattle, is it accompanied with flooding or not?

3. If the womb really becomes inverted—and I would have your readers bear in mind the difference between *inversion* and *prolapsion*—and has been inverted for some time, is great difficulty experienced in returning it?

4. Is there not great difficulty in keeping the womb in its natural situation after it has been returned, in consequence of the impossibility of preventing the strong bearing-down efforts on the part of the animal?

5. Is the disease generally fatal, and do any cases of chronic inversion of the uterus occur in cattle; or, in other words, where the womb continues inverted (although, probably, considerably diminished in size, and, perhaps, giving rise to discharge of matter, &c.) for the remainder of life?

In conclusion, I must apologize for intruding at such length upon the pages of your valuable Journal. By inserting the communications of some of your correspondents in answer to these queries you will, perhaps, be rendering no mean service to medical science; and having frequently noticed in your pages much matter of considerable interest to the medical profession, I am inclined to think that you will not regard this demand made upon your readers as entirely worthless.

I am, Sir,

Your obedient Servant.

[We should feel most thankful to any of our correspondents who would give us their opinion on this most interesting subject.—EDIT.]

Veterinary Jurisprudence.

YORKSHIRE SPRING ASSIZES.

THURSDAY, March 21.

(Before Mr. Justice COLTMAN.)

MAXWELL v. MORRIS.

Counsel for the plaintiff—Mr. Wortley, Mr. Mason, and Mr. Farsyde. Counsel for the defendant—Mr. Dundas and Mr. Watson.

The following evidence was called.

Mr. William Smith.—In November last I went to Doncaster to see some horses. Mr. Parkinson, of Babworth, accompanied me. I went to Mr. Morris's stables, and saw two horses which that gentleman had for sale: one was a black, and the other a chestnut, the latter of which I afterwards bought. When I first went into the stable the horse had his legs bandaged, and the groom told me he had had him out at exercise. I made some observations to Mr. Morris as to his feet: I said they looked very narrow, and had the appearance of being contracted. Mr. Morris said the horse was perfectly sound, and had always been so. I had the horse run on the stones, and I also rode him. I rode him both on the stones and in Doncaster field. He went sound on the stones. I took him to Doncaster field, where I rode him and galloped him. I got Mr. Parkinson to get on him to put him over some fences; after this we returned to Mr. Morris's, and I bargained for the horse. He asked 160 guineas; I gave him £160. Mr. Morris said the feet were very much grown lately, and I requested that the horse might be shod, and his feet put into proper form before he was sent to Everingham. In consequence of a communication I received from Mr. Maxwell, I sent Mr. Hargreaves and Mr. Bowman, two veterinary surgeons, to Everingham.

Cross-examined.—Mr. Parkinson, who accompanied me, is well acquainted with horses. He is a gentleman of respectability and honour, and one in whose opinion I had confidence. I did not go to Doncaster with the intention of purchasing the black horse. I knew of the chestnut horse, and went to purchase him. Mr. Morris did not fix the price at £160, but 160 guineas; I might offer £120; it is probable I did. He said he did not want to part with the horse, and would be as well pleased if I left him. We were, probably, out an hour with the horse. I did not ride over the fences; Mr. Parkinson did that. I saw his action, and was satisfied. He was trotted up and down the stones once or twice. I have had some experience in horses. I looked at his shoes. They were much worn, and I requested that the horse might be shod. Everingham is about thirty miles from Doncaster. I have not seen the horse since that day. I rode the horse myself on the stones. I am not sure that I informed Mr. Morris that I wanted him for a heavy weight.

James Smith.—I have been groom to Mr. Maxwell twenty years. I remember a chestnut horse coming to Everingham on the 25th of November. He was a dark chestnut, and was brought by Mr. Morris's groom. He was knee-capped, and appeared to have been brought with care. The 25th was on Saturday; the horse was not out on the Sunday; but on Monday morning, between five and six, he went out into the park. I rode another horse, and the groom rode the chestnut. In the park I got on the horse, and cantered him on the grass; I afterwards trotted him both on the grass and road. I did not like his going; he was stilty and groggy, and stepped very short. I mentioned this to Mr. Maxwell. On the same day I sent for William Barnard, the blacksmith, who has shod horses for Mr. Maxwell for eight or nine years. I saw the shoes taken off, but they did not appear to be new shoes; they were most worn at the toe. A horse that goes stilty wears the toe more than the heel. When the shoes were taken off, the off-fore foot was a little heated: the shoes produced are those which were taken off. The shape of the foot was a little contracted inwards towards the heel. The nails on the outside of the off fore shoe did not come so near to the heel, by an inch, as the inside nails. This is not usual in shoeing sound horses: generally speaking, the nails come nearer on the outside than the inside. The shoes were put on the horse on Monday. On Tuesday I sent the horse by Thomas Sikes to Thorp Arch; Sikes rode another horse, and led the chestnut. The horse appeared groggy on leaving the stable. I did not see him again until Tuesday the 5th, a week afterwards. The horse was then in good health and condition. On Sunday, the 10th, he went to Beverley: in the interval he was not worked, but was exercised in the park. He was led to Beverley by Sikes. When he came out of the stable he was rather groggy, and stilty in his legs; but this went off when he got into the park: he was a good feeder, and in all other respects a healthy horse. The horse was regularly exercised while he remained in Mr. Maxwell's stables, and no accident occurred On the 28th I led the horse to York, and left him at the Windmill, Mr. Crummack's. The horse was then in good condition.

Cross-examined.—The horse was in high condition when he came in November. He was shod on Monday, about 11 o'clock. He had been out previously. I told Mr. Maxwell that he was stilty, and that I did not like his going. The animal was shod at our stables, and when the shoes were taken off a name was put on them. The shoes came back into my possession about five days after, and I have had them ever since. The horse might have been shod two or three days previous; but if so, the old shoes had been put on again. When a blacksmith puts on an old shoe he does not put it in the fire and work it up again, at all events not with our hunters. I can tell by the appearance of the foot whether a horse has been recently shod. I did not observe any thing in the foot of this horse to lead me to suppose that he had. I did not examine the horse for that purpose. Hunters and roadsters are shod in a different manner. In the former the heel of the shoe stops short of the natural heel, as there is not so much pressure on the heel in riding over the country as upon the road. Another reason why it stops short at the heel is, that it may not catch any thing. A horse might be perfectly sound, and still wear his shoes more at the toe than the heel. He went to Thorp Arch on Tuesday, the day after he was shod. The distance is about thirty miles, and he would have to go on the road in his new shoes. Mr. Maxwell may be fifteen or sixteen stone: perhaps he would ride sixteen or seventeen stone. It is a fair weight for a horse, but nothing particular. On Sunday the 10th, he went to Beverley. Monday was the meet, and on Tuesday he came back. He was out exercising every day before he came to York. He

was always led, and was not cantered. I delivered the horse at the Windmill, and he was in good condition. I mean to say he looked well in his coat and his legs. I saw nothing particular in his hind legs, except what I had seen before. He always came out stiff from the stable, but I could not see any difference after he got warm. The horse was in good condition, and did not appear to be overworked or overweighted. If a horse was overweighted, he would be sickish and overset. This horse was not so when I brought him to York. Mr. Morris's servant brought him to Everingham. I cannot deny that I might say to him I did not like his carcass, or his "guts."

Re-examined.—The horse was a light-carcassed horse, but was in good condition. There are many good hunters at eight years old that may be stiff when they come out of the stable. The horse stood first on clean bedding. In my conversation with the groom he said he had to fettle up his feet once a fortnight, or he could not go well.

Thomas Sikes.—I am under groom to Mr. Maxwell. I remember the horse coming to Everingham. On the Monday following I rode him out into the park; I noticed that he went very stilty and fumbling. On Tuesday, the 20th, I took the horse to Thorp Arch. He returned between three and four. The horse was not tired, but appeared quite fresh. There was no hunting the next day, and I took him out for exercise. I observed that he went stilty and pambling. There was no hunting until Saturday, when the hounds met at Scoles. Mr. Maxwell returned about four o'clock, and the horse did not appear jaded. On Sunday, the 10th, I took the horse to Beverley. It is about fifteen miles; and I led the horse. I fed the horse, and he ate his corn well. He laid down when he had finished his corn. On Tuesday, the 12th, I led him to Scarborough, thence I rode him to Everingham. The horse, when he got back to Everingham, was in much the same state as when he left.

William Barnard.—I am a blacksmith, and shoe Mr. Maxwell's horses. I was sent for to shoe this horse on the 27th of November. It was after dinner when I shod him. I lifted his near fore foot, and took the measure. I then went home and made the shoes. When I took the off shoe off, he pointed the foot forward, as if it pained him. I took up the off fore foot, and observed that there was a difference in the shoe, in punching the holes. The nails were near to the toe, which is not usual in the shoeing of hunters. I observed that the off fore foot was rather contracted: the foot had been pared lately, but the shoes were not new. The old shoes had been removed and put on again. I took the measure from the off fore foot; but I found afterwards that I had to make some alteration in the shoes. I have not shod the horse since.

Cross-examined.—The shoes produced are those which I took off. I did not say that the feet were not of equal size, but I said I had to alter the shoes. The outside of the off fore foot was contracted and looked inwards, and that was the reason I had to alter the nails, to prevent pricking the horse. I observed the horse's hoofs had been pared, perhaps two or three days before. Blacksmiths put the nails in different places, according to the character of the hoof.

Stephen Sheppard.—I am first whip to Lord Harewood's hounds. I remember Mr. Maxwell being out with us in November. We had a very easy day. We found the fox about twelve o'clock, and ran him for about two and a half or three miles. We then lost him, and did not find him again. There was nothing that day to try the horse. I saw Mr. Maxwell in the morning, and he appeared to be riding the horse carefully. On Saturday we had not a hard day; we had a run for about twenty minutes, and there were

three checks. I saw Mr. Maxwell that day, and he was riding the horse carefully.

John Jackson, Esq.—I live at Riston Grange, and know Mr. Maxwell. I remember meeting him on the 11th at Rise Mill. He was riding a chestnut horse. We found more than one fox. We ran the first twelve or fifteen minutes. The pace was three or four miles in a quarter of an hour. We killed a fox in Hatfield cover, but I do not believe it was the same. We had a check of half an hour. We then started another fox, and had a run of eight or nine minutes. Mr. Maxwell was not among the foremost, but was with me. We afterwards were not galloping, but trotting. Mr. Maxwell appeared to be riding carefully.

Cross-examined.—Mr. Maxwell is generally a bold rider, but did not ride in his usual way on this occasion. I am not a bold rider. The pace was pretty strong, and might be about sixteen miles an hour. We had several leaps. The first run was a short chase, but the second was eight or nine miles. There was a check. There were no other gentlemen left behind but myself and Mr. Maxwell.

Thomas Bland, Esq.—On Monday, the 11th of December, I hunted with the Holderness hounds. My horse went from Market Weighton, ten miles further than Mr. Maxwell's horse would have to go. I saw Mr. Maxwell in the field; he did not appear to be riding hard. I got before him. We killed about four o'clock, and I came home with Mr. Maxwell and Mr. Hall. I observed that, when within two miles of Beverley, Mr. Maxwell's horse began to flag, and he was quite beaten near Beverley. We came home from the field at about nine miles an hour, which is a usual pace in coming from hunting.

John Fox, servant to Mr. Bethell, of Rise, and *Mr. John Blakey*, livery-stable keeper, of Beverley, were called to prove that Mr. Maxwell's horse was in good condition both at Rise and Beverley, taking his gruel, mash, and corn, the same as the other horses.

Mr. Wm. Hargreaves.—I am a veterinary surgeon, and have been in practice forty years. On the 28th of November I went to Everingham at the request of Mr. Smith, to examine a horse. I have had experience in contracted feet. Some horses may have a narrow foot, and still no contraction. There is usually lameness with contraction; but it is nevertheless possible for a horse to be sound if the contraction is coming on gradually. He will not feel pain from the contraction when this is the case, at least not to that degree which will cause him to go lame. As the disease advances he begins to feel the pain, and turns lame. In a naturally formed and healthy foot there is what is termed the horny laminæ, and the membranous or sensitive laminæ, which dove-tail into each other. The laminæ consist of thin horny leaves, extending all round it, and are about five hundred in number. They very much resemble the under surface of a mushroom, and are perfectly elastic. This is necessary to give elasticity to the foot. Contraction may arise from a variety of causes. It generally does so from inflammation in the internal part of the foot. Chronic inflammation may come on slowly, and the horse will consequently experience little pain. In some cases the laminæ will become ossified, in others there will be absorption of the coffin-bone. All this may arise from a number of causes. The inflammation causes the hoof to contract, and it presses on the sensitive part of the foot. The horny part of the hoof contracts into a smaller compass, and prevents in a great measure the elasticity of the foot. The effect of that contraction produces an alteration in the structure of the foot, and when that structure is altered the function is altered, and in the majority of instances lameness is produced. If a

horse has this contraction, he is very likely to become lame. When the contraction has taken place, and there is an alteration in the structure of the foot, it cannot be restored.

On the 18th December, I examined the horse. I had not his shoes taken off. The off fore foot was very much contracted near the outside heel. I have no doubt, from the appearance of the heel, that there was an alteration in the structure of the foot. If a horse has a contracted foot, it induces him to go stilty, fumbling, or groggy. I saw him trotted out—he was lame on both fore feet, but especially on the off foot. He was an unsound horse when I saw him. I should say the contraction had existed for more than three months. Contractions cannot take place to any considerable degree in the course of three weeks. If the disease comes on rapidly, there will be active inflammation.

Cross-examined.—If a horse were ill shod, he might suffer from inflammation, which would cause contraction. A narrow foot and a contracted foot are not the same thing. Every horse whose foot is contracted is diseased, and is unsound. I do not mean that every horse that has a contracted foot is lame; although I say that a contracted foot is unsoundness, because there is a change in the structure. I know what a muley-footed horse is. I do not call that unsoundness, for it is the natural form. I have known some horses do their work as well as others with contracted feet but, nevertheless, if there is a deviation from the natural make of the horse, it is unsoundness. There appeared in this horse's foot considerable contraction. I was satisfied without taking the shoes off, and I do not believe I should have been better able to judge had I taken the shoes off. When I was sent to examine the horse, I was not told where it was lame. The horse was trotted out, and appeared lame in both feet. In my certificate I only certify to one foot. The lameness in one foot was more palpable than in the other. He went lame of both feet, but most so of the off foot. Supposing a shoe was not properly put on, if it bound the horse too tight, it would cause inflammation, and the cause being continued would produce lameness. This would be produced in a month or somewhat more.

Re-examined by Mr. Wortley.—If a horse has a contraction from disease, I consider him an unsound horse. There are the seeds of lameness, and they would most likely turn to lameness. If contraction were produced by a tight shoe, in a short space of time there would be active inflammation; but on the 18th December there was no active inflammation, and, in fact, nothing to lead me to suppose he was tightly shod.

Mr. John Bowman.—I am a veterinary surgeon at Howden. I am in the habit of examining horses at Howden Fair, which is one of the largest horse fairs in the kingdom. I have had considerable experience in examining contracted feet. I heard the statement of Mr. Hargreaves, and I concur in his description of the anatomy of the foot. When the contraction of the hoof presses on the sensitive portion of the foot, it causes lameness. I examined the horse. There was a visible contraction on the outside of the foot, but not much in the inside. I should say the contraction had existed from four to six months. The cause of contraction is sometimes from the nails being placed too near the heel, which prevents the proper expansion of the foot when it comes to the ground. The foot was hot, but not very much so. A horse may have a contracted foot and still go sound, but he will generally go lame. The horse in question was visibly lame when I saw him, and in my judgment the lameness arose from the contraction of the foot. In this case the elasticity of the foot had evidently been affected, and in my opinion the horse must have been an unsound horse for months before. I shoe many horses at my forge. In the shoes produced, the nails are placed

in an unusual position. It would be a proper way to shoe a horse that had the defect I have spoken of. The shoe indicates that the defect existed when it was put on. I gave a certificate of the horse's unsoundness.

Cross-examined by Mr. Dundas.—I certified to one fore foot being unsound. The contraction was so visible that I did not think it necessary to take the shoe off. A corn under a shoe might produce lameness. I could not tell whether there was a corn or not, unless I took the shoe off. I consider that I could judge as well and as accurately whether the horse was well shod or not with the shoe on as if it were off. I made no measure of the narrowness of the horse's foot. I did not compare it with any other of Mr. Maxwell's horses I did not think it necessary. The contraction must have been gradually coming on for months. Mulcy-footed and narrow-footed horses are more likely to become lame than others. I should say the Arabian is more likely to become lame than other horses, from the narrowness of the foot. The shoe I hold in my hand is a proper shoe for the horse to have on, because he had a contracted foot. A disease of that kind would go on gradually until lameness was produced. I should consider if a horse was suffering from contraction it would increase, particularly on hard roads.

Mr. Edward Coleman Dray.—I am a veterinary surgeon, residing at Leeds, and have the honour to be related to the celebrated Mr. Coleman. I studied under him. I went over to Everingham on the 27th of December, to see a horse belonging to Mr. Maxwell. I have heard Mr. Hargreave's description of the anatomy of the foot, and concur in it. When I examined the horse, I found contraction in the off fore foot. The horn of the hoof appeared to be grown irregularly. There were rims round the hoof just below the coronary ring, which denote that there had been heat and previous inflammation. I have superintended the shoeing of horses. I had the shoes removed, but I did not detect any reason for thinking he had been improperly shod. I did not take the shoes off to convince myself of the contraction, as it was sufficiently visible without; but I took them off to satisfy myself that there were no corns. The horse was decidedly unsound. The horse was in good hunting condition, and there were no signs about him of having been overweighted or distressed. I am of opinion the contraction had existed several months. There was such an alteration in the structure of the foot as was calculated to produce lameness. If it had come on lately, I should have expected to have found active inflammation. The shoe I hold in my hand is not a proper shoe for a sound-footed horse, but would be a judicious shoe for the description of horse I am speaking of.

Cross-examined.—With such a contraction as this existing for some months a horse is likely to go lame after a hard day's hunting. In this case, had the horse been hard worked, I should have expected the lameness to have exhibited itself six weeks sooner. I have said that I had the honour of studying under Mr. Coleman. I have also had the pleasure and honour of studying under Mr. Peech, of Sheffield, from whom I derived much valuable information. I knew Mr. Peech's mare, Queen Mab: she was as good a mare as man ever crossed. I think I have known her lame from over-exertion. I do not perfectly remember whether she had a contracted foot or not. [Mr. Dundas, who was examining the witness, said that he would let him have a view of Queen Mab's foot, which would perhaps refresh his memory; and, opening a leathern bag, pulled out a beautiful silver candlestick, mounted on the hoof of Queen Mab, which was suitably adorned with a silver shoe, nails, and inscription plate; the whole forming a very elegant piece of plate.] Mr. Dray having taken it in his hand, said it was impossible to judge, from the present state of the hoof, as to its condition when on the foot of the animal. The hoofs of horses when once removed from the foot could not be prevented

from contracting. The rims he had spoken of were plain to see. They could not spring up in a week. These rims round the hoof are of importance in this case, and, if I were examining a horse for a gentleman, I should look with suspicion at his feet. I have known a case where rims of this description have resulted in lameness. When I was called in to examine the horse, I received no instruction as to the lameness in the feet. I looked at his head first, and afterwards trotted him out, and discovered his lameness. I gave a certificate to that effect.

Re-examined.—I have known that Queen Mab was occasionally lame in the foot, though I cannot say there was any contraction. Queen Mab was a great favourite, and, no doubt, she was well attended to; and I should say, if any man could keep a horse upon its legs, it was Mr. Peech.

Mr. William Watts, farrier-major in the 8th Hussars stationed in York barracks, stated, on examining the shoe produced, that it was evidently made for a horse with a contracted foot.

Mr. John Fryer, veterinary surgeon, at Kirkby Fleetham, corroborated the evidence of the other veterinary surgeons, as to the cause of contraction and its consequences.

Mr. Edward Grey, veterinary surgeon in the 8th Hussars, gave similar testimony.

In conducting the defence, Mr. Parkinson was first called. He said, I know Mr. Morris. I have seen him in the field on several occasions when we have had hard runs, riding the chestnut horse. The horse appeared to me on these occasions to be sound. On the 24th of November last, I went with Mr. Smith to Mr. Morris's house. I had written to Mr. Smith previously to offer him a horse of my own; but he would not suit him, and I told him of Mr. Morris's horse. He was taken into the field, and I considered him quite sound. Every means were taken to shew whether any lameness existed. He was taken on to the stones both before and after he had been in the field, which I thought was sufficient to prove his soundness. He bargained for the chestnut horse for £160. I remember going to York on Saturday, the 30th of December. Mr. Peech and Mr. Morris accompanied me, and I went expressly to see the horse. We had him out. The horse, I should say, was lame in all his legs, certainly in three. He was in much worse condition than when he left Mr. Morris, and was very much altered. He appeared regularly overdone from some cause or other. He looked very different from what I had seen him before. He was stiff in his joints. I examined his feet; he was very badly shod, and I should say he was certain to be lame from that cause. The shoes were short at the heel. I had not seen the horse again until Tuesday last. I think him quite sound in his fore-feet, but he is a little lame in his hind fetlock. Mr. Morris will ride about 13 stone. His weight out of the saddle is 11 st. 10 lb.; so he has told me. I don't think Mr. Smith mentioned to Mr. Morris the gentleman for whom he was buying him, but I knew.

Cross-examined.—I recommended the horse to Mr. Smith, because I thought him a likely one to suit. Mr. Smith was unknown to Mr. Morris. I have known Mr. Maxwell some time by name, and have seen him in the field with Mr. Foljambe's hounds. I do not know that he is a hard rider, but he rides a heavy weight. When I saw the horse in York, Mr. Peech, Mr. Morris, and Mr. Lockwood, were present. Mr. Lockwood told Mr. Morris that the horse was lame of a contracted foot. When I saw the horse in York he was evidently distressed; he was lame of three legs out of the four. I did not see the letter which the defendant wrote to Mr. Maxwell, in which he said the horse was "a little" lame.

Re-examined.—The horse was out with Mr. Foljambe's hounds the Mon-

day previous to his being sold. We had a hard day of it, and he did his duty well. He took some strong fences, and galloped over some deep country. I have seen the horse on many occasions, and have seen him out on long and severe days, and I considered him a horse I could recommend to Mr. Smith.

George Nicholson.—I am groom to Mr. Morris, and have been in his service four years. I was previously seven years with Mr. Fenton, and have been connected with horses for twenty years. When I went to Mr. Morris he had a chestnut horse, which he hunted regularly one day a week, and occasionally oftener. He had no other hunter at the time. The horse was a good constitutioned horse, and I have never known him off his feed, or the worse for his work. The horse came back from York very poor. He was very much out of condition. He was "tucked up," and had scarce any body. He was also lame on his hind legs. He is better now, but he is not yet all right. I have ridden him, and my master has ridden him. He is not lame on the fore legs.

Lord Hawke.—I hunt the Badsworth country. Mr. Morris has hunted with us regularly. I have seen him ride the chestnut horse very often. I have seen him out on all sorts of days. I have seen him come to cover in the morning, and seen him at the finish of the day's sport, and I never saw the horse evince any symptom of lameness. He always appeared to be up to the mark. I have always thought him sound.

Geo. Chandler, Esq.—I know Mr. Morris, and the chestnut horse he rides. I remember him buying the horse about four years ago. I have seen it on several occasions in the hunting-field, and it always appeared to do its work well. I have seen it going a good pace; and, after a very hard day's run I have never observed any symptoms of lameness. I have never seen any thing in the horse that would make me believe it an unsound horse.

The Hon. Stanhope Hawke.—I hunt with the Badsworth hounds regularly, and have seen the defendant, Mr. Morris, in the field. Have known the horse he rides ever since Mr. Morris purchased it. We have had heavy and long days, no doubt, during the time I have known the horse, but I never saw any symptoms of lameness.

George Jarratt Horsfall, Esq.—I know the defendant, Mr. Morris, and have known the chestnut horse ever since he bought him. I hunt with the Badsworth and sometimes with Mr. Foljambe's hounds. I have seen the horse in the hunting-field regularly, more particularly during the last two years I have resided at Doncaster: I never observed any thing like lameness in him. Mr. Morris and I frequently meet as we go to cover, and always come back together, and have never observed the horse go lame. In my judgment the horse has been a regular good horse, and quite sound.

Cross-examined.—I am aware that it was in consequence of a defect in the foot that he was returned, but I did not examine the foot; my attention was not called to the shoes.

Messrs. Ramsden, Pedley, and Hodgkinson, gave similar testimonies.

John Littlewood, Esq., of Armthorpe, near Doncaster, said, I hunt sometimes, and have known this horse some years: I have seen him in the stable and in the field. I never saw any unsoundness about him; I saw him out cub-hunting the Friday before he was sold. I saw him on Saturday last; he was run up and down the street, and did not appear at all lame in his fore legs.

Mr. Joseph Wilkinson.—I live near Doncaster, and know Mr. Morris's horse very well. I have frequently ridden by the side of him, and never witnessed any symptoms of lameness. I saw him out in October or November last. He was out exercising, and I did not observe any lameness. I am a breeder of horses. I have examined the horse's feet, and they are good sound feet.

Cross-examined.—I can undertake to say they are perfectly sound. They are rather narrow feet, but I cannot say they are contracted.

Mr. William Butler.—I am the huntsman of the Badsworth hounds. I do know a little about horses, and I know Mr. Morris's horse. It has been frequently seen out with our hounds, and we have had many hard days. Mr. Morris generally stays to the finish, and I never saw any lameness about the horse.

Mr. Wm. Simpson, of Trumfleet.—The horse formerly belonged to me. I sold him to Mr. Morris. I warranted him sound. He had rather a long muley kind of a hoof. I saw the horse on Tuesday. He was run on the stones, and appeared to go sound on his feet.

Mr. Stephen Field.—I am a veterinary surgeon in Doncaster. I am a nephew to the late Mr. Field, the veterinary surgeon, of London. I have been in business five years, and have attended Mr. Morris's horses for three years. I occasionally call in as I pass, not having any direct business. I have known the chestnut horse for three years. I was at the stables the latter end of the last year when the horse was shoeing, about a month before he went away. I never saw any thing in his feet indicative of lameness. I have seen him in the Doncaster streets and on the road, and never saw any lameness. I have examined his fore feet, to see what sort of feet he had. There was nothing of unsoundness in his fore feet. There was decidedly no cause of disease, or any thing that could produce any unsoundness. His feet are natural, and there are no symptoms of disease in the structure of them. I have had casts of the horse's feet taken since he came home. [The casts were produced.] They are casts of the fore feet. The foot is wider across the heel than the generality of horses' feet. I have examined with a view to this inquiry nearly a hundred horses' feet, and I only found one that was wider across the heel. Some were wider across the quarter. As a man acquainted with this subject, there is width enough to give free play to the heel. There is nothing in the heel or quarter of the horse's foot to constitute it an unsound horse. The only horse I found wider was a large carriage horse belonging to P. D. Cooke, Esq. He stood nearly seventeen hands high. I remember seeing the horse after he came back from York. He was not in the same condition as when he left. I have seen him put to his paces, and he is quite sound on his fore legs. He is rather lame of one of his hind legs. He was lame of both when he came back. In my judgment the horse has no heat or inflammation in his fore legs.

Mr. Samuel Peech.—I am a veterinary surgeon at Sheffield, and have followed my profession thirty-nine years. I have had an extensive practice. I know Mr. Morris, and was called in on the 30th of December to see the horse in question. I went in company with Mr. Parkinson and Mr. Morris: I examined the horse; but he was so stiff all over as to be in an unfit state to give a satisfactory opinion. I took him out: he was lame in the off fore leg or foot. I could not judge whether he was lame or not of the other legs. I observed his foot on that occasion. It was a long muley foot. I believe his lameness proceeded from distress of work, with a great weight on his back. From the opinion I then formed there was no disease, except a very slight contraction in the outside quarter of the off fore foot, but that I did not consider disease. I had his shoes taken off at York. He was shod very bad in his fore feet. I was of opinion that the shoes occasioned the lameness. I have seen the horse since then, but I have no reason to alter my opinion, and still think so. I have seen the horse since, and he now goes sound on his fore feet.

Cross-examined.—I went professionally to York, and not as a friend. I am not aware that a stilty horse will go more on his toes than his heels. It all

depends on where the pain is. If in the heel, the pressure will be on the toe; if in the toe, the pressure will be on the heel. I made a memorandum of my opinion after examining the horse. I also wrote this letter. I did not state in that letter that the lameness proceeded from the shoeing. I did not consider that the horse was in the condition that would enable me to give a correct opinion. I wrote the letter with an expectation that it would be shewn to Mr. Maxwell, in order to obtain an adjustment without the necessity of coming into a court of law. [The letter was read, in which Mr. Peech stated that the lameness, he thought, would be temporary; that the horse had had a severe day or two; and, from what he knew of Mr. Morris's stables and the horse, he had no doubt he would soon be better.] When I wrote the letter, I thought it was probable it might be shewn to Mr. Maxwell. I did say in the presence of Mr. Lockwood that the horse was shod too short, and that there was too much weight upon the heels. I distinctly stated to Mr. Lockwood that the horse was lame from shoeing. I said to him that I could not by any means ride that horse without his turning lame. A contracted foot does not frequently produce lameness: in my opinion it seldom does.

Mr. Wortley.—Is that your opinion, Mr. Peech, as a professional man?

Mr. Peech.—That is my opinion.

Mr. Wortley.—Can you find me any authority in any of the medical books that have been published on the subject for such an opinion?

Mr. Peech.—I have no doubt I could, if I had the opportunity of examining.

Mr. Wortley.—What book would you refer to?

Mr. Peech.—I should refer to that published by the Society for the Diffusion of Useful Knowledge.

Mr. Wortley.—(Handing up a book.)—That is the work to which you allude.

Mr. Peech.—It is.

Mr. Wortley.—Then will you take it, and read to me any passage which confirms or justifies such an opinion as you have expressed?

Mr. Peech, after a few minutes' delay, read the following passage:—

"It must be premised that there is a great deal more horror of contracted heels than there is occasion for. Many persons reject a horse at once if the quarters are *wiring in;* but the fact is, that, although this is an unnatural form of the hoof, it is slow of growth, and nature kindly makes that provision for the slowly altered form of the hoof which she does in similar cases—she accommodates the parts to the change of form. As the hoof draws in, the parts beneath, and particularly the coffin-bone, and especially the heels of that bone, diminish; and, after all, it is more a change of form than of capacity. As the foot lengthens in proportion as it narrows, so does the coffin-bone, and it is as perfectly adjusted as before to the box in which it is placed. Its laminæ are in as intimate and perfect union with those of the crust as before the hoof had begun to change. On this account it is that many horses with very contracted feet are perfectly sound, and no horse should be rejected merely because he has contraction. He should, undoubtedly, be examined more carefully, and with considerable suspicion; but if he has good action, and is otherwise unexceptionable, there is no reason that the purchase should not be made. A horse with contracted feet, if he goes sound, is better than another with open but weak heels."

Re-examined.—When I saw the horse on the 30th of December, he was not in a condition to be examined, but I thought his lameness was temporary. From my observation since, I am convinced my opinion was a correct one. I saw the horse on Tuesday, and he now goes sound, with the exception of the near hind leg. I have seen rims on horses' feet. They have no indication of disease, and are cured by a few strokes of the rasp.

Mr. Joseph Machin Axe.—I knew this horse, and have examined him with a view to buy him. I considered him a sound horse when I bid money for him. I saw him on Monday week. He was a little lame in the near hind leg; but I did not perceive any lameness in the fore feet. There is a slight alteration in the structure of the fore feet, which I do not consider unsoundness.

Cross-examined.—If the contraction is to a considerable extent, it cripples and ruins the horse. Lameness does not usually accompany contraction.

Re-examined.—I consider the horse quite sound on his fore legs, but he has a little lameness left.

This finishing the case for the defence, *Mr. Wortley* proceeded to reply, and spoke at considerable length, commenting on the evidence of the witnesses for the defence, and contrasting it with the evidence of the plaintiff.

The learned Judge afterwards summed up, and at a quarter to ten o'clock the jury retired. After an absence of little more than half an hour, they returned into court with a verdict for the plaintiff, damages £140..5s.

WARRANTY OF SHEEP.

CUTTS *v.* JARVILL.

This was an action brought to recover damages for loss sustained by the plaintiff, who purchased thirty sheep of defendant, and which the defendant warranted sound, but which subsequently proved to be unsound.

Mr. Willmore stated the case on behalf of the plaintiff. It appeared that the plaintiff, at the Retford October Fair, bought of the defendant thirty ewes, and the defendant in the strongest language warranted the sheep to be sound. The sheep were forthwith driven from Retford to the plaintiff's farm at Carburton. In the course of a month the sheep shewed symptoms of unsoundness; and on one of them being killed, its liver, upon examination by competent persons, was pronounced to be in the last stage of rottenness. The liver was rank and callous, and it was also found to be full of pipes, large enough to admit a man's finger, and these pipes were full of flukes. Before the action was brought, the plaintiff, by letter, requested the defendant to come over to his farm, that they might arrange the matter between them; but the defendant declined doing this, because he had not given him a warranty in writing. Previous also to killing the sheep, the plaintiff's attorney wrote to the defendant, stating that it was the plaintiff's intention to sell the sheep to a butcher, and that every facility should be afforded to defendant for examining the sheep and for forming his own opinion of their unsoundness. No notice, however, was taken of this letter. In support of the plaintiff's case the following evidence was adduced.

George Bonnington, the plaintiff's shepherd, proved that at the Retford Fair, in October, the defendant sold his master thirty stock ewes, and that the defendant warranted the sheep to be as "sound as any sheep in the world;" that the plaintiff paid twenty-eight shillings a-head for thirty, that he drew them out, drove them home to Carburton, and that there were forty-two in the pen. Witness put them among their own ewes in a dry grass pasture, sandy land—what is called "in the lands:"—they seemed to be "down," and not lively as they ought to be. Mr. Dickens came to see them about five weeks after the purchase. Our own sheep were at the time in a sound state.

Mr. Thomas Dickens, of Mansfield, proved that after examining the thirty sheep he told plaintiff he ought not to have bought those ewes to breed from, because they were not sound. On feeling them the flesh on the loin was flabby,

and, on turning them up, the skin below was red. He saw one killed; and the liver was as rank and bad as ever he saw. It was callous and bad. The rot in this sheep was what is called "skip-rot." The liver was converted into pipes which would admit his thumb. He was of opinion some of them were unsound from last year, and some had it before. Seven were killed at Carburton, being too bad to travel. Twenty-eight shillings would be a fair price for them, if they were sound. Cutts' land is sandy, and would not give the rot.

Abel Morris, butcher, Mansfield, bought the remaining twenty-seven sheep of the last witness at twenty-two shillings each: should say the whole had been unsound six months, and the greater part twelve months or more.

Mr. Wm. Mellows, of Carburton, proved that Mr. Cutts's land was sound land for sheep, and estimated plantiff's loss at £20, or thereabouts.

The following letters were then put in and read:—

"*Carburton, Nov. 7th*, 1843.

"Sir,—I beg to apprise you (to my own great disappointment) that the sheep I bought of you, and that you warranted to be sound, have proved to be rotten.

"You will recollect that when I bought them I told you that I wanted them for the purpose of turning to the ram. On my getting the sheep home I, of course, put a ram to them; and to my surprise, when he had been with them a month, there was not one of them tupped, nor indeed is there yet. It was on this account that I was suspicious there was something wrong. I, in consequence, told my shepherd to draw one of the sheep, and kill him; the result of which I saw, and am very sorry to say that the liver was full of flukes, and I have not the least doubt but they are all the same, as the ewe we drew was as healthy, to all appearance, as any of them. The remainder of the sheep, twenty-nine in number, are all alive, and, in my opinion, looking much better than when I bought them, and, had they taken the ram and been sound, I should have been very sorry to have parted with them; but of course, as it is, the sheep will be of no use to me. I therefore must beg of you to write me, by return of post, to say what is to be done with the sheep under the very unfortunate circumstances, as I shall most certainly expect you to take the sheep again. If you require any further proof of their being rotten, and will fix on any person to see one killed I have no objection to kill another. I feel sure that you are quite aware that I have plenty of proof you warranted the sheep to me. I therefore hope you will not give me any trouble on this head, but let the matter be settled amicably.

"I am, Sir, your's respectfully,
(Signed) "Henry Cutts.

"*Mr. G. Jarvill, Harpswell, near Spittal.*"

"*Harpswell, Nov. 20th*, 1843.

"Sir,—I was very much surprised at receiving a letter from you concerning the thirty ewes I sold you at Retford Fair, as you say they are all rotten, and while the remainder of the ewes to your's left are all tupped and doing well, and no appearance of any thing of the sort. I have referred to the person I bought them of, and he never had such a thing on his farm; and your's must be very curious ewes not to go a tupping. If it should be the case that they are rotten, I never knew of them not going a tupping on that account; and, Sir, I should think you are more frightened than hurt, for as for flukes, I have seen them in the soundest sheep; and as to your saying that I warranted them, I am not aware that I did; but if I did, I suppose you have *my signa-*

ture, and if you have I will take the ewes back with the biggest of pleasure—which I have plenty of proof I never was asked for no such thing.

"I remain, your's truly,

(Signed) "G. JARVILL.

"*Mr. Cutts, Carburton, Worksop.*"

This closed the case for the plaintiff.

Mr. Humphrey then addressed the jury on behalf of the defendant, and after admitting that a verbal warranty of soundness had been given, but which he stated the defendant did not consider binding, because it was *not in writing*, the learned counsel contended, that when the defendant sold the sheep he believed them to be sound, and stated that the remainder of the flock from which these 30 ewes had been bought were sold at the same fair, and all were then doing well.

The following witnesses were called to prove the defendant's case :—

Mr. Enison, of Wissington, sold 42 sheep out of a flock of 300 bred by him to Mr. Munday, in September last. They were marked with pitch and tar in the near hip. The remainder of the 300 are in good health. The price to Munday was 23s..6d.

Mr. Wm. Munday drove the 42 sheep to Wragby Fair, where he sold them to defendant at 26s. They were marked on the near hip. He sold 60 other sheep to Mr. Jarvill, and they were all together in one close. Had 400 altogether. The shepherd selected 30, and the 12 were put in a pen by themselves, 7 or 8 of which were bought by Mr. Walker, of Lound. On being cross-examined, Mr. Munday said he goes about with defendant. Saw the sheep sold had a pitch and tar mark, but no raddle mark on the near hip. They had a clip under the near ear, and the defendant had 500 or 600 altogether.

Mr. Enison was recalled by the Judge, and he stated that every sheep of his was under-bitten in the near ear.

Amos Maltby saw the defendant buy sheep of Mr. Munday in two lots—60 and 42. 42 had pitch and tar and raddle on the near hip. Saw Mr. Walker buy 6 or 7 out of the remaining 12.

Mr. Walker's shepherd said that his master purchased a lot of sheep from the defendant, and the sheep had done well.

This was the defendant's case.

Mr. Willmore, on behalf of the plaintiff, then contended that the defendant had not identified these 30 sheep that originally came from Enison, nor with those sold to Mr. Walker, and, the warranty being admitted, his client was at once entitled to their verdict.

The *Lord Chief Justice*, after recapitulating the evidence, left it to the jury to say whether, after the admission of the warranty, they were satisfied the sheep were sound at the time of the sale.

The jury consulted for a few minutes, and returned a verdict for the plaintiff, damages £19; and his Lordship certified for costs.

MISCELLANEA.

MURRAIN AMONG SHEEP.

WITHIN the last few days forty-nine sheep have been lost by Mr. Fountain, of Leake, under the following circumstances :—The flock was a short time since, and had been for some weeks,

kept on Swede turnips, and on being removed was driven for a few miles and placed on a piece of meadow-land. Next morning many of the sheep were afflicted with symptoms of lethargy, and appeared otherwise quite out of condition; and within forty-eight hours of their being placed on the meadow-land it was found necessary to slaughter from fifteen to twenty. Since then they have continued dying, and two days afterwards the number lost amounted to forty-nine. The animals, it seems, were afflicted with inflammation of the kidneys, supposed to have been produced by the distance they were driven and the sudden change of keep. The greater part of the carcasses were sent to the London epicures, and others to a butcher, but none were purchased by any butcher of the town.—*Boston Herald.*

Important to Farmers and Dealers in Horses.

Mr. John MacNie, farmer, Woodyett, lately purchased a young horse from Mr. Charles Grindlay, farmer, Seabeg's-place, near Dennyloanhead. A full and fair price was paid. The horse proved to be vicious, and was in consequence offered back, and a return of the money demanded. This was refused. Instead of following the usual course of sending the horse to "livery," and having him sold under the order of the sheriff, and prosecuting the seller for the difference of price, which often leads to protracted and expensive proceedings, Mr. MacNie was advised to bring an action in the small debt court for £8..6s..8d., as the difference of value between a quiet steady horse and the animal in question.

The case was heard before James Wardrobe Dixon, Esq., sheriff substitute at Falkirk, who held that the pursuer, having offered to return the horse on return of the price, and the same being refused, was entitled to proceed in the way proposed without any sale of the horse; and a proof was allowed him of the habits of the horse, the seller's knowledge thereof, which he had failed to disclose at the time of sale, and the difference of value. The case was heard on three successive court days, and the sheriff decreed for the full sum sued for, with expenses. Very considerable interest was taken in the case by the farmers and dealers in the neighbourhood, and the decision has given much satisfaction. We think it cannot be too generally known and appreciated, because it points out a speedy and cheap mode of obtaining redress in cases which were formerly looked upon as interminable and exceedingly expensive.

Fracture of one of the Dorsal Vertebræ.

By Mr. G. Cooke, *V.S., Edwinstowe, Notts.*

A brown seven-year-old half-bred horse, used in agriculture and to run in a light chaise-cart, was, on the morning of the 22d of February led from the stable for the purpose of going to the blacksmith to have his shoes removed. Before he was well out of the stable, he was observed by his owner to stagger slightly in his gait. Thinking that he was not altogether right, he followed him. About fifty yards from the stable, he reared and fell on his side. As soon as he had recovered himself he was led back, and I was immediately sent for. Being from home, it was five hours from the commencement of his attack before I saw him.

Symptoms.—Standing—general twitching of the muscles—breathing slightly accelerated—looking wildly—eyes staring and glassy—pulse full and quick—extremities cold—body moderately warm—mucous membranes pale.

Treatment.—Venesection to syncope. Before I had finished closing the orifice, he again reared and fell on his rump into a corner, where he knocked himself about very much. I expected that this second attack would kill him; but he again rallied, arose, and appeared tranquil. I gave a powerful purgative, which was moderately repeated seven hours afterwards. I attended to his comforts by clothing, bandages, &c. A bran mash diet only was ordered.

23*d.*—No better. He takes an occasional mouthful of mash and of chilled water. Bowels not open, although he has voided his fæces several times. Repeat the purgative. Blister severely half way down both sides of the neck from the poll. Repeat the blister in the evening.

24*th.*—Excessively weak—pulse feeble—the blister has only very slightly acted. Repeat it. No appetite—occasionally sips of his water—he staggers more than when he was first attacked.

Six o'clock, P.M.—Bowels open. *Ten o'clock.*—Very much worse. I prognosticated an unfavourable termination before morning: his owner thought otherwise. At half-past eleven o'clock his owner called me up: he now thought him much worse. I attended, and found him in a similar state to that in which I had left him an hour before. Give spt. eth. nit. ℥jss, liq. am. acet. ℥v, tinct. opii ℥ss. I was with him until half-past three the next morning, when he dropped suddenly, struggled violently, and died.

Post-mortem examination.—After removing the skin, which was perfectly whole, he never having had a wound of any kind, a hole was visible, immediately on the top of the withers, large enough for three of my fingers, which were passed down to the

dorsal vertebræ, by the side of the superior spinous process of one of them, which was perfectly denuded of its natural covering, and smooth. Three inches from the top it was fractured. One end of the fracture was also worn nearly smooth, and the posterior part of the bone very much diseased. The muscles surrounding were in shreds, or, to use the term, eaten away. The neck of one of the costæ was also broken: there was also general discoloration of the vertebral joints surrounding. The spinal canal was of a greenish hue: the contents of the cranium healthy, as were also the viscera of the abdomen, with the exception of the lungs and liver, the former very much congested, the latter somewhat like putty in texture and colour.

This horse was at work up to the day before his attack, and, to all appearance, fresh and well. He was never known to have been injured in any way. My prognosis, when I first saw him, was, "a diseased brain or spine;" and I was much surprised to find what I did on a post-mortem examination. I should say, from the appearance of the diseased parts, the injury was of some months' standing.

Spontaneous Cure of Cataract in a Stallion.

By Herr Prehr, *V.S.*

In the spring of 1839 two young stallions were placed under the care of Herr Prehr, veterinary surgeon to the district. Both were suffering from influenza, and considerable inflammation of the eyes. One had a cataract in the right eye, which had been brought on by repeated attacks of moon-blindness. The opacity of the crystalline lens, in this animal, was produced by three dark spots, two of which were so close together as nearly to come into contact with each other. The vision was thus contracted, and almost appeared to be closed up.

After the influenza was cured, Herr Prehr, having been to some distance, to his great astonishment, observed that the cataract had entirely disappeared. The pupil appeared to be again open—the crystalline lens was clear and transparent—the retina and choroides shone through it with a blueish hue—and the eye wholly regained its former visual power. No trace remained of the previous diseased alteration of the eye, excepting an exceedingly small white point on the capsule of the lens, which did not in the slightest degree interfere with vision. A small portion, of a grape-like substance, which had, in consequence of previous adhesion, been torn from above, now hung at the lower edge of the pupil. Several months afterwards the eye became perfectly sound.

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LECTURES ON HORSES.

By WILLIAM PERCIVALL, *M.R.C.S., Veterinary Surgeon First Life Guards.*

THE PACES.

LEXICOGRAPHERS derive our English word *pace* from the French *pas,* which we translate *step :* the French making use of the word *allure* for pace, a derivative from *aller,* and literally signifying *going* or *gait.* Pace with us has a double signification : it may mean either a horse's *mode* of going, or the *rate* at which he moves. When we say a horse's paces are good, we leave it doubtful whether we mean that his *action* is good, or his *speed* is good, or that *both* are so; but when we say a horse has but *two* paces, it is very well understood that he is wanting either in his walk or trot or gallop ; and this last is the sense in which we use the word *pace* here.

In a state of nature the horse is said to have but three paces or different actions or modes of going—*walk, trot,* and *gallop,* all others being viewed as *artificial,* in contradistinction to these three, which are called his *natural paces :* the *canter,* the *amble,* and any other pace a horse may be taught to go, consequently, come into the latter class. This division, however, is not quite in accordance with truth. Though we may admit the amble to be altogether an artificial pace, assuredly we have all occasionally seen foals cantering after their dams. Therefore, the canter must be in part natural, or can, strictly speaking, be regarded only so far artificial that it is not, like the others, always to be observed in the natural state, or that horses are to be found that never *naturally* canter, or who are exceedingly difficult to be made to canter, and

with every pains that can be taken with them, can never be made to do so with any degree of grace or perfection. Notwithstanding these objections, however, we deem it more consonant with observation and practice to regard the canter as an artificial pace.

THE WALK.

THE WALK is the pace the quadruped, by nature or habit, breaks into out of a state of inaction or quiescence. It is the slowest of the paces—that by which all the others are more or less influenced, and so might with reason be emphatically denominated the *primitive* or *cardinal pace.* The best earnest a horse can give us of "what he can do" in other respects, is his walk; a clever walker will perform well in his trot, and most likely in his gallop likewise: indeed, I have heard eminent turf-men say, it is rarely that a good racer is a bad walker. A horse so made that walking is either difficult or impossible of performance to him, without perpetual blundering and danger of falling, may gallop or canter to satisfaction, but cannot be expected to be a good trotter, the walk and the trot being paces requiring similar conformation and powers of progression. There are some people who will not look at a horse (for purchase) that cannot walk. For a hackney, park or pleasure horse, charger, and, above all, for a lady's horse, good walking is indispensable; for a hunter it is next to indispensable; and in a racer highly desirable. By *good walking* I mean the *powers* or *capabilities* of walking well: a horse not in possession of that form and action that enables him to step properly or safely in his walk, I call a bad walker; and not one who has been caused to walk improperly or amiss, either through any mismanagement in the training or using of him, or any anormal condition into which he may have been thrown by accident or disease: the epithets *good* and *bad* have, in fact, reference here to natural or original disqualification, and not to any thing incidental or superadded.

The physical properties foreshewing a horse to be a good walker must be collected principally from what has been already said about form, in particular of the fore legs and shoulders; at the same time the hind limbs must not be overlooked, they, with the fore, concurring to make the good walker. We may often, when we behold certain anormal or ill construction of the limbs, without hesitation pronounce it impossible that such a horse can walk well; though we are liable to be deceived in our opinion about the pace being properly executed when we see form that we cannot help admiring. It would be, indeed, a perfection in this branch of our art, could we deduce action from form: although we may venture to decry what cannot fail to perform ill, we cannot always

predict what will act well; and one reason why we cannot is found in the circumstance of the physical powers requiring an *excitement*, which, being derived from vitality, is without the pale of our calculation. Notwithstanding, we shall always do well to "observe," with Solleysell, before a horse is put in motion, "if he be right planted upon his limbs; because upon the right or wrong posturing* of a horse, when he is standing still, doth depend, not wholly, but in part, his good or bad going and carriage." In other words, a horse *naturally*—and not by trick or art shewn—standing *well*, is not likely to perform *ill*.

We now come to the question, what constitutes *good walking?* "For a horse to walk well," says our excellent authority, old and venerable Solleysell, "his steps should be quick"—he should "make two steps with his feet in the space that many horses make one."—"The four adverbs, LIGHTLY, SURELY, QUICKLY, EASILY, express all the most nice and curious can desire in a horse's walk." In this quaint description how much truth and nature sparkle forth! What reader that does not in it discover the lightsome, nimble, nodding hackney, catching up his foot, quickly and gracefully twirling it in the air, and afterwards putting it fairly, flatly, and firmly down upon the ground; "beating," as Adams† says, with his feet as he goes along, "one, two, three, four," and with that regularity and decidedness that to the ear of the experienced horseman they tell "a music" he alone knows the value of. Every man conversant with horses recognizes *this walk of the hackney* the moment he beholds it—there is no mistaking it; and the same as soon discovers the indifferent or *bad walker*. It is easier to point out defects in a horse's walking than to define in what good or proper walking should consist—like many other things, we know it when we see it, but we hardly know how to describe it. Good walking will be found one thing in the cart-horse, another thing in the hackney or hunter, and a third thing in the race-horse; and no one or single description will apply to the walks of all three breeds or kinds of horses. Again, foreign horses—Arabians, Spaniards, Dongolas, &c. walk in quite a different style from British horses. There is a variation in the walk even beyond this. Two hackneys or riding horses will not walk alike, though both may be acknowledged to walk well: one will

* In the translation of Solleysell's work by Sir W. Hope, this (which in the original French is *camper*) is rendered camping: an un-English expression, and one that means—if it means any·thing—the stretching out of a horse as in the act of staling. The signification of the author here, is the *posture* or *position* which a horse, *left to himself*, will assume; and not any he may be thrown into through the art of the dealer or the cunning of the groom.

† Analysis of Horsemanship.

have the true hackney action, the sharp or quick *lift*, the graceful turn in the *stay*, and the flat and firm *grounding* of the foot, which we all so much admire, and which by writers in general on this subject is described as *the proper manner in which a horse should walk*, as though there were no other; while the other hackney — displaying perhaps more breeding — will, race-horse like, lift more leisurely, and, instead of twirling his foot, will cast it pointedly forward in a horizontal line, and place it daintily upon the ground, as if he took every pains to do so with precision; and withal will step, perhaps, with perfect safety, and advance as fast as the quick-actioned hackney. Supposing, therefore, we assume good walking to consist in speed and safety, adding thereto even elegance or gracefulness, there are manifestly *two*, if not more, ways of accomplishing it; and these two, being so different, are sufficient to set at defiance any single rule we may lay down for its performance, or any single definition we may give of it. So that a horse's walk be neither slow nor unsafe, nor (to the rider) uneasy, we shall not widely err in regarding it as *good*, let it be performed in whatsoever manner it may. However fast it may be, if insecure, it is seriously faulty; and though fast and safe, still, if rough or unpleasant to the rider, it is objectionable. In fine, the walk of a horse should be estimated rather by its effects and products than by the manner or method in which the animal performs it.

FAULTY OR DEFECTIVE WALKING may proceed from various causes. It may be *natural* or *acquired*. A horse may be so formed that all the pains in the world cannot make him walk properly or well; and the best walker may be rendered otherwise by mismanagement, or from unsoundness, or age. That man will act wisely who refuses to purchase or to have any thing to do with the natural bad walker: if he cannot walk well, he cannot trot well, and will most likely prove insecure in one or both paces; and though by a judicious system of *manège* he may and will probably turn out susceptible of improvement, still he will, as I said before, by no pains be convertible into a good or safe walker and trotter; and, therefore, the best counsel I can give a man who wants a horse for riding purposes is, I repeat, to refuse the purchase of *the natural bad walker*. But good walking may be destroyed or converted into bad walking by injudicious training or riding. It is surprising what a difference—a difference known only to horsemen—proper and improper riding makes, even in horses that are by nature excellent walkers. I have often heard my father—who was a good horseman—say, he could tell when another man had been riding his horse from the difference he felt (the next time he rode, himself) in his horse's walking: the hand and the leg have

so much to do in inciting the walk, while they restrain the shuffle, and prevent any attempt at a trot. Such a horse, bad or no walker as he is, will shew no natural deformity: his make will be that calculated to produce good walking, and he will perform faultlessly in his trot, and most likely in his gallop as well; all which will go to shew that his walking pace is bad through mismanagement, and not from natural incapacity. His walking, however, may not be destroyed; it may, by the method of riding, be but altered. From being a free and far stepper he becomes a short stepper, dwelling upon his steps in consequence of being reined in, prolonging his *stays*, and thus, altogether, altered in his walking action from what he originally was, affording an example of what may be accomplished through difference of riding. Foreign-bred horses step short by nature; nor is it possible, I believe, through any system of *manège*, to make them step *à l'Angloise:* they manifest a good deal of action in *lift*—throw their legs about much—have a longer *stay* than our horses, and put down their feet too little in advance of the spots from which they were lifted to make much progress. Again; stepping short, either by nature or from habit, must be distinguished from the short, tender, or cramped step of the horse that has been for any length of time in a state of disuse, or standing in the stable without exercise, as well as from that of the foundered or groggy horse. In cases where any doubt exists in the mind of the examiner, whether the short-stepping walk proceed from one cause or the other, a trot will commonly dispel it, and exhibit the case in its veritable light.

THE LIFT of the foot in walking may be insufficient, or it may be greater than is required for the purpose of progression. In the former case, the horse will be likely to hit his toe against any stone or prominence in his way, occasioning him to stumble; and through the effort he makes with the opposite fore leg to save himself, will run great risk of again faltering and falling; the foot coming to the rescue of the other, not perhaps prepared to come flatly down, descending upon its toe, upon which the imposition of weight is sure to cause knuckling over, and so down inevitably the horse must come. But there may be too much lift—over much action in the air: the animal may in his walk even, and more still in his trot, throw his legs about, cross them probably, in that manner that he makes but short advances in progression, being after all but a *slow* walker, and moreover is extremely likely to strike one leg with the opposite foot, either at the fetlock or beneath the knee, the latter being what is called *speedy-cut.* Independently however of the liability to strike, it by no means follows, because a horse has high or free action in his walk, *ergo,* that he is a safe walker. Some of the foreign horses are any thing but secure

steppers; they drop and suddenly fall down upon their knees, and, I believe, from weakness in those joints. Neither does it follow that horses that go near the ground, *daisy-cutters* as they are often called, are of necessity unsafe walkers—many instances occur proving the contrary*. The lift of the foot, in good walking, should be sufficient to clear all ordinary obstacles in the road, and the action should be *collected* within the sphere of the animal's perfect control, and not *sprawling*; and the foot should be flexed in the air without any great deviation laterally out of the line of direction, forward and backward, turning the toes either much out, or much in; though the latter is less objectionable than the former, being both faulty in action. And a horse that flexes his foot well in the lift, exhibits his shoe during the eversion of the foot, and that has a nimble though short step, though he may not make more ground or even so much as a horse with straight action, will be a much pleasanter hackney: in fact, this is the action that has already been described as, *par excellence*, the hackney action.

THE GROUNDING of the foot should be flat and firm. To the eye of the observer there is the slightest perceptible difference between the toe and heels coming to the ground, in favour of the former; a difference that need not disturb the horseman's good old rule, that *a horse in his walk should place his foot fairly and flatly down.* Alighting upon the toe, as some horses with high and round action are apt to do, renders the step instable until the heel comes to the ground; or, should the superincumbent weight preponderate forwards, then knuckling over is the result, and an awful drop, or else a fall, the consequence. Horses that go upon their toes have, for the most part, strong upright feet, with concave soles; whereas, such as have flat feet are more likely to go upon their heels, to save their weak crusts. We have an illustration of this in the going of lame horses: such as are lame from contraction or navicular disease, feeling the pain or tenderness in their heels, will tread upon their toes; and such as feel the pain in their toes or crusts, horses that have or have had fever in their feet, will do all they can to step upon their heels. It is curious to observe—and one way in which we may do so is by the wear of their shoes—how different the tread of horses is: at the same time, we must bear in mind that the wear of the shoe not only tells how the horse treads, but also, in some measure, the manner in which he takes his foot off the ground.

THE RATE OF WALKING in a horse is faster than in a man. Fair toe-and-heel walking at the rate of four miles an hour, in a man, is accounted a good pace: a horse we reckon ought—to do

* One will be found mentioned in a preceding lecture.

well—to walk five miles an hour; the ratio between the two appearing to be about as 5 to 4. But how would these relative differences stand, came they to be multiplied? Would a horse walk a hundred and twenty-five miles while a man was walking a hundred?

CONTRIBUTIONS TO ZOOLOGICAL PATHOLOGY.

By JAMES MERCER, *M.D., Fellow of the Royal College of Surgeons, and Lecturer on Anatomy, &c. Edinburgh.*

[Continued from p. 269.]

VI.—*On the normal Structure and abnormal Conditions of the Larynx in the Horse.*

MUSCLES OF THE LARYNX.

THE muscles of the larynx may be arranged into two groups, *an extrinsic* and *an intrinsic:* the former embracing the special depressors of the os hyoides, and the latter, all those that perform the numerous and complicated movements of its osseous mechanism. As the former group act only on the larynx, as a whole, and not on its individual portions, their consideration may be here dispensed with. The intrinsic group includes *nine pairs and a single muscle,* which may be arranged as follows:—

External muscles	Crico-thyroidei
	Thyro-hyoidei
Internal muscles	Crico-arytenoidei superiores, vel postici
	Crico-arytenoidei inferiores, vel laterales
	Thyro-arytenoidei anteriores, vel superiores
	Thyro-arytenoidei posteriores, vel inferiores
	Thyro-arytenoidei transversi, vel brevis
	Arytenoidei
	Aryteno-epiglottidei
	Hyo-epiglottideus, vel azygos epiglottidis.

DISSECTION.—The entire larynx, pharynx, and substance of the tongue having been removed from the head, should then be placed in a hollow block, and a quantity of crisp hair inserted into the upper opening of the larynx. Little dissection will be required in order to display the external set after the removal of the depressors of the os hyoides; but to bring into view the internal set, the constrictors of the pharynx at their inferior origin, and the

œsophagus, must be carefully removed; and with a pair of Paré's forceps, or strong common scissors, the os hyoides should be divided at the junction of the cornua with the body, as also the wing of the thyroid cartilage external to its mesial ridge. These parts should then be removed carefully, without injuring the soft tissues that lie immediately within them, and especially taking care of the thyro-arytenoideus transversus muscle, which should first be examined by drawing the superior border of the thyroid from the cricoid cartilage, and after which its origin from the former cartilage should be divided so as to enable the parts which have been cut through to be removed entirely. This dissection will enable the student to observe the external relations of all the internal set of the intrinsic group; which having been noticed and removed, he can then easily examine the arrangement of the various folds of mucous membrane on the obverse side of the larynx, the chordæ vocales and the ventricle of the larynx, with the ultimate arrangement and distribution of the bloodvessels and nerves.

The crico-thyroideus muscle is situated along the external and posterior aspect of the larynx, and *arises* from the external surface of the ring of the cricoid, and, passing obliquely upwards and backwards, is *inserted* into the inner margin of the posterior border of the thyroid cartilage.

The thyro-hyoideus muscle is placed immediately above and before the preceding muscle, and *arises* from the oblique ridge on the external surface of the great wing of the thyroid cartilage, and, passing forwards and upwards, is *inserted* into the inner margin of the posterior border of the body and greater cornu of the os hyoides.

The crico-arytenoideus superior, or *posticus muscle*, is situated on the superior surface of the cricoid cartilage beneath the angle of junction between the pharynx and the œsophagus, and consists of a strong and radiating band of muscular fibres that fill up the fossa on either side of its mesial ridge, to which the posterior constrictors of the pharynx and the anterior fibres of the œsophagus are attached. From this broad origin the muscle passes forwards and slightly outwards to become *inserted* into the base of the arytenoid cartilage, and also into the tuberculated posterior extremity of the prominent ridge along its superior surface.

The crico-arytenoideus inferior, or *lateralis muscle*, is situated in the upper part of the crico-thyroid space, and *arises* from the anterior margin of the ring-like process of the cricoid cartilage and the edge of the crico-thyroid membrane. From these points it proceeds upwards and backwards to be *inserted* into the ridge of the arytenoid cartilage along with the former muscle, as also into the external arytenoid fossa.

The thyro-arytenoideus superior, or *anterior muscle (the ligamento-arytenoideus superior* of Youatt), is a strong and flattened band of muscular fibres, situated immediately external to, and covered by, the fold of mucous membrane that constitutes the anterior chorda vocalis, and forms the anterior boundary of the ventricle of the larynx. Anteriorly and inferiorly it *arises* from the inner surface of the angle of the thyroid cartilage, immediately beneath and behind the pedicle of the epiglottis; and passing upwards and backwards, parallel to the anterior vocal chord, it becomes *inserted* into the external arytenoid fossa, near the apex of the cartilage, and where its fibres become also amalgamated with those of the thyro-arytenoideus transversus.

This muscle is the analogue of the aryteno-epiglottideus inferior in man.

The thyro-arytenoideus inferior, or *posterior muscle (the ligamento-arytenoideus inferior* of Youatt), is situated at the posterior and inferior part of the proper cavity of the larynx, and is immediately covered by the mucous membrane and elastic tissue of the posterior or true vocal chords. From the former muscle it is separated by a considerable quantity of loose areolar tissue, in which is expanded the mucous membrane that forms the ventricle of the larynx. In form it is broad and elongated, thicker and firmer above and behind, and rather loose and opened out before. It *arises* anteriorly from the inferior edge of the angle of the thyroid cartilage and the laryngeal surface of the convex edge of the crico-thyroid membrane; and passing upwards and backwards, parallel with but a little behind the longitudinal axis of the true vocal chords, becomes *inserted* into the entire surface of the external arytenoid fossa. Some anatomists have considered this muscle as being only a portion of the crico-arytenoideus lateralis; but I have always found it to be distinct in its course and attachments*.

The thyro-arytenoideus transversus, or *brevis muscle*, is short in length compared to the two former muscles, and is situated in the space between the superior edge of the thyroid cartilage and the external surface of the crico-arytenoid articulation. It *arises* from the superior margin of the thyroid cartilage, immediately behind its anterior cornu, and, proceeding horizontally backwards and inwards, becomes *inserted*, partly into the vertical crest on the superior surface of the arytenoid cartilage, but principally into the central tendinous raphé formed by the junction of the mesial edges of the arytenoid muscles.

The arytenoideus muscle consists of a radiated and triangular fasciculus of fibres placed on the superior surface of the arytenoid

* Vide Cruvelhier's Descriptive Anatomy, vol. i, page 569.

cartilage and the crico-arytenoid membrane. It *arises* from the internal arytenoid fossa by its radiated margin; and its fibres, converging to a point, form with those of the muscle of the opposite side a tendinous arch, or raphé, which stretches across between the opposed edges of the arytenoid cartilages, and covers the crico-arytenoid membrane.

The aryteno-epiglottideus muscle consists of a thin and membranous layer of fibres contained chiefly within the aryteno-epiglottidean fold of mucous membrane, that forms on either side the pharyngeal or anterior opening of the larynx. It *arises* posteriorly and superiorly from the anterior margin of the arytenoid cartilage and its cuneiform appendage, and, extending forwards and inwards, becomes *inserted* into the side of the epiglottic cartilage and the apex of its appendage. Sometimes a few straggling fibres of origin come from the inner surface of the great wing of the thyroid cartilage; and being easily separated from the bulk of the muscle during dissection, and then being traced forwards into the appendage of the epiglottis as a distinct set of fibres, they have received the name of *the thyro-epiglottideus*, or *depressor epiglottidis*. The aryteno-epiglottideus muscle of the horse has its analogue in man in the aryteno-epiglottideus superior.

The hyo-epiglottideus, or *levator epiglottidis muscle*, consists of a strong and rounded band of fibres placed in the mesial plane at the base of the tongue. It arises from the concavity of the body of the os hyoides, behind the attachment of the genio-hyo-glossi muscles, and from which it often receives a few fibres, and, passing backwards, becomes *inserted* into the opposed surface of the epiglottic fibro-cartilage, and into the yellow elastic substance that forms the hyo-epiglottic ligament.

Actions.—When the mechanism of the articulation of the cornua of the thyroid cartilage with the body of the cricoid is carefully examined, it will be observed that there is a striking similarity between them and those of the lower jaw, especially between the condyloid processes of this latter bone and the concave surface of its inter-articular cartilage.

On moving the thyroid upon the cricoid cartilage it will also be seen that the movements are somewhat similar, viz. *depression*, or approximation of the thyroid to the cricoid cartilages, and *elevation* of the former from the latter. In this movement of depression of the thyroid cartilage, generally, its anterior margins are carried forwards and downwards from the arytenoid cartilages, and consequently the thyro-arytenoid muscles, anterior and posterior, and the elastic tissue and mucous investments of the anterior and posterior vocal chords, become elongated from above and behind, downwards and forwards, and thus these latter become rendered

prominent and tense. Associated with this movement is that of slight elevation and protrusion of the os hyoides, in consequence of its intimate articulation with the anterior cornua of the thyroid cartilage; and with this movement the base of the tongue is carried forward, the epiglottic fibro-cartilage elevated, and the aryteno-epiglottidean folds of mucous membrane that form the anterior or superior aperture of the larynx also become elongated and rendered more tense, especially if the arytenoid cartilages remain fixed in their situation.

This complex series of direct and indirect movements are all produced by the contraction of the crico-thyroidei muscles, aided by that of the sterno-hyo-thyroidei; and which, by directly approximating the thyroid to the cricoid cartilages inferiorly, indirectly lengthen, superiorly, the rima glottidis, and thereby render tense the true and false vocal chords. *The thyro-hyoidei muscles*, taking their point of fixion at the os hyoides, carry forwards the thyroid cartilage under cover of the os hyoides; and thus diminishing the length of the skeleton of the larynx from below, upwards, causes the epiglottis to be passively depressed, and placed securely as a coverlit, over the anterior aperture of the laryngeal cavity. *The crico-arytenoidei superiores*, or *postici muscles*, revolve the arytenoid cartilages on their axes, upwards, backwards, and outwards, producing oblique eversion of their apices, and, thus separating them from each other at their bases, open the rima glottidis to its fullest extent at its base or superior angle. These muscles, acting in association with the crico-thyroidei and the sterno-hyo-thyroidei, form, with the thyro-arytenoidei transversi, the antagonizing points for the former; and thus the vocal chords will be rendered tense to their utmost by the perfect action of either set of muscles.

The crico-arytenoidei inferiores, or *laterales muscles*, carry the bases of the arytenoid cartilages outwards, forwards, and downwards, across their general axes of motion, and thus, diminishing the distance between these cartilages and the thyroid, indirectly relax the vocal chords; and also, causing to approximate the edges of the rima glottidis, they tend to diminish in the centre the space between them. They are not muscles, however, that specially act in relaxing the vocal chords and closing the rima glottidis, but they rather act in steadying and guiding the bases of the arytenoid cartilages in their movements over the oblique articular surfaces of the cricoid; and thus they enable those other muscles, which, by the axes of their movements, tend to produce the oblique inversion and eversion of the arytenoid cartilages, on which the state of relaxation or tension of the vocal chords and the size of the rima glottidis depend.

The thyro-arytenoidei anteriores et posteriores are the special muscles that produce oblique inversion of the arytenoid cartilages, and thus carrying them towards the central line of the laryngeal cavity, tend to relax the vocal chords and close the rima glottidis. Associated with them in this function are the *arytenoidei*, which, by approximating the cartilages superiorly, firmly and securely shut this important isthmus of the air passages.

The thyro-arytenoidei transversi, on the other hand, produce oblique eversion of the apices of the arytenoid cartilages and their cuneiform appendages, and thus they increase the size of the rima glottidis and render tense the vocal chords.

The aryteno-epiglottidei muscles have a double function to perform. When taking their fixed points above, at the arytenoid cartilages, they will tend to depress the epiglottis on the anterior aperture of the larynx; if below, at the epiglottis, they will invert the arytenoids, and tend to relax the vocal chords; but if both ends of the muscles be fixed, they will then compress the external parietes of the laryngeal ventricles, and empty them of their mucous or other accidentally acquired contents into the general cavity of the larynx, where such matters will be carried forwards into the nose or mouth by the instinctively forced expiration or cough that is always and instantly induced by any irritation being excited in this very sensitive membrane. *The hyo-epiglottidei* will only act in elevating and bracing, upwards and forwards, the epiglottis to the base of the tongue.

Excluding, therefore, the thyro-hyoidei, the aryteno-epiglottidei, and the hyo-epiglottidei muscles, as possessing trifling influence over the movements of the arytenoid cartilages, and the indirect conditions of the vocal chords and rima glottidis, the remaining seven pairs of muscles may be arranged under two groups, viz. the

Muscles opening rima glottidis:
- Crico-thyroidei
- Crico-arytenoidei superiores
- Thyro-arytenoidei transversi.

Muscles closing rima glottidis:
- Thyro-arytenoidei superiores
- Thyro-arytenoidei inferiores
- Arytenoidei
- Crico-arytenoidei inferiores.

It will thus be seen that those muscles that produce oblique inversion of the arytenoid cartilage, and consequent diminution in the size of the rima glottidis, are apparently more numerous than those that produce the opposite conditions of these structures; but when we come to observe the great influence which the position of the thyroid cartilage indirectly possesses over the state of the rima glottidis, and the very considerable power exerted over the carti-

lage by the thyroideal slips of the sterno-hyo-thyroidei muscles, we must come to the conclusion that the intrinsic movements of the skeleton of the larynx are very nicely and accurately balanced, and that there is no preponderance of power in favour of either of the above group of muscles*.

The Epiglottic Gland.

This is the name given to a dense mass of ligamentous, adipose, and cellular substance, situated between the convex surface of the epiglottis, and resting on the thyro-hyoid membrane and the angle of the thyroid cartilage. Though usually described as being glandular in structure, with its ducts passing through the substance of the epiglottis, and opening upon its laryngeal surface, yet this can be with difficulty detected or established. It would rather appear to be only a means of connexion between the epiglottis and thyroid cartilage—the thyro-epiglottidean ligament.

The Laryngeal Mucous Membrane.

The mucous membrane of the larynx is continuous with that which lines the mouth and pharynx. On tracing it backwards from the base of the tongue, it passes directly upon the epiglottis, and forms between them three folds, the central or *frænum epiglottidis*, and the two lateral *glosso-epiglottic* folds. These folds simply consist of duplicates of the mucous membrane, containing a quantity of loose cellular tissue, in which are imbedded numerous small mucous follicles: passing upwards and backwards, from the sides of the epiglottis to the apices of the arytenoid cartilages, it is formed into other two folds, the *aryteno-epiglottic folds*, constituting, between them, the anterior aperture of the larynx. The external surface of these folds becomes continuous with the mucous membrane of the side of the pharynx, and, posteriorly passing over the arytenoid and cricoid cartilages, it descends backwards into the œsophagus. The internal surface of these folds passes backwards into the larynx, and, being folded over the appendages of the epiglottis, forms the *anterior or false vocal chords;* and having formed these, it swells out on either side, between the anterior and posterior thyro-arytenoid muscles, to form the ventricles of the larynx; and, again, being reflected over the true

* For a fuller account of the mechanical and physical changes induced in the essential structures of the larynx of man, during its movements, the student is referred to the Memoirs of Willis, Camb. Philos. Trans., vol. 4, 1832; Lauth, Mem. de l'Academie Royale de Med., 1835; Bishop, Cycloped. of Anat., vol. 3, article "larynx."

vocal chords, it passes backwards, to become the tracheal mucous membrane. The entire laryngeal membrane is perforated by orifices of numerous mucous follicles, and its sensibility is particularly great in the ventricles and about the vocal chords.

The Ventricles of the Larynx.

The ventricles of the larynx are the two oval or elliptical cavities, situated between the anterior and posterior vocal chords. Anteriorly they are bounded by the false, and posteriorly by the true vocal chords. Internally they open into the cavity of the larynx, and externally they are imbedded in the loose cellular tissue, between the superior and inferior thyro-arytenoid muscles. At the posterior part of either cavity a small sinus is sometimes found, leading backwards and upwards into a small pouch or diverticulum, the *sacculus laryngis*. This I have found repeatedly in man, often in the dog and cat, but seldom in the horse. When it does exist, it is merely a supplementary cavity to its corresponding ventricle. The ventricles being lined by mucous membrane contain a considerable number of mucous follicles, the fluid from which, when collected in the cavities, becomes discharged into the larynx by the contraction of the aryteno-epiglottidei muscles, which are expanded upon their anterior and external walls.

The Rima Glottidis.

It has already been mentioned that the rima glottidis is formed between the opposed edges of the posterior thyroid-arytenoid folds, or true vocal chords. It is the narrowest space in the larynx, and forms the point of entrance between the cavity of the larynx and the trachea. It is of a triangular form, the base being placed superiorly and posteriorly, and is formed by the arytenoid cartilages, and the apex inferiorly, in the angle of the thyroid cartilage. The structures which form it being attached to the bases of the arytenoid cartilages, whatever change of position takes place in them will also produce a change in the size and form of the rima glottidis. These have been already treated of, when speaking of the actions of the muscles of the larynx.

[To be continued.]

A SUPPOSED CASE OF DEATH IN A HORSE FROM TUBERCULATED AFFECTION OF THE LUNGS.

5th May, 1844.

I AM sorry to trespass on your time, but if you have a few minutes to spare, I should be much obliged to you for your opinion on the following case. It is one that, perhaps, will end in litigation, and it is very likely that you may be called on for your opinion.

A grey gelding was bought at the late Gifford fair by Messrs. Ritchie and Sons, and, of course, warranted sound. He was found to have great difficulty in breathing when put to work, which was drawing the clay mill. It was very easy work for a horse of his size. The collar was altered several times in order to give him relief. He always had a cough after drinking.

After they had him for a short time, he exhibited a slight sore throat, for which a mild liquid blister was applied, and a laxative ball, with two or three days' rest, when he recovered, and got as well as before; but still the difficulty of breathing when drawing remained.

Eight days ago I was sent for in a great hurry, as "the horse was dying." I found him in such a state with flatulent colic that he had to be taken out of the stable, to prevent his injuring himself, to a straw stack, where he might roll about in safety. He was much swelled; but in addition to the appearance of colic, there was a considerable discharge of very offensive white matter from the nose, which poured out in great quantities whenever he stood with his head down.

I used the ordinary remedies for colic with success; but the discharge from the nose continued. In addition to this a considerable enlargement appeared anterior to the point of the sternum, ascending half way up the trachea, evidently containing a fluid. This increasing so as to threaten suffocation, I opened it, when about a quart of matter escaped of the same kind as that which was flowing from the nose.

Inflammation of the lungs came on, or rather the irritation of the fluid in the bronchial tubes caused it, and he died on the sixth day. The discharge from the lungs always continued—running in great quantities when the head was held down. In the end, it was evident that the lungs were broken down, as large clots were discharged before death.

My opinion on the case was, that, taking into account the great difficulty in breathing, and the coughing when the stomach was filled, &c., there had been an abscess in the lungs, the consequence

of former disease, which must have burst both externally between the pleura pulmonalis and the pleura costalis, into the bronchial tubes.

On a post-mortem examination with Mr. Aitken, V.S., I found my opinion correct. The anterior portion of both lobes of the lungs were entirely solid—tuberculated; and there were a great number of large abscesses on the right side, especially to about two-thirds of its extent: pieces of them sunk in water. The right ventricle of the heart was much dilated, thin and flaccid, about one-eighth of an inch in thickness, and collapsing when emptied of blood. Adhesions of old standing had taken place to a considerable extent, both of the pericardium and pleura, to the internal parts opposite to them. My opinion is, that the horse was diseased long prior to the sale, which was also the opinion of Mr. Aitken, and I thought it a good case for redress; but the owner is fearful he is too late for any application, the dealer saying, "you ought to have returned the horse."

Professor Dick's Opinion of the Case.

Dear Sir,—I have no doubt that the horse had been diseased prior to the sale; but the fact of the purchaser having kept the animal for several weeks without offering to return him to the seller, while all the time he considered him to be amiss, would be sufficient to bar the purchaser from now having a claim for redress from the seller; but when, in addition to this, there is the fact, that "after they had him for a short time he had a slight sore throat," and for which he was treated without any complaint being made to the seller, it would, I have no doubt, be a valid objection in law to the purchaser having any legal claim on the seller, because it could be said that the disease then originated. Had the symptoms been so obscure as to have excited no suspicion in the purchaser's mind that there was any thing wrong, and that the disease and nature of the case were only discovered after or immediately before death, the case would have been otherwise; but the fact of his being "found to have great difficulty in breathing," and the collar being altered, shews that the purchaser was aware of it, and ought (if he had any intention to go back to the seller) to have done so then. You will, therefore, perceive that it would only be throwing money away to send for me, or for Mr. R. to prosecute the matter further; for, although I am no lawyer, I have no doubt the result would be what I have stated.

Your's truly,

William Dick.

ON FLOODING AND INVERSION OF THE UTERUS IN THE LOWER ANIMALS.

By Mr. JAMES ANDERSON, *V.S., Leicester.*

"A wise physician, skill'd our wounds to heal,
Is more than armies to the public weal." *Pope's Homer.*

WITH a view of responding to your correspondent, T. H. Barker, Esq., Surgeon, Bedford, inserted in your last Number, p. 322, subjoined is my experience, the cases of two veterinary surgeons in my vicinity, who have kindly communicated the same, and an abstract of the principal cases on record—the result is entered in a Table under the proper heads applicable to each question proposed.

MARES.

Case 1.—I attended three years ago, at Barkbythorpe, in this county, a complete inversion, that terminated in death; in this instance the patient, during the previous night, had fallen into a deep sawpit, which brought on labour: the accident immediately followed the expulsion of the fœtus. Before my visit she was too much exhausted from hemorrhage, &c. to leave any chance of success.

Case 2.—Mr. E. Bailey, eight years since, had a complete inversion, which followed a wrong presentation and difficult parturition. The placenta attached, the whole would have filled a bushel: after having detached the after-birth, with much difficulty it was returned to its natural cavity. Cured.

Case 3.—VET., vol. xiv, p. 489. Inversion by Mr. Horsburgh, V.S., Dalkeith. Three days after was replaced—no flooding. Cured.

COWS.

Case 1.—On the 10th of March 1842, I was called in by Mr. Munrow, of Leicester. The animal had calved in the former part of the day. I found a complete inversion of the uterus, hanging almost to the ground, the placenta still adhering; however, in a short time it came away. With great difficulty and hard labour I succeeded in returning the matrix into the proper situation, and passed a needle armed with a strong thong through the external parts of generation. The bearing down became so powerful, that the ligature would have ruptured the labia, if I had not ordered two men with a cloth to make pressure on the commissures for a considerable time, and, by exhibiting strong doses of crude opium,

the action ceased. Next morning, in company with Mr. E. Bailey, on consultation, we ordered her to be killed, finding the womb in a state of putrescence, pulse imperceptible, and the tide of life fast ebbing. This was a spontaneous case, as no interference, neither difficult parturition, or in the secundines, were experienced; trifling hemorrhage. The accident was observed four hours before I was called in to the patient.

Case 2.—Belonging to Mr. Scott, butcher, here; several years ago, three hours after an easy calving, without any interference, the womb became inverted: reduction was accomplished, not, however, without much difficulty. A large steel pin with two points, formed in the shape of a staple, with screws and nuts, was introduced through the labia pudendi; the nut, screwed moderately tight, prevented the protrusion of the tumour: no flooding. Cured.

Case 3.—By Mr. T. Walker, Rothley. Complete inversion of the uterus, the property of Mr. Sketchley. She calved without difficulty, and the placenta came away naturally in the course of two or three hours, and every thing appeared right; but on the following morning, about five o'clock, she was found with the uterus turned inside out: the cotyledons were large, and presented a red appearance, and, on being touched, bled profusely. An attempt was made to return the uterus, but it was found impracticable, on account of violent straining; to prevent which, and to put her in a more favourable position for the operation, she was raised by means of ropes affixed to her hind legs, and passed over a beam in the byre, so as to elevate her hind parts upon some battens of straw, by which means, and a little manual dexterity, the uterus was replaced. She was then allowed to rise, and a proper leather truss applied and secured to a surcingle passed round behind her fore legs, which effectually prevented any relapse. Opiates were administered to prevent straining, and some purgative medicine to counteract symptomatic fever, which afterwards took place. With this treatment she eventually recovered; milked well during the summer; and the following winter was fed for the butcher without the symptom of any return.

Case 4.—By Mr. E. Bailey. States that in 1839 he had a case of chronic inversion of the uterus: the previous history of the animal not known, it being bought at a fair. Had not recently calved or given milk. I found the uterus protruded the size of a man's head. Lanced and fomented the uterus before any attempt was made to replace it: after much perseverance effected the replacement. Much straining was present, but an opiate had the desired effect; afterwards gave opening medicine. The cow was kept in the house a few days; and then, all seeming to be going on well, turned out to grass. Three days after she was brought to

my establishment *in statu quo*. The womb was again returned, and two small plates, from three to four inches long, with two holes in each, and two pins introduced through the lips of the pudendi, which were returned and secured on the plates, prevented any return of the complaint. Put to grass two months after. Sold in good condition, with the plates on: no discharge of matter or flooding.

Case 5.—VET., vol. i, p. 378, by M. Saussol. Inverted, and rent a foot in length half an hour after calving: the reduction accomplished in less than ten minutes: no mention of hemorrhage. In eight days the animal was well.

Case 6.—VET., vol. vi, p. 619. Inversion of the Uterus and Vagina, by M. Prettot. This labour was difficult and protracted: three hours after the accident the womb was completely inverted and protruded, hanging down as low as the hocks. It was displaced and replaced three times: a few of the uterine cotyledons were torn off, which produced a little hemorrhage. On the third protrusion, several scarifications were made along the mucous membrane of the inverted viscus. A great quantity of bloody serosity flowed. In twenty days cured.

Case 7.—VET., vol. xiii, p. 395. Inversion and Rupture of the Uterus, with Protrusion of the Small Intestines, by Mr. H. Higgison, Auldem. The accident took place five hours after calving: she had lost several quarts of blood when the placenta was detached; violent straining: spontaneous. In nine days cured.

Case 8.—VET., vol. xv, p. 233. Complete Inversion and Rupture in the effort to reduce it, by M. Eléout, Morlaix. No flooding. Cured.

Case 9.—VET., vol. xiii, p. 474. Inversion, by Mr. Copeman, Halesworth. Reduced; no flooding; spontaneous. Cured.

Case 10.—VET., vol. xv, p. 596. Inversion, by M. Lecoq. Cured.

EWES.

This accident is by no means an uncommon occurrence. I have had several cases. No great difficulty, in general, is encountered in reducing the uterus to its proper place, and retaining it by sutures passed through the external orifice of the vagina. No flooding. All cured.

SOWS.

All my cases have proved fatal, having been unsuccessful in returning the matrix: little hæmorrhage.

The following table shews the general result:—

Animals.	Complete Inversion of the Womb.	Chronic Inversion.	Spontaneous.	Interference of Attendants or not.	Flooding or not.	Cured.	Dead.	If inverted for some time, is there great difficulty in returning it?	Is there great difficulty in keeping the Womb up, when returned, from the bearing-down efforts of the Animal?
Mares	3	..	1	3(1 hurt)	3 (1 fl.)	2	1	Great difficulty.	Great difficulty; but by opiates and surgical operations, aided by mechanical means, it may generally be accomplished.
Cows	10	1	5	10(5hurt)	10(3 fl.)	9	1		
Ewes	In general cured.								
Sows	All fatal.								

ON FLOODING AND INVERSION OF THE UTERUS.

By Mr. TOMBS, *V.S., Pershore.*

Dear Sir,—TAKING a lively interest, and having many friends in the medical profession, I, as a member of the veterinary profession, most willingly transmit to Mr. Barker and yourselves my opinion respecting inversion of the uterus in cattle and sheep, accompanied with a case exemplifying my views of the same.

Reply to Mr. B.'s first query :—Occasionally the uterus of cows and sheep becomes inverted from violent heavings after expulsion of the fœtus; generally in a very short time after, spontaneously, and without the interference of attendants, in the cases brought under my observation, the animals brought forth their offspring without manual assistance, with the exception of one case, which was a mare that had the fœtus injudiciously extracted, the head and one foot only being outside the vagina when it was forcibly pulled away, and then some time elapsed before the uterus was expelled. Cows and sheep more frequently invert the womb after parturition than mares. I believe inversion of the womb seldom or never occurs after abortion.

Second. I never heard nor knew of inversion of the womb accompanied with flooding in the lower animals.

Third. Invariably in inversion after parturition there is great difficulty in returning the womb *(see case)*. Sometimes hemorrhage takes place from rupture of the uterine arteries and veins, but not

seriously, from repeated manipulations in returning the womb, in detaching the after-birth, or forcing off some of the cotyledons.

Fourth query *(see case)*.

Fifth. Not generally fatal; chronic inversion of the uterus is rarely met with in cattle. I have seen a great many cases of partial protrusion of the womb in barren and feeding cattle and in sheep, and some few of the vagina in impregnated cattle when in a recumbent position; but it generally recedes when the animal gets up. To prevent the entire expulsion of the womb, two or three stitches are put in the labii pudendi: some people put wire or irons through, and they fatten very well after. A discharge seldom takes place in the chronic kind; but, of course, immediately after birth suppuration does, or gangrene. Mares are not so susceptible of inversion of the uterus as cows or sheep. I once knew a mare rupture the uterus in the act of foaling: the fœtus, uterus, and intestines, were all expelled together through the vaginal opening: that was prolapsus uteri. It is more fatal in mares than cows, and it is more difficult to return the inverted womb, on account of the powerful, muscular and bearing-down efforts to throw it out again. One case will suffice, as all that I have met with were very similar: some mortified and died, others suppurated and did well.

CASE.—Early in the morning of the 31st January last, I was aroused from my slumbers by a messenger from an agriculturist in the neighbourhood, with an urgent request to attend a cow immediately, that had "dropping down of the calf bag," subsequent to parturition. On my arrival and inquiry, I was acquainted that the cow calved herself some time in the night, or before 4 A.M. The herdsman found the calf up and walking about, the cow getting up—twisting about—lying down and heaving violently, with the womb turned inside out. I found the uterus completely inverted, tremendously swollen, and hanging down as low as the hocks, and very much contused from being rubbed against the boards of the shed and ground. There was a large quantity of short dusty straw attached to it, which I washed off with tepid water and milk. I detached as much of the placenta as I possibly could—washed the tumour, had the hinder quarters elevated, and then, with two assistants with wet cloths to support the uterus, proceeded to return it, which object I accomplished in about half an hour, by downright hard labour. During the operation I forced off two of the cotyledons, which bled freely from small arteries. After it was returned, I kept my arm in the vagina for ten minutes, otherwise the strong heavings would have instantaneously expelled the womb again. When I withdrew my arm, I had a sort of web harness put on the cow, which I keep on purpose for such cases: it has a back-strap fastened round the neck with a strap or girth behind the fore legs,

and a crupper: two straps from the crupper go under the thighs, and are fastened to the back-strap in front of the hip bones. Attached to those straps, immediately below the tail, are three horizontal pieces of web, covering a portion of the labii pudendi. With this harness braced up tight it is impossible for the womb to be forced out again: it infinitely supersedes stitches in the vulva, inasmuch as there is great pressure on the vagina, the straps attached to the crupper fitting close down between the tail and tuberosity of the ischium. The after-pains were excessive for an hour, which I allayed by powerful doses of opiates. Re-action took place in the evening: she was then bled and had an aperient.

Feb. 1*st.*—Pulse quick, but not particularly hard—bowels relaxed — uterus not contracted, feeling hard and swollen: give a febrifuge.

2*d.*—Pulse more regular—carcass not so hard or round as yesterday: give febrifuges, and thin gruel often.

3*d.*—Inclined to pick a little hay—nose dewy—horns and legs warm, looks thinner—slight discharge from vagina: give gruel.

4*th.*—Pulse natural—bowels open—womb contracted—slight discharge from womb: give vegetable tonics and gruel.

6*th.*—Very much improved — appetite returned: give gruel. Removed the bandage, and applied irons through the lips of the vulva, fastened at each end by upright pieces of iron and nuts. The discharge continued for a fortnight—the milk gradually returned—the calf did well—and the mother is now a good dairy animal.

ON INVERSION OF THE UTERUS.

By Mr. F. King, Jun., *V.S., Stanmore.*

In looking over your valuable periodical, my attention has been again drawn to a subject upon which at a former time I intended to make some remarks, having perused a discussion upon it in the "*Veterinary Transactions*," published in October 1843. Circumstances afterwards occurred which caused me to neglect or forget it, until I saw it mooted again by Mr. Barker, M.R.C.S., of Bedford. I have the pleasure of being acquainted with many medical men, and am at all times willing to give them, as well as my brother veterinarians, any information upon subjects which may fall under my notice, and, therefore, I will cheerfully respond to Mr. Barker's call as far as lies in my power. We should assist each other in our profession as much as we can. I certainly feel

myself bound to do so, having received from some of the brighter ornaments of the medical profession (at a time when it was most needed) the greatest possible kindness that one man could receive from another, and which, please God, I shall remember as long as I live.

Like Mr. Barker, I will avoid technicalities, and answer his questions as plainly as I can, which I consider by far the best way. The subject I allude to is, inversion of the uterus. As a country practitioner, I never decline attending upon any animals, and consequently am occasionally called in to attend cows, as well as other animals, during and after parturition. We must, of course, take the good with the bad, and, now and then, we meet with such cases as Mr. Barker wishes to gain some information upon. It has fallen to my lot to be called in to two of these cases within the last month;—one a heifer with her first calf—the other, a cow that I understood had had two calves previously.

As to the particular cases of parturition in which inversion is likely to take place, or the immediate cause, I cannot offer a satisfactory opinion, for I have known it under various circumstances. In the two cases I have just mentioned, the heifer required assistance; the other had none. In both cases there was a complete inversion of the uterus.

As Mr. Barker has numbered his queries, it will be as well, perhaps, to answer them accordingly. I will, however, first say, that in the cases of which he speaks, where death took place from mortification, this, in my opinion, must have arisen from entire neglect. I have had many cases of the kind, but never did such an one as this happen to me since I have been in practice.

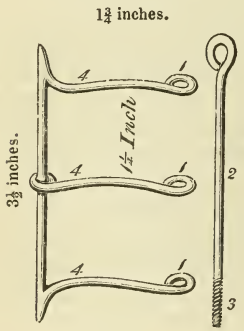
1st Quest.—I think I have in some measure answered this by mentioning the two cases above, in which I stated that one calved without any assistance; and I have known it happen to others under similar circumstances—sometimes the uterus only partially protruding, and at other times being wholly inverted.

2d.—As regards flooding. I have occasionally (not always), immediately after the expulsion of the fœtus, found nearly or quite a quart of blood escape from the vagina, but I never knew it continue to flow. What has been ejected has generally come away at once. More, perhaps, may flow into the cavity of the uterus, but it does not escape. The plan I adopt under such circumstances may, perhaps, partly account for that, as I always endeavour to check the animal from straining, and keep her on her legs for a time: the uterus then lying rather low, there is no further escape of blood, unless from some sudden exertion like coughing.

3d.—When the uterus has been inverted for some time, there is occasionally great difficulty in returning it, as the animal fre-

quently falls down while you are endeavouring to do so. In such a case, it is my plan to attach a rope to each hind leg, and partly suspend her, thereby lessening her power of straining against you, and rendering the return of the uterus much easier than it otherwise would be; and unless the animal is (what is very frequently termed amongst farmers) a roomy one, I think the uterus would generally be returned more quickly that way than while standing, and no harm arise from the temporary suspension. Occasionally, the weight of the uterus is very great, independent of the exertion which the animal uses against us.

4th. — Respecting the retention of the uterus in its natural position afterwards, I cannot see much difficulty about that. I never insert sutures, but make use of an instrument made of stout wire, like the one here described, which answers the purpose extremely well. This I insert as near to the centre of the vagina as I can, with a curved three-edged needle, larger than the circumference of the rings marked 1, through which I draw the string attached to the needle. After having brought them all through, I pass the pin (marked 2) through the rings, the lower one of which forms a nut to admit the lower end of the pin (marked 3), which forms a corresponding screw. This done, I have no fear of the uterus being inverted again. It of course requires to take a good firm hold of each of the labia. The horizontal wires (4) should be a little curved, the convex part, of course, towards the body. For a very large cow the instrument might, perhaps, be the better for being a trifle wider.



Such is the instrument I have invariably used for this purpose for several years, and have never found it fail to answer. After this is done, and for some little time, while the cow is in the house, my advice is, to make the part where she lies as much higher behind than it is before as you well can, so as to relieve the parts from pressure, and consequently prevent, in a measure, irritation and straining.

5th.—I, no doubt, shall be thought very fortunate when I state that I have never had a case of the sort prove fatal, and, if it is taken in time, I know not why it should do so; neither have I ever seen or heard of a chronic case of inversion. Unfortunately, of late I have had other subjects far different engaging my attention, and it was not until last night that I noticed Mr. Barker's

request, and therefore have not time to enter more fully into the subject. I trust, however, that you will meet with responses from others who have had more experience in those matters than I have, and who may be able to throw more light upon the subject. I can only say, that I shall be at all times willing, when called upon, to afford any information in my power to my own professional brethren, as well as to that profession to which I consider ours greatly indebted.

CONTRIBUTIONS TO CATTLE PATHOLOGY.

By Mr. JOHN BARLOW, *V.S., Edinburgh Veterinary College.*

OBSERVING of late in your Journal a lack of matter relating to the diseases of horned cattle, I am induced to send you the following cases, which occurred during Professor Dick's late visit to London: not that they possess in themselves any thing peculiarly new or striking, but to convey an idea of the system here pursued, and the benefit which must result from entrusting out-patients to students, such responsibility inducing a necessity to form for themselves proper opinions, their correctness or incorrectness being daily verified by the Professor himself. As cases of out-patients occur, they are placed under the immediate care of senior students, each taking his turn, with whom the rest are at liberty to visit: his particular duty being to report daily, or oftener, as to the progress of their patient.

CASE I. *April 7th.*—A cow, belonging to Mr. Swan, cow-keeper, Jamacia-street, which had for some weeks previously, according to the owner's account, been off her feed, dull in appearance, with unhealthy skin, staring coat, and subject to occasional distention of the paunch, was placed under care of Mr. Tennant. On visiting her, she manifested the following symptoms: great distention of the paunch—pulse 75 and weak—breathing, of itself not materially impaired, but rendered difficult in consequence of tumours within the parotid glands pressing down the larynx—feeble cough—skin firmly adherent to the body and harsh, with rough coat—slight yellowness of mucous membranes—constipation—arched back, and pain on pressure over the right hypochondriac region.

From carefully considering the nature of these symptoms, and taking into account the period of their continuance, we were at once convinced that the case was one wherein extensive disorder of the liver existed, with general tubercular diathesis.

Although the presence of hoven might itself have induced us to suppose the stomachs were chiefly affected, yet yellowness of the mucous membranes, constipation, and pain on pressure over the right hypochrondriac region were conclusive evidence of diseased liver, which led us further to suppose that deficiency of biliary secretion was the cause of constipation and hoven, by affording imperfect stimulus to the bowels. The peculiar cough, unhealthy coat, and tumours in the parotid glands, further convinced us that the disease was one of a tubercular character, and accordingly led us to form an unfavourable prognosis.

As our employer was desirous to have some means, experimental or otherwise, adopted, we employed the following, being merely of a palliative description: Ol. lini et sp. tereb. were administered to relieve hoven, with temporary benefit. She then got for a few days, aromatic purgatives, with small doses of hydrarg. submur.; but in consequence of their affording no permanent benefit, and swelling of the paunch returning, on account of our patient's emaciated condition we advised her being destroyed, to which the owner consented.

Post-mortem appearances verified our prognosis. Extensive disorganization of the liver existed, occasioned by the development of tubercles, many of these, in some parts, uniting during their suppurative action, had formed large cavities containing pus. In other parts of the same organ they were of more recent formation, small, hard, and gritty in consistence. The mesenteric glands were much diseased, and considerable effusion existed in the abdomen.

Disease of the same character existed in the lungs. Tubercles of various sizes and stages of development were found throughout their substance. The bronchial glands were similarly affected.

On examining the parotid glands, we found connected with them and the Eustachian several large cysts containing pus.

Case II. *April* 12*th.*—Puerperal peritonitis, with hysteritis. A beast was to-day brought to the college-yard for post-mortem examination. The owner stated she had calved eight days previously, since which time she had been unwell, betraying great dulness—lying down rather frequently, but shortly rising again, yet without manifesting any urgent symptoms of pain—want of appetite—great weakness. The owner said her breathing was somewhat quickened, but could give us no information respecting the pulse. He said that she had not kicked or struck at her belly.

The examination was undertaken by Messrs. Tennant and Barlow, in the presence of the other students. The abdomen contained from five to six gallons of serum, wherein floated large flakes of lymph. Extensive and intense peritoneal inflammation existed, involving both mesentery, omentum, and that portion co-

vering the abdominal parietes; but, what is remarkable, not implicating that reflected over the uterus. The internal mucous coat of this viscus, however, displayed extensive inflammation, and contained a large quantity of dark-brown offensive fluid. More than a normal quantity of fluid existed in the pericardium.

Although we did not see this beast during life, still, from the owner's account, which corresponds with our own observation in similar cases, it is worthy of remark that the symptoms of peritonitis in the cow offer considerable difference from those observable in the horse with respect to intensity. In the cow assuming speedily more the character of low fever than the high state of inflammatory action invariably present in the horse under similar circumstances.

Case III. *April 13th.*—This case we merely relate to shew the treatment adopted at this College, under circumstances which are not only frequently occurring here, but very commonly take place in private practice, and are often difficult to manage.

Mr. Scott, dairy-keeper, Easter-road, applied for assistance to a cow that had calved sixteen days before, but still retained the placenta, and exhibited great constitutional weakness, want of appetite, suspension of rumination, low fever, and pain on pressure over the right iliac region. This case was placed under Mr. Scriven. Considering these symptoms to be occasioned by retention of the placenta, and aggravated by an absorption of its partly decomposed substance acting as a poison upon the vital powers, we proceeded to remove it, which, by proper means, was effectually accomplished manually. The uterus was then well syringed with tepid water containing chloride of lime. This was several days repeated. She then got zingib. rad., gentian. rad., et ferri sulph. in thick gruel with ale, daily. Improvement was continuous till the 17th, when violent diarrhœa came on. This was combatted with thick gruel, creta ppt., zingib. rad., et gum. opii. Under this treatment she rapidly improved, and is now from under our hands.

Another cow, belonging to Mr. Swan, has also for the last fortnight been under care of Mr. Siddell for chronic induration of the udder of a very severe character, occasioned by retention of milk from the presence of tumours within the two hindmost teats. Under the diligent employment, in the first place, of fomentations, and then ung. hydrarg. cum camphor., and, latterly, ung. iodini, together with frequent and careful evacuation of the milk by the teat syphon, she is now recovered, yielding milk freely and largely as before.

A CASE OF CATARRHAL FEVER IN A HORSE, SORE THROAT, AND CONSTIPATION OF THE BOWELS.

By Mr. J. WOODGER, *V.S.*

IT is not on account of the novelty of the present case that I am about to present it to the readers of this valuable periodical; but because it adds another instance of the non-susceptibility of the bowels to be acted upon by the medicine which I administered. The cause of constipation I attribute to some mow-burnt hay, which the animals had been previously living upon. Several others belonging to the same proprietors had been similarly attacked, but not to the same extent.

On Monday, April 1st, at 8 o'clock P.M. I was called to examine a fine black cart-horse, six years old. The pulse was 48—the Schneiderian and conjunctive membranes pallid—the mouth hot and slimy—the throat sore, with a slight cough—constipation in the bowels—reeling in the walk. I administered a laxative ball and fever draught, and ordered frequent enemata of warm water.

2*d.*—The pulse the same—the bowels not opened—the membranes pallid—the extremities cold—the breathing tranquil, but a reeling walk. The animal did not appear to evince any pain. I administered another fever draught, and ordered frequent enemata of warm water.

3*d.*—The pulse about 60, quick and wiry—the bowels still constipated, and the animal evincing colicky pains. No inclination to feed. I subtracted ten pints of blood, and gave eight ounces of the watery solution of aloes with a pint of linseed oil. An ounce each of the watery solution of nitrous ether and tincture of opium were given, with frequent enemata of warm water, and mustard cataplasms to the abdomen.

4*th.*—The pulse about 70. The bowels have not yet responded—the colicky pains have ceased—the respiration was tranquil, and the ears and extremities warm. I gave a pint of castor oil, four ounces of the watery solution of aloes, and an ounce each of spirit of nitrous ether and tincture of opium. Repeat the mustard cataplasm to the abdomen, and enemata of tobacco. I left my patient until about one o'clock, P.M. The medicine had not then acted, but the animal did not appear to be distressed. The pulse was feeble and quick—the ears and extremities warm—the breathing tranquil. I was afraid to give him any more medicine. I gave him two quarts of warm gruel, and had him walked out a few yards: he walked tolerably well. I left him until half past

seven. The symptoms were nearly as before, with the exception of the pulse, which had increased to 90. I repeated the tobacco enemata, until symptoms of syncope were beginning to appear, and I then left him for the night.

5th.—8 A M. purging commenced; but there was apparently nothing more than usually attends a common dose of physic. The appetite was returning. I left him two vegetable tonic balls.

6th.—10 A.M. The quickness of pulse is gradually subsiding—the appetite is improving—the ears and extremities are warm, and the breathing tranquil.

7th.—11 A.M. Pulse 50—purging ceased, and appetite good.

I now left my patient as being convalescent. I saw him about a week afterwards at his work, and apparently as well as ever. I do not think that I can speak too highly of the tobacco enemata.

THE VETERINARIAN, JUNE 1, 1844.

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

EDINBURGH VETERINARY COLLEGE.

ON Monday, the 22d April, the annual examinations of the pupils of the Edinburgh Veterinary College commenced in the hall, Clyde-street, and was continued on the Tuesday and Wednesday following.

The examinations were conducted by the gentlemen appointed by the Highland and Agricultural Society; viz. Professors Sir George Ballingall, John Lizars, Millar, Henderson, and Low; Drs. Mercer, Robertson, Gillespie, Knox, Macdonald, Handyside, Lyon, Playfair, &c.; and veterinary surgeons, Brown, of the Caribineers; Williamson, of Dalkeith; Tindal, of Glasgow, and M'Robie, of Stirling. Besides these there was a full attendance of the members of the Highland and Agricultural Society, and the resident gentlemen of the surrounding counties, and others, who take a lively interest in the advancement of veterinary science; among whom we observed Sir George Macpherson Grant, of Ballindallock; Sir John Hope, of Pinkie; Messrs. Anstruther, of

Tillicoultry; Graham, of Redgorton; Tyzack, of Park House; Inglis, of Redhall; Bell, of Woodhouselee; Whyte, of Glenesslin; Sligo, of Carmyle; Burn Callender, of Preston Grange; Dalzell, of White House; Lamont, of Knockdow; Robertson, of Eldin; Hunt, of Pittencrief; Caddell, of Cockenzie; Stevenson, of Redside, &c. Captains Thomson, Philips, and Smith of the Carabineers; Henry Stephens, Esq. editor of the Journal of Agriculture; the Rev. Messrs. Stevenson, Clark, and Ingram, of Amsterdam, &c. There were also present, Professor Spooner, and Mr. Gabriel, of London, and Mr. T. Walton Mayer, of Newcastle-under-Line, as also several veterinary surgeons from different parts of Scotland; viz. Messrs. Dobson, Tranent; Ferguson, Peebles; Bryce, Donne; Ormiston, Ardrie, &c.

After a strict and searching examination on Comparative Anatomy, Pathology, and Therapeutics, the following gentlemen received the diploma of the College: viz.

SCOTLAND.

Geo. D. Moffat, Edinburghshire
Wm. Murray, do.
Geo. Houston, do.
James Johnston, do
John Robertson, do.
John Borthwick, do.
James Grainger, do.
James Brown, North Berwick
Jas G. Macdonald, Invernessshire
Andrew Balfour, Fifeshire
Philip Wishart, do.
James Barclay, Perthshire
Adam Hardy, Roxburghshire
John Mason, Kincardineshire
Alex. Robertson, Kincardineshire
Wm. Grierson, Kirkcudbright
David Brownlee, Lanarkshire
Richard Findlater, do.
Daniel Tudhope, do
Charles Tennant, Ayrshire
John M'Caa, do.
John Eaglesham, do.
Wm. Whyte, do.
Wm. Lothain, Berwickshire
Patrick Reid, Linlithgowshire
James Wilkinson, Forfarshire
Peter Reid, Stirlingshire

ENGLAND.

Alfred H. Cherry, Clapham, Surrey
Thomas Walker, Leicestershire
Wm. Marshall, Burnby, Yorkshire
Geo. Scriven, Aberford, do.
Robert Nicholson, Womersley, do.
Charles Secker, Crofton, do.
Peter Taylor, Manchester
John Barlow, Cheshire
Thomas Siddell, Northumberland
John Aked, Lancashire
James Barton, do.
Wm. M. Clarke, Cambridgeshire

IRELAND.

Charles Gardner, co. Cork
Peter Murray, co. Clare.

Out of this number four gentlemen, from the superiority of their merit, were again selected as competitors for the prizes awarded by the Highland and Agricultural Society and Professor Dick; viz. Messrs. Barlow, Cherry, Taylor, and Tennant; and, after a most rigid examination, conducted by Dr. Mercer, the prize for general proficiency was awarded to Mr. John Barlow, of Wimslow, Cheshire, and that for the best anatomical preparation was gained by Mr. Peter Taylor, of Manchester. An additional prize was also awarded to Mr. George Dickson Moffat, of Edinburgh, for the second best preparation; and the Thesis Medal of the Medical Society of the College was gained by Mr. Alfred Henry Cherry, of Clapham Common, Surrey.

A most impressive parting address was delivered to the students by Dr. M'Donald, of Balyshare, as temporary chairman of the Veterinary Committee of the Highland and Agricultural Society, and the general audience dispersed highly satisfied with the careful and scrutinizing method of the examinations, and the very great degree of general acquirements that had been exhibited by the different candidates. On the Wednesday evening sixty gentlemen, the successful candidates, and the board of examinators, dined together in the Waterloo Hotel, when, "after the feast of reason, came the flow of soul;" and, after a most happy evening, the company, at a late hour, separated to their different homes, "happy to have met, sorry to part, but wishing to meet again."

No more responsible duty has devolved upon the Council of the New College in London than that of providing for the examination of students, who, in the language of the charter, "shall have been educated at the Royal Veterinary College of London, or at the Veterinary College of Edinburgh, or such other veterinary college as hereinbefore mentioned, and who may be desirous to become members of the said body politic and corporate: also for *regulating the nature and extent* of such examinations, and for the *appointment of persons to examine* and determine upon the fitness and qualifications of such students, and for the admission or rejection of such students, as members of the said body politic and cor-

porate." Up to the time we are writing, two examinations of students, as directed by the Council, have taken place at the Freemasons' Tavern; one held on the 8th of last month, another on the 15th. At the first, there was a full assemblage of the gentlemen appointed members of the Examining Board: there were present, Mr. Green (President), Dr. Bright, Mr. Liston, and Mr. B. Cooper, of the medical profession; of the veterinary, Messrs. T. Turner, W. Percivall, Goodwin, jun., Gabriel, Langworthy, Baker, and Field. The President of the Council (Mr. T. Turner), and Messrs. Spooner and Simonds (teachers), also sat in the room.

The first candidate for examination was no other than the talented and respected *lecturer* on chemistry at the Veterinary College, Mr. Morton; to whom the Board felt unqualified satisfaction in presenting a diploma, he having been, as the President remarked to him in a speech replete with well-merited compliment, "examined on a former occasion*, and found perfect. The next candidate, the first of the pupils, was Mr. John Field, nephew of Mr. Field; who was followed by seven others, whose names will be found in the list of candidates, making eight pupils examined. With much pleasure and some pride we feel ourselves enabled honestly to add, that all the eight—as was signified to them collectively in a handsome and appropriate address by the President—went through their examinations in a manner no less highly creditable to themselves than to the gentlemen from whom they derived their instruction. The routine of the examinations was, for two gentlemen of the medical and one of the veterinary profession to interrogate each candidate.

At the second Board of Examination, held on the 15th ult., there was not the same full meeting of the Examiners, many from the medical and veterinary professions being necessarily absent. On this occasion, prior to the examination of the students in waiting, Mr. Youatt presented himself, and received his diploma, constituting him—what, perhaps, many have thought he always was, and few, we believe, will think he has not many a day ago deserved to be—a graduated member of our profession.

* When Mr. Morton was examined touching his fitness as a teacher at the Royal Veterinary College.

List of Gentlemen who have obtained their Diploma from the Royal College of Veterinary Surgeons in the South.

May 8th.	*May 15th.*
W. J. T. Morton	W. Youatt
J. Field	J. H. Hill
Thos. Darby	H. Emms
J. Ryder	J. Holmes
G. Dawson	W. Rogers
G. Freer	R. Maxfield
G. Lepper	Thos. Leech.
J. Redwood	
G. Brown.	

A question has been raised among the (veterinary) gentlemen appointed examiners, whether it were legal, or fitting, or expedient, that the teachers—of the Royal Veterinary College—should be present during the examination of their own pupils. That they are forbidden themselves to examine, or to take any *active* part in such examinations, is plainly enough expressed in the royal charter, the interdictory clause running thus :—

"That no professor of any or either of such colleges as aforesaid, of which the person desirous of becoming a member of the said body politic and corporate shall have been a student, shall in any way or manner act or interfere as the examiner of such person."

The point in dispute is—whether the phrase, "interference" does not, in the interpretation of the law, exclude them from the examination-room ; or, supposing they are present at the examinations, whether such an act may not tend, in the eye of the law, to invalidate any certificate of qualification granted by the examining board, and consequent admission of the recipient into the chartered body. Another form in which the question presents itself, is—supposing the teachers have a legal right to be present, how far it is fitting or expedient for them to exercise such a right. The right of the examiners themselves, *as a board*, to admit or exclude any

person not an examiner, we apprehend cannot be questioned; so far, however, do they appear from having any desire to exercise such a privilege, that they have at once admitted these persons; not only while the examinations were going on, but even to their private consultations and deliberations on the merits or demerits of the candidates for diplomas. For our own part, we profess ourselves great advocates for *public examinations*. So far as the profession are concerned, we think the doors of the examination-room might, not only with safety but with advantage, be thrown open; though, beyond that we are not prepared to go. Non-professional persons we certainly would exclude. The practice of our courts of justice and houses of parliament might possibly be imitated. The trial—the examination—might be an open one; but, when the time arrived for considering the verdict—to be founded upon the qualifications of the candidate, as elicited through his examination —all non-members of the examining-board might be requested to withdraw. This would, in our opinion, give the teachers and others an opportunity of seeing that the pupils were fairly dealt with; at the same time that it shielded the board of examiners from any innendoes or illiberal remarks that might be cast, out of doors, upon their proceedings. P.

MR. F. KING, JUN., ON THE TREASURY OF THE ROYAL COLLEGE OF VETERINARY SURGEONS.

Sir,—In consequence of a few remarks which I have heard drop from one quarter or another relative to the subscriptions and donations that have been forwarded to me as Treasurer to the Council of the Royal College of Veterinary Surgeons, I am induced to offer a few observations on the subject, as, from what I have heard, it appears to me that many persons have an idea that small donations would not be accepted. Such, let me tell my professional brethren, is not the case; but it is hoped and expected that every one belonging to our body will come forward and lend an assisting hand freely and as liberally as he can. Certain advantages have been gained, others will follow; and if a man does not subscribe to what is hereafter to benefit himself, in my opinion he does not deserve to reap the benefit of those advantages. The

amount which he may subscribe must depend upon his own feelings on the subject. Had the profession at large come forward liberally on the first appeal, there might not, perhaps, have been the necessity for a second. Many did not and would not subscribe until they saw what was done. Everything cannot be done at once: if they expect it, they are mistaken in their views. Much has *been* done, and much more remains yet to be done. But what can the Council do without funds? The profession, generally, look to them; but many, I am sorry to say, do not appear to lend them a helping hand in any way. In the list of those who promised in the *first* instance, I regret to say there are some who have not even yet contributed. I will not particularize, but leave it to those who are so situated, and who may happen to read this, to ask themselves whether they have done as they would be done by. Knowing the state of affairs, I trust I shall not be digressing in making these few remarks, having the welfare of the profession at heart. Many have forwarded sums varying in amount, which I believe have all come to hand. I have not answered all the orders, certainly—only those who requested me; and therefore I trust that will not be attributed to neglect on my part; far be it from me to be guilty of it.

In conclusion, let me once more assure my brethren that all that is required of them is to subscribe freely and as liberally as their feelings and circumstances will allow them to do. If you think these remarks worthy a space in your valuable columns, by inserting them you will oblige

Your's faithfully,

F. KING, Jun.

ON CALOMEL, ANTIMONY, AND QUININE, IN THE TREATMENT OF DISTEMPER IN DOGS.

By Mr. J. YOUNGHUSBAND.

BEING in a part of the country where large flocks of sheep are kept, and that useful companion of man, the shepherd's dog, is reared with great care; and that scourge of a disease, the distemper, is both frequent and fatal; and partly from perusing in THE VETERINARIAN different paragraphs concerning the effects of the chloride of mercury and the tartrate of antimony in that disease, I beg to offer the following as the result of my experience.

In the outset of my career as a practitioner in the veterinary

art, I was in the habit of prescribing portions of these two drugs, but administered in such divided doses, and at intervals, perhaps, too far between, their action was in nowise immediately perceptible. In course of time, however, I found that, by thus treating my patient, I seldom cured him, and as often displeased my employer; and that, if I could devise no better method of cure, I should have the mortification of seeing myself, in a manner, expelled from the practice.

Calomel and antimony were, however, still my favourites, especially in certain forms of the disease; viz. where the catarrhal symptoms were most predominant: so I came to the conclusion to try them again. To make their action more expeditious, I mixed together equal portions of them, and thought that I would give my patient so much of the compound as would act in a twofold manner, both upon the stomach and alimentary canal, and nearly at the same time. By so doing, I soon found that I had got in my power a medicine that would do its duty, and that quickly, and to any extent that I required. But, however, after having acted thus, it, at times, and those occurring too often, left the animal in such a state of debility, that nature could not rally, and he fell a sacrifice to his weakness, or, perhaps, the poison.

Of late, however, from having seen a hint thrown out in THE VETERINARIAN, I have been accustomed (after the action of the compound just named) to give the solution of the sulphate of quinine in moderate doses two or three times in the course of twenty-four hours, according to the weakness of the animal and the action of the compound; and by continuing its use for a greater or less time, as the disease assumed a mild or protracted form, I have found in them all that was required, and am proud to record that, since I commenced the above method of cure, I have saved the life of many a favourite, and seldom been disappointed in my expectation of a cure.

Perhaps it may be said that I am inclined to think this medicine to be a specific in every form of the disease; but I answer no: though, I believe, if given more generally, and at the commencement of the disease, and by the instructions of an experienced practitioner, it would, in all probability, cut short the malady, and in few instances be found to assume so many different shades and characters of disease as too frequently make their appearance.

In some cases, however, when the stomach and bowels are in so irritable a state as to immediately reject every sort of aliment brought in contact with them—even the mildest demulcents—there is no doubt that a kind of treatment more suited to allay irritation will answer our purpose better; and from having had, at different times in my own family, cases where the stomach and alimentary

canal were in the state just mentioned, and the diarrhœa with difficulty suppressed, I have used the compound powder of ipecacuanha in very small doses, giving in the intervals the solution of quinine, and have found in them two valuable agents.

From this I was led to try the same remedy in the foregoing complaint of the dog, in which the stomach, &c. shewed so much irritability; but in this form of the disease, I must confess, I have not been so successful as in the catarrhal variety, or where the mucous membrane of the nostrils, &c., shewed more the seat of the disorder.

This disease assuming such a variety of symptoms, and, at times, requiring different modes of treatment, by being neglected in its earlier stages, and having spun out my paper so much further than I intended, and it not being my intention to discuss the question, but only to give a summary account of my mode of treatment, I must conclude by wishing you and THE VETERINARIAN *good luck* in all that you do.

I have made no mention of the dietetic mode of treatment: this, however, was done intentionally, as I imagined that every practitioner would be able to direct that part himself; and also, because there are plenty of works far superior upon this point to any that my feeble powers could produce.

THE VETERINARY ART IN INDIA.

By J. GRELLIER, *Esq.*, *M.R.C.S.*

(Continued from p. 164.)

THE LIVER AND ITS DISEASES.

THE liver is the largest gland in the body. Its situation is on the right side, under the stomach, and its function is to produce bile for the purpose of assisting digestion and increasing the worm-like motion of the intestines, by which their contents are conveyed from the body.

There is a peculiarity in the supply of blood to this gland which is not found in any other instance. I have before mentioned, that the fluids produced in the body were obtained from arteries, that is, from blood flowing from the heart, and generally through the medium of glands, as saliva from the salivary glands, tears from the lachrymal glands, semen from the testes, &c.; while the liver alone cannot separate bile but from venous blood. The vein which

supplies it is formed by the union of the veins from almost all the contents of the abdomen, as from the stomach, bowels, and spleen.

There are many reasons given for this peculiarity in the liver. First, the arteries would convey the blood too rapidly for such an extensive supply of bile as the liver produces when in an healthy state, which is proved by its being so liable to diseases in hot climates, where the blood circulates quicker from the general stimulus of heat. By this means the vein supplies the blood too rapidly, and is, perhaps, also mixed with a quantity of arterial blood, from which bile cannot be produced, and the consequence is a defect of bile both in quantity and quality.

The vein which supplies the liver with blood for the production of bile has two modes of terminating. One is in innumerable small ducts, of which the liver is almost wholly composed, and in which the blood is converted to bile; the other is in corresponding veins, which carry off the residue after the bile is produced.

The small ducts unite as they leave the liver into one large one, called the hepatic, or bile duct. This duct empties itself into the duodenum, which is the first intestine, and where the food is chiefly digested. It is an obstruction in this duct which is generally the cause of the jaundice or yellows.

I cannot omit in this place remarking a most glaring error of Taplin's, which ought not to be passed over, although at the commencement I wished to avoid the most distant personal reflections; yet to overlook the present instance would be false delicacy, as his works were once very generally distributed and received, and, consequently, many of his errors adopted.

In his chapter on the jaundice or yellows, he says "the most simple and least dangerous complaint passing under this denomination arises solely from an obstruction in the biliary ducts, or in the gall-bladder, situated between the two lobes of the liver, whose immediate purpose is to assist in secreting the bile from the blood, and promote its conveyance to the intestines, where, by its acrid and stimulating property, it is destined to excite the peristaltic motion, by which they expel their contents."

I must first express my astonishment that Mr. Taplin was never informed that the horse has no gall-bladder; for I cannot, for a moment, suppose such a mistake could occur (which it does even in the eleventh edition of his work) to a person in the habit of writing from ocular proofs or observation. He must, therefore, have written, as all his writings prove, from his knowledge of anatomy, &c., in the human subject, which argues a great deficiency in the general knowledge of physic, to imagine that the whole animal creation must be formed with anatomical similitude.

Mr. Taplin points out the exact situation of this non-existing bladder. He then says, "whose immediate purpose it is to assist in secreting the bile from the blood, or convey it to the intestines." In animals that have a gall-bladder, its function is to receive part of the bile from the liver, which, the more watery particles being absorbed, renders the residue much more acrid, for the purpose of being a stronger stimulus to the intestines.

To expose more of the mass of error and imposition of this writer on the public, he informs us, that the gall-bladder lies between the two lobes of the liver. This description certainly argues the animal to have but two lobes. Thus Mr. Taplin has rendered more complicate the organs of bile by giving the animal a gall-bladder, which nature never gave; and the liver he has divided into two lobes instead of four. He ought to have known from an ordinary acquaintance with comparative anatomy, that the action and shape of the animal required its being divided into a number of lobes, as it is in most quadrupeds; and, to render them yet more supple, each lobe has a number of fissures. It is thus confirmed, that Mr. Taplin could never have examined the internal parts of a horse, or that he took not the least advantage of it to make the most common observations. It is probable that the human subject was entirely his source of knowledge, as he could not otherwise have so contrasted the natural economy of the animal.

Mr. Taplin has not only created a gall-bladder, to which he gives locality, qualities, and diseases similar to those in the human subject, but he has also prescribed from the same analogy. His prescriptions are loaded with articles that are found to have little or no effect on the horse, and positively none in the quantities he recommends; as figs, tamarinds, split raisins, stick liquorice, saffron, elecampane, cream of tartar, and many other such ingredients, which he must have inserted either to decorate his recipes, or from an unpardonable want of knowledge in the operation of medicines on the horse, most of them being articles on which the animal might almost feed without any perceptible effects, and which he recommends in doses of a few drachms. This want of consideration can be only compared to the superstitious and prejudiced regimental salistry, who in cold wet weather gives to each of the horses half a date, as a stimulus to prevent the effects of cold. Mr. Taplin is also defective in what he recommends as the more active medicine. In his purgatives he orders salts in doses of an ounce or two, while I have given two or three pounds frequently, without even rendering the body lax. Jalap, which he recommends in doses of one or two drachms, Mr. Coleman has, I believe, administered in doses of half a pound, or more, without

scarcely meeting with any effect. Erring next in the other extreme, Mr. Taplin recommends aloes and calomel in such doses as in England very frequently produce the most lasting ill effects, and often inflame the bowels so much as to produce death; while Mr. Coleman finds one-third or half the dose answer every purpose of a purgative*.

THE ADDRESS OF M. DELAFOND, AND THE COMTE RENDU OF THE TRANSACTIONS OF THE VETERINARY SCHOOL AT ALFORT IN 1843.

AT the close of each scholastic year, and in a solemn meeting like this, some professor is charged with giving an account of the labours of our school. I have the honour of occupying this post to-day.

To smooth the difficulties of a long and painful course of study —to habituate the pupils to exercise their good sense in seeing clearly, and comparing and judging rightly—to properly estimate their actual knowledge on every branch of which the veterinary art is composed—and to train up men useful to agriculture and to their country generally—such are the duties of the professors of this school. It is impossible fully to estimate the task which is imposed upon them. Veterinary medicine is a science of itself, already occupying a vast field, always extending, and the principles of which must be sought by continual efforts. The professors, gentlemen, are especially charged with the accomplishment of this, and a heavy responsibility rests upon them. Their task is only terminated when they have accomplished this last obligation.

They will deem themselves happy if they have in this, as in preceding years, accomplished the views of government—if they have preserved the reputation which the school of Alfort has so long acquired—and if the observations and researches to which they have devoted themselves, and the works which they have published, should be deemed useful in the advancement of science.

I shall now, gentlemen, have the honour of making known to you the principal exertions of the professors in the service of this establishment. May you deem this account to be worthy of your approbation!

* It is to be remembered that Mr. Taplin wrote for the horses in England, where half the quantity of purgatives that are used in hot climates will suffice (*vide* chapter on the Intestines).

The Compte Rendu of the Clinical Chair.

Professor.....M. Renault
Assistant Professor...M. H. Bouley
Principal Assistant...M. Prud'homme.

During the scholastic year which has just passed, 1256 diseased animals, the objects of consultation and clinical experiment, have been admitted into our hospitals. Of this number 956 were horses, 285 dogs, and 15 cattle. Besides these, 2813 horses, 105 dogs, and 20 cattle, were brought to the college for consultation.

The pupils of the fourth year have, as in all preceding years, had the out-door practice to attend to, which is distributed among more than a hundred and twenty proprietors in the neighbourhood, who have, at various times, applied for advice at the college, and principally for cattle. Thus the attention and advice of the directing professor, and the clinical pupils, have been required in the hospitals of the college at the morning consultations, and also other attention, for more than 4376 animals of different species, which number, when added to those of the last year, will make 10,376, on which the pupils who have received their diplomas have had the opportunity of practising and studying their diseases.

We have always regretted that, notwithstanding the government regulations which grant to ruminating animals a free entry into the hospital of the college, the number is still, comparatively speaking, very small. Perhaps it may be necessary for the measure of which we are speaking to have time to bring this to maturity, as certain obstacles have been raised which tend to limit the transit to and from Paris, a toll having to be paid at the entrance of the city for each head of cattle. We are not, therefore, surprised at the owners hesitating to send their animals to the school for advice, forced as they are to pay a new toll for them before they can reach the hospital. As long as this obstacle exists, we must not expect to see animals that have been attacked by any of those dreadful epizootics, such as have been so prevalent for several years, brought from the cow-houses of Paris into our hospitals.

While studying the diseases to which domesticated animals are most liable, we cannot fail to be struck by the great influence exercised by the person who breeds and rears them.

How many things are there in the badly ordered state of domestication in which we compel them to live which act most prejudicially on their constitutions, and lay the seeds of disease, and often of death! How frequently are we ignorant of or misunderstand their constitution! How much want of foresight do we

betray in providing for their wants! How unbounded is our abuse of the service they render us! It is a fact which we cannot repeat too often, because, when thoroughly felt and understood, it will, perhaps, lead us to endeavour to find a remedy, for the evil which the bad management exercised in the breeding and rearing of our domesticated animals produces in a frightful degree the diseases which destroy them.

Up to the present time it has been overlooked too much, that the very fact of man's having been permitted to reign as master in this world ought to induce him to endeavour to exercise to the best advantage that power, in order that all his actions may be marked with the impress of that superior intelligence which constitutes his distinctive character, and that, while modifying and appropriating to his use the things of this earth, he may not infringe on the conditions essential to their existence.

We crowd into narrow, low, and damp stables, where air and light are continually wanted, the cows who furnish the purest and most healthy nourishment of the great towns; and then, we regret to observe, the poor animals sink under dreadful diseases, so that on an average they seldom live more than a couple of years. We are astonished to find such habitations transformed into absolute pest-houses, from which all the epizootics that do so much injury derive their source. If, however, any thing ought to astonish the attentive observer, it is not these epizootics nor this fatality, but that life and production should continue so long, or are at all compatible with the dreadful state in which, by our mismanagement, we place our valuable cattle.

Where is the remedy for such an evil?

In a better regard to their health.

When will the time arrive in which rules will be laid down by science for the proper construction of our buildings!—when shall we have the good sense to limit the number of animals which they ought to contain, and give to each its requisite portion of light and food! Then, and only then, will our animals be placed in a situation more conformable to the laws of their nature, live longer, and produce more nutritious and wholesome food than they can possibly yield in the artificial state in which we compel them to vegetate. The diseases which attack the ovine species also daily shew the want of foresight in man, and the state of imperfection and inefficiency in which the different branches of our agriculture are still found.

Sometimes rendered parsimonious to excess by a temporary pressure almost of penury, we diminish their food so much as scarcely to allow them sufficient for their subsistence. Afterwards, rendered prodigal from luxuriant crops, we provide them with sub-

stantial food to compensate for the privations of the winter season; changes which are too rapid under our faulty system of management, and which cause many serious diseases.

The horse is of all animals the most frequent victim of our abuse of power. Associated with men of almost all conditions, he is valued only for the work that he performs.

But, among the causes of the disease under which we see the horse suffer, the most influential, and invariably dangerous, is overwork. Experience daily teaches this in our large populations.

There, in the display of great industry, and a trade of which competition is the essence, the horse is but an instrument, and is compelled to labour long, hard, and with dispatch, in order to obtain the greatest profit. The consequence of this usage, so regardless of the welfare of our animals, is the rapid ruin of health.

The work which we require from our animals is, in fact, what we ought to repay with the greatest possible tenderness and care. More artificial, so to say, than any other, it requires in the animal from which it is obtained the most perfect harmony of strength, the most complete solidity of organs, and the most absolute integrity of the functions; all which conditions cannot exist unless repose and diet, administered with intelligence, shall sufficiently compensate for the enormous expenditure of animal power that is required.

The forgetfulness of those laws requisite for the maintenance of health, of which we are too often guilty, is the cause of a great number of the diseases which are so destructive to our horses. Placed in conditions most contrary to the laws of nature, the horse, worked without regard to strength, becomes prematurely exhausted by the very excess of the activity of his organs; and when once the equilibrium of his organization is destroyed, life becomes gradually extinguished in him, and powerless to animate a machine whose worn-out powers can no longer act, otherwise the consequence of perverted nutrition causes the animal matter to undergo a mysterious and fatal transformation.

Then do these fatal germs which are contained in the exhausted organs become developed. They sap the foundations of life, and, endowed with a devastating activity, extend themselves throughout the whole frame, and powerfully exercise their fatal influence. Then appear those contagious diseases which the credulous of ancient times attributed to the spirit of evil, and which have their origin in ill-treatment, or, in other words, in the abuse of the things confided to our care by the great Creator.

May a good system of agriculture furnish us with the means of a varied and sufficient allowance of food to the animals; and that general competence which ought to be produced by the present

social ameliorations enable us to construct for them more salubrious habitations! May our roads be improved, our carts and waggons rendered less cumbersome, and good and general education enlighten our farmers and peasantry—dissipate the mists of cruelty, barbarism, and prejudice, which cloud their understandings, and render them too often guilty of brutal and disgraceful actions, and contribute much to the mismanagement of the animals committed to their care! If these ameliorations take place, we shall soon see many of the most dangerous and fatal diseases and epizootics disappear with these the causes of them.

Since, then, we are not permitted to foresee the development of the maladies of which we are describing the causes, we search to study them under all their phases and different forms, in order to find their seat and their nature, and particularly to discover among their characters those which are attributable to contagion—a fearful property, which converts an isolated into a general evil.

In this point of view, the first object of our study ought to be glanders; that ruinous disease, which appears to be so inseparably connected with every enterprise in which the horse is employed as an instrument of labour, and which is the most ordinary mode of the manifestation of the wearing-out of his constitution.

At some future time we may resume this interesting topic. We now, however, have recourse to a continuation of

The Course of Pathology and Therapeutics.

Professor....M. Delafond.

The Professor has delivered in the course of this year many experiments on the action and effects of the therapeutic means with which it is proper to combat the diseases of the different species of the domesticated animals.

These researches had for their object—1. The modifications effected by the subtraction of blood, arterial, venous, and capillary, on the whole organism of the frame. 2. The effects produced on the diet, the liquids, and solids. 3. The changes produced in different substances considered as excitors of the nervous system, as purgatives, diuretics, antiputrescents, &c. The results of these researches have been partly inserted in the first volume of the Treatise of general Therapeutics which M. Delafond has just published.

The same Professor has, in conjunction with M. le Docteur Gruby, undertaken a series of researches on the structure of the mucous intestinal membrane of the different domesticated animals,

and particularly on the anatomical composition of the villosities and the functions of these important appendages of the digestive mucous substances; the transformation of the alimentary animal and vegetable substances into chyme; the formation of chyle, the process of its absorption, and the circulation of this fluid in the humours; the organic composition of the blood and of the lymph; the mode in which the globular particles of these two fluids are formed; and, finally, the modifications introduced into the physiological state of the blood and lymph by the admixture of the materials furnished by the digestion of the immediate principles of the animal and vegetable substances taken as fodder.

These researches have conduced to several discoveries, among which we will here point out—

1st. The prolongations, shortenings, and sloping position of the intestinal villosities.

2d. The existence of an apparatus for the absorption, division, and purification of the crude chyle, proceeding from digestion; and an homogeneous chyle, consisting of exceedingly small particles, floating in a transparent fluid, called chylogène, which covers each villosity, and is formed by a particular deposition of their epithelium.

3d. The circulation of the particles of the chyle in the blood, which flows through the arteries, veins, and capillaries.

4th. Finally, the existence of the rough globules circulating with the lymph.

The results of these researches have been partly communicated to the Academy of Science: they will be published continuously in the *Récueil de Médécine Vétérinaire.*

During the last few years several persons have noticed the existence of certain worms in the blood of frogs, but until the present time no one has observed those entozoæ which circulate through the veins of warm-blooded animals, and those which approach so much nearer to the human being.

Within the last few months the same persons have discovered, in four dogs of different breeds, a worm of the filaria species, constantly living in the blood of these animals: these worms are from three to five thousand millimetres in diameter, and twenty-five hundred millimetres in length. They are transparent and colourless, their anterior extremity dull, and the posterior or caudal extremity terminating with a very small film. At the anterior part we observe a furrow about five thousand millimetres long, which may be considered as a buccal fissure.

According to these characters, this species of hematozoaire must belong to the filaria kind.

The motions of these creatures are very quick, and they will

often live for ten days after the blood has been drawn from the veins, and left in a vessel placed at a temperature of 150 centigrades.

By examining a drop of blood with the lens of the microscope, we are enabled to observe these hematozoaires swimming with an undulating motion among the red globules, bending and unbending, twisting and untwisting, with much vivacity.

In order to ascertain whether these worms exist in the whole course of the circulation, MM. Delafond and Gruby have examined the blood in the arteries, veins, and capillaries in different parts of the body, and everywhere these hematozoaires are to be found. The urine, the excrementitious matters, the serous fluid, and none of the tissues of the system, are closed against them.

The diameter of these globules of the blood of the dog is from seven to eight thousand millimetres; that of the filaria is from three to five thousand. There is not the least doubt that this worm can circulate everywhere in which there is any blood. A drop of blood extracted from the capillaries contains from three to five of these worms. Their number in the whole of the blood of a dog of middling size has been estimated at more than 100,000.

The prodigious number of these animals might the more astonish us, as the dogs in whose blood they are found enjoy good health.

Among the affections of sheep, disease of the blood or the spleen is undeniably that which destroys the greatest number in the localities of France, rich with valuable flocks, and where agriculture is carried to so much perfection.

In the course of the year 1842, the mortality occasioned by this dreadful disease in the ancient province of France, called Beauée, carried off more than two millions of cattle, and the loss may be estimated at more than seven millions of francs.

The Minister of Agriculture was eager to find a remedy for these disasters, by sending for M. Delafond to the department of Loiret and Loir-et-Cher, to ascertain the causes of the disease of the blood, and to point out to agriculturists the means of preventing it. Two thousand copies of the report of M. Delafond have been distributed among the husbandmen of Beauée.

Physical Chair of Chemistry and Pharmacy.

Professor.....M. Lassaigne.
Principal.....M. Clement.

The Professor charged with this chair has, in the present year, delivered different lectures on the chemical properties of the or-

ganic tissues of animals, including quadrupeds, and in certain animals of the inferior orders in the scale of zoology.

The experiments which he has undertaken on the tegumentary tissue of insects and their larvæ have proved, in the silk-worm, that the tissue which forms the external envelope of this caterpillar is partly composed of an organic, membranous, and transparent matter, remarkable for its defying all change from certain chemical agents which decompose and dissolve the integument of the superior animals.

The substance which enters into the composition of this epidermoid membrane, and which has been distinguished by the name of *entomaderme*, is found in the numerous elastic vessels which are symmetrically distributed throughout the whole of the silk-worm. We sometimes meet with it in a state of greater condensation in the hard and horned portions of every insect in the arachnoides and crustaces, but not in the ascarides, which multiply and live in the intestines of herbivorous animals.

A chemical examination of this organic substance has shewn to M. Lassaigne that it was azotée, but less so than the greater part of the organic tissues of vertebrated animals.

This assertion has just been recently confirmed by M. Payen, who, in a memoir read at the Academy of Science on the 7th of August last, compared it with certain vegetable tissues with which it was physically analogous.

In studying the action of potassium on the organic azote principles of the animal economy, the same Professor has been enabled to discover a method as simple as it is certain of detecting the presence of azote in the almost impenetrable particles of organic matter. This process rests on the production of cyanogene, when we calcine organic matter defended from the air, whether much or little impregnated with potassium.

A great number of the organic tissues, and many animal productions, are liable, on account of the sulphur which they contain, to be rendered of a brown colour by contact with certain metallic preparations. This explains, as M. Chevreul has stated, the changes of colour which the wool sometimes takes, when placed in contact with carding-teeth formed of certain metals.

In examining different tissues and products placed in contact with a solution of the protoxyde of lead in soda, which renders wool, hair, and horse hair, brown, producing in these substances sulphur of black lead, M. Lassaigne has observed that a certain number of animal substances do not experience any effect from this chemical agency; while others, and those which number sulphur among their elements, turn brown. Among the former we notice silk, which has the property of not becoming coloured;

and among the latter wool, which turns brown more or less quickly. The association of these two substances having to take place in the fabrication of several tissues, application of this solution will permit us to distinguish them simply by wetting the tissue, and then leaving it to dry in the air.

A fact communicated to the Academy of Science in the first month of the year would lead us, in some measure, to believe the action of arsenious acid on cattle. MM. Renault and Lassaigne hastened, without loss of time, to test a fact which seemed so improbable. They discovered that a moderate dose of this drug was as poisonous to cattle as it is to the carnivorous species, especially when given under circumstances favourable to its absorption.

The experiments made in this College on sheep that have been destroyed by this poison have shewn the course of the arsenious acid in the blood, the liver, the lungs, and its expulsion by urine; the same as it has been observed in other species.

The Artesian wells which have been dug during the last year, on several of the neighbouring farms and estates, have afforded to M. Lassaigne the opportunity of analyzing the water obtained from them. These observations, by shewing that the temperature of these waters was equal to the depth of the layers of earth which contain them, have enabled us to state that, in point of composition, they were similar to the water of common wells containing the same calcareous and magnesian salts.

Chair of Anatomy and Physiology.

Professor .....M. Rigot.
Assistant Professor.....M. Goubause.

The museum has this year become enriched by the addition of a great number of interesting pathological preparations bearing upon the study of anatomy. Some of these have been obtained from animals admitted into the hospital, and which have died there; and others, and not less curious ones, have been sent to the College by different veterinary surgeons.

Among these, we mention particularly two osteosarcums of the upper jaw of a cow; and the œsophagus of a horse, presenting from the base of the heart to the level of the diaphragm a dilatation resembling the crop of a bird, and filled with alimentary substances. The fleshy membrane of this passage, which alone had been torn, consisted only of a kind of band about eight centimetres in width, and similar in appearance to the longitudinal bands of the great intestine. The mucous membrane, which constituted the greater

part of this crop, presented the same physical character which it would have done in its natural state, except that it was very much thickened.

The dissection of a great number of articulations of the thigh has convinced us that these soft tumours, called by veterinarians *vessizons*, usually arise from distention of the synovial membrane of the tibia astragalus, and not, as has been generally believed, a dilatation of the great serous bag which facilitates the sliding of the tendon of the deep flexor muscle of the phalanx in its passage over the posterior face of the tarsus.

The School has received from M. Prangé, V.S., two very interesting preparations. One is a comminuted fracture of the right coxa, opposite to the cotyloid cavity; the other a very ancient hernia of a portion of the *epiploon*, and the small intestine through a normal opening of the phrenic centre of the diaphragm. The *epiploon* adheres to one of the sternal sides, and forms a sort of conical bag which contains the hernial intestine.

M. Ayrauld, V.S., has sent to the School a calf, the body and limbs of which were twisted in a most extraordinary manner. The skin only covered a portion of the body. About the level of the right elbow no portion of it appeared. Afterwards it was continued obliquely towards the back and at the left side, and formed a kind of case over the right posterior limb. The inferior and lateral sides of the abdomen were wanting, None of the digestive organs had their natural form and dimensions. The heart was on the outer side of the thorax, and rested on the left lateral wall of this cavity. The preparation and examination of the skeleton of this unnaturally-formed animal enabled us to state that the base of the vertebral column had undergone a curve from the right to the left; that the right natural side of the thoracic cavity was composed solely of some long fragments, some of which were sunk in the flesh, and others attached to the extremity of the spinal apophyses of the dorsal vertebræ; that the left anterior leg had but one whole bone, namely, the scapulum; and that the rest of this limb consisted of a kind of cartilaginous stump about three centimetres long. Lastly, the bony vault of the pallet formed scarcely a vestige of a division between the mouth and the nasal cavities.

M. Maupeiver, V.S., has also presented to the museum a curious specimen of chronic pericarditis from a cow. The pericardium had acquired a very extraordinary development. Its internal cavity was divided into two distinct compartments. The smallest of these contained the heart, the tissue of which was very flabby and discoloured. The other, and larger one, contained about 6 lbs. of thick fluid of a dirty yellow colour. It was formed externally by the pericardium, the internal surface of which was covered with

a yellow uneven pseudo-membranous layer, and internally by a very thick false membrane which was smooth on its internal surface nearest to the heart, and roughened by long and large prolongations on that surface which came in contact with the fluid in the abnormal cavity.

M. Laurent, V.S., has sent us several calculous productions.

The School has to thank M. Loucherd for presenting them with several representations of the characteristic lesions of glanders. It also has to thank M Rigot, sen., for the presentation of a snaffle which enables the horse to drink when he requires it. This was of his own invention.

The library has, this year, been enriched by a great number of veterinary works coming from the library of M. Huzard, sen.

The School has great pleasure in testifying gratitude to the Minister of Agriculture and Commerce for all the kindness it has received from him.

EXTRACT OF THE COMPTE RENDU OF THE ROYAL VETERINARY SCHOOL AT LYONS, IN THE SCHOLASTIC YEAR OF 1841-42.

By Professor Rey.

In the year from August 1841 to July 1842 there were admitted into the clinical school 1236 animals, comprising 680 horses, asses or mules, 16 cows, 23 sheep, 509 dogs, 8 animals of various species.

The number of animals admitted into the hospital this year is 218 more than that of the preceding year. The chief part of this extra number are horses. The number of dogs also has been greater, notwithstanding the severe measures adopted by government with regard to them, and the number that have been destroyed.

Of 680 solipedes, 584 have been sent out cured or convalescent, and 93 have died or been killed in the infirmary. The diseases with which they have been attacked present themselves in the following order:—farcy 4, glanders 24, gastro-encephalitis or abdominal vertigo 6, tetanus 4, acute and chronic internal diseases 44, and surgical cases 9.

If we subtract from this number 32 horses that were destroyed because they were affected with farcy, glanders, fractures, and other diseases, which did not permit us to hope to obtain a cure, then the mortality will be limited to the average of one in twelve.

This number is very trifling, when we reflect that it represents not only the deaths which take place among the patients admitted into the hospital, but also includes those that were brought us for consultation.

The school being situated in the town itself, it only admits into the hospital animals attacked by serious diseases, on which the proprietors are not able to bestow the necessary attention. The others are only visited every day.

This regulation in the establishment renders the practice very varied. The animals are not suffered to remain any great length of time in the hospital; but as soon as they are sufficiently well to admit of their being moved, are sent home, and only brought to us periodically until their cure is complete.

Of the 509 dogs and other carnivora received, 386 were cured, and 123 died. The diseases were, of epilepsy 6, hydrophobia 62, acute and chronic internal diseases 34, surgical cases 6, abandoned or destroyed as incurable 16.

If we subtract the number of incurables, and those destroyed, we shall find that the mortality amounts to one in ten.

The number of out-door patients has increased during the last year, even in greater proportion than that of the in-door patients. It amounts to 8934. Among these we find 4598 solipedes, 16 cows, 190 sheep, 27 pigs, 4078 dogs, and 25 other animals of various kinds.

The pupils in the third and fourth years of study have been sent for by different proprietors to attend numerous patients, and especially cattle. They had to exercise their practical knowledge on 94 horses, 107 cows, 20 sheep or goats, 8 pigs, and 18 dogs, making in the whole 247 animals.

Thus, during this scholastic year the pupils have had for the objects of their studies in the hospital, and among the out-door patients, and among those in the country, 7234 animals.

This is an immense number, and bears ample testimony to the importance of a school which can, during the space of the two years which the clinical course lasts, furnish its pupils with 15000 subjects of instruction.

Ruminants.

Until very lately, the veterinary schools have had little opportunity of observing the diseases of the larger ruminants. In the environs of Lyons, it was only among farmers that it was possible to treat the diseases of milch cows; the two toll-gates, which had to be paid before they could reach the school, forming a great obstacle to their bringing their cattle to us. It is of the utmost importance that these animals should be brought under our notice, and that this

last pretext should be taken from those who profess to doubt the utility of our schools, and reproach them with being only hippiatrists.

The minister of agriculture has insisted on the necessity of an extension of the study of the diseases of cattle and their mode of treatment. Wishing to favour the instruction of the pupils, he has ordered that all oxen and cows shall be fed and treated gratuitously; and by a still more recent regulation he has extended this measure to sheep and pigs.

On his part the municipal authorities have lent their kind assistance to facilitate this species of study, and have made generous efforts to diminish the obstacles which oppose the introduction of cattle into the town. The mayor of Lyons has given orders that, in future, all sick cattle proceeding to the veterinary school shall be exempt from toll. These favourable measures have already begun to produce good effects. They have been enforced but a very few months, and we have already had 16 head of cattle and 23 sheep in the hospital, and nearly as many out-door patients. Nevertheless we must not hope to see any great number of ruminants among the patients of the school; because on one hand, it is not always easy to transport the sick animals from place to place, and on the other hand, the farmer prefers taking care of his milch cows himself, and deriving all the profit he can from them, and can only be brought to part with them when they become incurable or cease to yield any further produce.

Among the cows received into the hospital, four died; one from indigestion, had too strong a dose of ammonia given to it before it came to us; another from a wound penetrating the thorax, the abdomen, and the small intestine; the two others from pleuropneumonia. Those that were cured were chiefly suffering from affections of the respiratory organs, the digestive apparatus, and the teats.

Those cattle that were brought for consultation were mostly affected with similar complaints, but none of them very serious.

The 107 cows that were out-door patients were mostly labouring under some of those accidents which accompany or precede parturition.

Among the 69 sheep admitted into the hospital, turnsick, the fly, and foot-rot, were the predominating complaints. Several of these animals, which were brought for the purpose of being castrated, served to demonstrate the peculiar manner of performing the operation. The owners generally preferred the *bistournage*, although it does not render the flesh so firm as the *fouettage*, because they fear the accidents that are almost inseparable from the latter mode of proceeding.

Thus, in the school at Lyons, 139 head of cattle, and 69 sheep

have furnished us with the means of studying the diseases of cattle. Beside this, the clinical professor, assisted by several pupils, has been attending a flock of 120 sheep that were suffering from fly and foot-rot.

The agriculturists of Lyons do not keep many pigs; nevertheless, 38 of these animals have been brought to us, and eight have been castrated with success.

Rabies—Internal Pathology.

Several experiments made with regard to the contagiousness of this disease have been attended with results different from those already known. They tend to prove that this disease can be communicated in sheep to the fifth generation. This is contrary to the conclusions of some medical men, who state that its contagious properties are becoming rapidly extinct. These facts enable us to establish and confirm several important points. 1st, That the saliva of the dog can communicate rabies to sheep, but that that of the sheep cannot communicate it to carnivorous animals. 2d, That these small ruminants are not able directly to communicate rabies to individuals of their own species, because their peculiar dental system does not admit of their bile producing inoculation. 3d, The part to which the virus is applied is by no means indifferent. Whenever experimentalists have failed several times in producing the disease, it is because they have inoculated some part of the body which is not capable of absorption.

The face, lips, and round about the mouth are the parts that should be inoculated; but experience proves to us every day how dangerous bites are on these parts.

During this year rabies has appeared very frequently at Lyons. Eight persons have died in consequence of the bite of rabid dogs.

Energetic measures have been taken by the municipal authorities, and three thousand vagabond dogs have been destroyed. The school never received so large a number of hydrophobic patients; 62 out of the 104 dogs that died in the hospital were rabid. It is not easy to assign any cause for the frequency of this dreadful malady.

In 1842 rabies appeared under an enzootic form, not only in this town, but also in Aix, Nismes and Rouen, in different climates, at various epochs, and under opposite atmospheric circumstances. It was, however, in June last, when the heat was greatest, that the cases were most numerous. Up to the present time it was believed that one of the most active causes of rabies was variation of temperature, and especially a sudden transition from an elevated tempeture to cold rain.

By comparing our registers of canine mortality: we see that since the year 1811, 779 dogs have been attacked by rabies: we have seen it at every period of the year, but varying in its intensity. In June the greatest number of cases have appeared; in April it was next frequent; then in a decreasing proportion were the months of May, July, August, March, September, February, October, January, November, and, last of all, December. The number of cases in each month, reckoning from the year 1811, was as follows:

January . . .	58	July . . .	71
February . . .	60	August . .	71
March . . .	61	September .	61
April	79	October . .	58
May	67	November .	59
June	67	December. .	49

During these 30 years 779 dogs died rabid, 1000 died of other maladies, and 750 incurables were abandoned or destroyed. There perished from one disease—fearful and contagious to the human being—nearly as many dogs as were destroyed by every other cause.

We are, therefore, compelled to consider the dog as a source of the greatest danger—a companion whom we must continually regard with the most watchful care. One thing, however, must be acknowledged, that every dog suspected of being rabid is at once destroyed or hurried away to the hospital, while thousands of others labouring under various maladies are taken care of in the domicile of their masters.

Farcy.

One of the maladies that presents itself most frequently is farcy: 345 horses, 25 mules, and 3 asses have been treated for farcy tumours in different parts. They have oftenest been observed on the chest, and particularly along the subcutaneous thoracic vein. A treatment entirely external has been attended with good effects. It has only been necessary to sacrifice a few attacked with farcy in the hind limbs, or in the hollow of the nasal cavities. The arsenical paste—the vesicatory before its softening—the cautery with the red iron after the formation of pus, were the means that were employed with the greatest advantage.

Precise observation taken in the localities inhabited by these animals have shewn us that farcy develops itself in all situations—in the plain as well as in the mountain, and in the driest places as well as those saturated by moisture. Nevertheless, this last cause is the most influential. It was in the confines near the plain of Dauphiny, or Guillotière, that we had the greatest number of sick

animals. Vaulx and Dessine, on account of their marshes, and Guillotière on account of its stables, inundated during the last autumn. One predisposing cause, and often occurring, depends on the service exacted from those horses, who travel during the greatest part of the night, exposed to all kinds of weather, in order to remove the refuse of the cess-pools.

February and March have been the months most remarkable for the frequent development of farcy. Next to them were December and April. The months of May and December presented the least possible quantity of farcied cases.

Glanders.

Glanders have not produced any great proportion of farcied animals: 130 horses were only afflicted with this disease. It is in the spring and summer that we have the greatest number of glandered animals. Some doubtful cases have been removed by the employment of the budding-iron on the glands, and fumigations more or less exciting. The other evident cases of glanders resisted every mode of treatment.

Divers saline substances were injected into the jugular veins of some of these horses, during many days, in small doses. They in almost every case aggravated the evil. The chloride of ammonia, the ioduret of potash, the sulphate of zinc, and the chloride of soda produced various changes in the state of the blood, but no effect was produced on the glanders.

Injections into the nasal cavities with a solution of sulphate of zinc have contributed to cure many chronic discharges; but they produced no effect in cases in which ulceration had previously existed. Finally, we have, but without success, fought against the existence of mange by injection into the nostrils with a solution of the chloride of zinc; one of the caustics most employed in human surgery, and of which we made some fortunate applications on wounds coupled with degeneracy of the tissues.

Epizootic Disease.

During the month of June, an affection analagous to the epizootic of 1825 and that of the last year, has again made its appearance. Contrary to the former attacks, it seemed to have the greatest preference for horses that seldom travelled far, from whom little labour was demanded, or which — newly imported—now first paid their tribute to the climate.

They were principally Flemish and Boulonais horses that were first attacked: they were luxurious-looking animals, and of middle

size. The symptoms, principally those of the digestive organs, and sometimes the respiratory organs being affected. Swelling of the pupils and slight cloudiness of the cornea were the first symptoms that were observed. There was also engorgement of the posterior extremities and the penis, and loss of strength. A favourable termination was obtained with regard to all the patients, in despite of some complications, often a little serious, and taking on the appearance of pneumonia, bronchitis, &c. The antiphlogistic treatment was resorted to, sometimes combined with small portions of acid. The bleeding was always moderate.

WATERY FARCY; EXTERNAL DROPSY; DIFFUSE INFLAMMATION OF THE CELLULAR MEMBRANE; PURPURA HÆMORRHAGICA.

By W. PERCIVALL, *Esq.*, *M.R.C.S.*

UNDER one or other, or all of these appellations, veterinarians recognize a disease which, in former times, was looked upon as *farcy*, but which scientific investigations into its nature have demonstrated to have no pathological relation whatever with farcy, but to be a disease of a totally different nature. There is nothing to shew that the lymphatics are *organically* diseased in sthenic dropsy; and, from all that we know of the disorders before us, we should argue that neither were they functionally so. What the present state of medical opinion on this point is, we may gather from Dr. Copland's Dictionary of Medicine. Under the article "Dropsy" he informs us that, in reference to the pathological states of the disease, "At present it is generally admitted that dropsy may arise from *sub-action* or *sur-action*—from general or local plethora, as well as from obstructed circulation—from deficient excretion, and from excessive evacuations rendering the blood thin and watery. The numerous changes detected in connexion with aqueous effusion, and allowed to favour both it and the accumulation of fluid, may be resolved into a single proposition; viz. increased exhalation and diminished absorption, which comprises all the views promulgated on the subject, the matter chiefly in dispute being, as to which of these changes is the accumulation of fluid chiefly owing. It has been attempted to settle the point by experiment and *post-mortem* research. But a matter purely of function—lesions so dependent on vital action and structural cohesion, as effusion most undoubtedly is in many cases, however associated or otherwise dependent upon organic change—cannot admit of a satisfactory elucidation in this manner alone."

From the increased action—the febrile commotion—by which this form of dropsy is preceded and accompanied; the plethoric as well as excited condition of the system; and the robust health of the animal at the time of the attack, we appear to have every reason to argue that the disease is owing to augmented exhalation or to actual effusion, and that this is of itself sufficient to account for the morbid appearances, without any reference to diminished absorption, a phenomenon of which we have no proof, and one, indeed, against which the loss of flesh the animal sustains, notwithstanding his appetite often continues good throughout, strongly militates. I believe that cases do present themselves in which dropsy—in the form of swellings in the legs, &c., in young out-of-conditioned or debilitated horses—is the result of an overloaded and oppressed condition of the capillaries of the limbs: from the venous or lymphatic vessels having their circulation impeded or obstructed, the process of absorption does not go on equivalently with the deposition, and accumulation is the consequence. This latter is a case in which the powers of the *vis-a-tergo*—of the heart and arteries—is diminished, or inadequate to carry on with sufficient vigour the capillary circulation; whereas, in the former case, these circulatory forces are augmented in energy.

The disease to which these prefatory observations are intended to apply, with the view of casting light on its pathology, commences often the same as common fever or febrile catarrh or bronchitis would do. The horse is found to be unwell—he loathes his usual food, becomes feverish and dejected, has an accelerated pulse, and manifests quickness and unusual labour in his respiration. The veterinarian is called to him, and is told by the groom, probably, that the horse "has taken cold;" and to prove that he has, makes particular allusion to some night when he was out, or to some hour in the day during which he stood in a draught. Should the swelling, however, have commenced—which in some cases it will do prior to or along with the febrile disorder—the groom at once pronounces the case to be one of "humour," the nature of which and the treatment for which are in his mind equally apparent. I have known, however, the preliminary fever to continue for several days before any swelling was detected, and for the same number of days the case either to prove mysterious or dubious to the practitioner, or pronounced to be of a nature different from what it turned out, thus affording an example of the imprudence of venturing too early on names for diseases we may be treating. I believe the farrier's doctrine and groom's creed concerning *humour* is so far well-grounded, that nothing beyond simple plethora in the spring of the year—the season in which the disease most prevails—is requisite to produce in a constitution already, from some hidden cause or other, sus-

ceptible of or predisposed to take it. I have known horses to have the disease twice, and three times—to be, in fact, peculiarly obnoxious to it; and at the spring of the year the best means of warding off an attack is known to the grooms to be a dose of physic or two, or blood-letting, or a change from hard to soft laxative diet—from hay to green meat, &c. A horse that came to me with an attack of the disease in one hind leg, I thought at the time owed its commencement to a crack in the heel of the diseased limb; and I still think this might have tended to its production, though, no doubt, he had the predisposition lurking in his constitution.

Mostly, one of the hind limbs becomes the seat of the disease: now and then, however, it will attack one—or it may be both—fore limbs: the body also not infrequently participates in being its seat, the tumefactions about it for the most part subsiding into one general swelling underneath the abdomen. In one instance I saw the withers attacked with swelling. Next to the limbs, however, the head is the part oftenest diseased, in particular the nose: both nostrils, on some occasions, swelling to that degree to cause alarm; it is oftener, however, confined to one.

At the onset the swelling, in whatever part it may appear, is not commonly a *general* tumefaction. We do not so often, I think, find the *entire* limb enlarged as we discover a tumour or tumours upon it. If it is a hind limb, the tumour is commonly seated upon the inside of the thick of the thigh; if a fore one, upon the inner surface of the arm. I have, however, seen them upon the outer sides of the limbs—upon the quarters, and, afterwards, running along the outside of the thigh to the hock. At first, I say, the swelling is partial or patchy; by and by, however, as the disease progresses, spreading by degrees, it becomes general, involving the whole limb, though continuing, so long as the disorder maintains its virulence, more upward than downward. The tumid parts for the first few days of their formation, or so long as the disease maintains its virulence, have a hot and tense feeling, and evince tenderness on pressure. As the swellings become spread abroad, however, and the inflammatory action abates, they prove less firm, sensitive to pressure, and, at length, acquire comparatively a soft feel, and after a time become what may be called *doughy*, and palpably pit under the pressure of the finger. This, if it be combined with dropping of the swelling down into the most dependent parts, may be accounted a highly favourable change. When, however, the tumour, instead of spreading or diffusing itself, continues in the same place, circumscribed, defined, and from day to day increasing in prominence and painfulness, we may expect it to come, in the end, to a more or less perfect state of abscess, and to this termination it should (failing in

effecting resolution) be our duty to bring it. A very common, indeed the usual, situation for a tumour of this description is the inner surface of the enlargement of the thigh. In this form the disease has quite a local character, and might by an inexperienced hand be mistaken for a tumefaction of the inguinal glands, and pronounced to be farcy, or something else than what it was. Topical and circumscribed as its seat is, however, it is often an excessively painful affection, causing limping lameness, and intolerance of the slightest pressure. To shew that this is the same disease which in another instance attacks the entire limb, or even two limbs, I have known the same horse have it in the topical form one year, in the diffuse form another year.

So far, there appears nothing about the disease but what under the name of *watery farcy*, or *dropsy*, or *humour*, has not at the hands of writers on farriery received every notice as regards its symptoms or appearances, causes, &c. "The water farcy," says Gibson, "is of two kinds, one the product of a feverish disposition; the other is dropsical, and of that kind which in man resembles the *anasarca*, when the water is not confined to the belly and limbs, but shews itself in several parts of the body, with soft swellings which yield to the pressure of the fingers," &c. So far so good. But where are we to look, save in the works of modern veterinary writers, for any account of that affection of the mucous membranes which precedes, or accompanies, or follows the subcutaneous tumefactions. The better to explain what I mean, I bring forward the subjoined case:—

July, 1841. A grey mare was seized some time in the course of the preceding night with prodigious tumefaction of the entire near hind limb, extending quite up to the body, and involving part of the udder. In the situation of the inguinal glands some prominences could be felt with the hand, something of the size and shape of oranges that had been crushed or flattened, which might by a superficial examiner have been passed for enlargements of those glands. Closer attention would have convinced him that they were nothing more than partial subcutaneous depositions of a sero-albuminous nature; depositions, in fact, of the same kind as that to which the general swelling of the limb was owing; there being simply this difference between them—that while the general or diffuse deposition is underneath the *faschia lata*, in these partial swellings it is immediately subcutaneous: hence the prominence of the one beyond that of the other. The tumefied limb had everywhere a tense and elastic feel; was unnaturally hot, and so painful and tender that she would neither bear the pressure of the fingers upon it, nor move it without that limping or hopping lameness that denotes exquisite suffering. It was even with difficulty she could be got to limp from the stable into a box, a distance of

not more than 50 or 60 yards. Her respiration, evidently disturbed before she left the stable, became quick and painful on motion. Her pulse is likewise beating high from suffering and irritation. Immediately she was discovered in this state (six o'clock in the morning) she had twelve pounds of blood drawn from her, and took an ounce and a half of Bardadoes purging mass, with a drachm and a half of calomel; and, as soon as hot water could be procured, had her whole limb immersed in an ample warm bath; after being an hour or more in which she was cautiously led out, and, being found to move with considerable less pain than before, while out she had very slow walking exercise given her. The next day, the limb itself had not augmented, but the udder had become altogether part of the general tumefaction. The day after this, her bowels had not been purged, notwithstanding the large dose she had taken on the day of attack; and, therefore, half an ounce of cathartic mass, and the same quantity of diuretic, in addition, was given. The third day from the attack, even, her bowels had not properly responded to the medicine, so torpid are they in this disease of the subcutaneous tissues; and therefore a couple of drachms of each of the abovenamed masses were administered. For all this, however, the tumefactions had begun to yield: there was an evident diminution of the enlarged udder, and the skin of the swollen limb had lost some of its tenseness and elasticity. On the fourth day, there was no purgation, and yet the swollen parts were diminishing: indeed, the udder was almost free from tumefaction, and in the hind limb it is very perceptibly *dropping*. On the fifth day she did purge, and purged freely. And now the udder has all but regained its normal size, and the swelling of the limb is quitting the thigh for the hock and leg. After this, the mare experienced daily amendment; and, by attention to exercise and diet, increasing the one and bettering the other, according as her returning health and strength seemed to indicate, she, in a short time, recovered, and took her work again.

"There is nothing in this case," I think I hear it said, "to take up your time in writing, or our time in reading it; neither needed it publication." Good reader, wait with patience until next month, and then I will tell you the reason why I have troubled you with such a common-place every-day case.

The cover of our Journal contains the announcement of a Prize for the best Essay on Pleura-Pneumonia. We were happy to read so spirited and noble a proceeding in the Farmers' and Graziers' Mutual Cattle Insurance Association. They have lately lost a valuable beast that had been insured by them, and they immediately paid the sum for which it was insured. We ardently wish them success.

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LECTURES ON HORSES.

By WILLIAM PERCIVALL, *M.R.C.S., Veterinary Surgeon First Life Guards.*

THE TROT.

TROT—a modification of our word *tread*—denotes in equitation the pace ranking in order, in point of speed, between a walk and a gallop; neither slow like the one, nor swift like the other. Although the limbs in the trot, in reference to the fore and hind of the same side, have the same contrary or diagonal motion that they have in the walk, i. e. the off fore and near hind, and near fore and off hind, are both in action, as well as at rest, at the same intervals of time, yet is the trot not an accelerated walk, but a distinct pace by itself, as may be proved both by the animal's manner of going, as well as by an analysis of the two paces. We have already seen that in the walk, although two limbs are in motion at one time, yet do the four succeed one another, in being lifted and grounded, in some such regular manner as may be represented to the mind by counting aloud, one, two, three, four. Not so, however, with the trot. No sooner are the limbs put into quick motion than the time is found too short for them to play to this fourfold step, and the consequence is, instead of reckoning four, we can hear but two beats; those of the contrary fore and hind feet being synchronous. This will account for the spring or elasticity of movement of the trotting horse; as well as for the rough action of the *runner*—as the horse is called who trots after the manner of walking, instead of possessing the synchronous diagonal movement, and who, as is well known, is commonly a *bone-*

setter. In this latter kind of trot, springless and uneasy though it be to the rider, regularity or harmony in the motions of the limbs is still preserved; whereas in the jumble—*trot* can it be called?—of trotting before and galloping behind, and in what John Lawrence significantly terms *hitching*, there is evident discrepancy in the movements, produced by overstrained efforts to accomplish that which the powers or capabilities of the animal are inadequate to. And this is the jumble of a pace—this the confusion of trot and gallop—butchers' boys and cads, *et hoc omne genus* (who in riding or driving are saving time by minutes, whilst in lounging or doing worse they are squandering it by hours), urge their horses into. Lecoq speaks of the trot of such horses as being *decousu*, i. e. unconnected, inharmonious; and ascribes it to weakness.

Not only is the motion of the limbs quicker in the trot than in the walk, but their sphere of action is augmented—they perform larger gyrations in the air, notwithstanding they have less time to make them in, and, on this account, a very small amount of time indeed is allowed them for grounding and again lifting themselves. In rapid trotting, the tread of the hind foot—the propeller of the machine—upon the ground is barely sufficient to afford the requisite *fulcrum*, the fore-foot at the instant simply sustaining the body in front while this propulsion is being accomplished. And during this acceleration of the pace, every time fresh impetus is given to the moving machine, whereby it is lifted with a spring into the air, all four legs are off the ground. Common close observation shews that this is the case, the best situation for the observer being, as Lecoq says, a pit or hollow deep enough to place his eyesight on a level with the ground upon which the horse is trotting. Vincent and Goiffon, Lecoq informs us, have made a calculation, that the time occupied in moving the feet in the air is thrice that consumed in the grounding of it: supposing the treading of either foot to occupy a second of time, its revolution in the air takes three seconds. Lecoq, however, himself, thinks that this latter interval is over-rated. It is evident that the tread of the foot—the hind one in particular—must be both forcible and instantaneous; *forcible*, to give the requisite propulsion; *instantaneous*, because the swift motion will not admit of more: what the precise periods, however, may be, either for grounding or suspension, or their proportionate intervals, must, we suspect, be matter more of speculation than of fact.

By an increasing rapidity of movement the momentum, once generated, is readily sustained through alternate beats or treads of the hind feet, the fore limbs appearing to effect little else than, in diagonal directions with the hind feet, propping or lifting the fore quarters. The trot carried to this springing celerity of movement—

this *flying* or *swinging trot*, as it is called—becomes rather an artificial than a natural pace. By all horses it is not acquirable: some seem formed by nature to take it; others, by dint of practice and perseverance on the part of their riders, get a knack of it; others there are that cannot by any means, harsh or mild, be made to perform it; but in the effort are driven either into the butcher's *hitch* or into the jumble of trotting before and galloping behind. Lecoq calls such horses *foibles*, weak; and it is not unlikely some of them are so, either from natural formation or in consequence of some inflexibility of the loins or hocks, &c. We are far from being able, however, at all times to say to what the incapacity is owing.

Having considered the *order* of movement of the limbs in the trot, and made some allusion to the intervals of time consumed in grounding the feet and in making the necessary revolutions with them in the air, we come now to look at the relative positions they occupy in action, and see how it happens that they do not interfere one with another. In the slow or ordinary trot, the hind limbs are so carried underneath the body that their foot-marks fall near about those made by the corresponding fore feet: the fore foot has no sooner left its place of implantation than the hind foot occupies it. In the walk, the hind feet ordinarily in part cover the prints of the fore: as soon as the animal strikes into a trot, they quite cover these prints; and as the speed increases their relative advance gradually becomes greater, until the hind overstep the fore feet, and would and must tread upon them, were it not that the former were advancing in different lines of direction from those in which the latter are stepping. Mostly, these lines are within the other; the hind feet of a well-going horse treading (by turns) quite under the middle line of the body—that line along which the centre of gravity moves—and in this manner avoids collision with the fore feet: in some instances, however—in horses that "go wide behind"—the hind feet are planted to the outer sides of the fore ones, and thus equally advance clear of them. There are instances or occasions where they take the same line of progression with the fore feet, and then collision is the inevitable consequence—*overreach* as we term it. This, however, is a rare occurrence, save when the horse is thrown out of his natural action or forced beyond his ordinary effort by the injudicious or inhuman conduct of his rider or driver.

I have shewn, in another place, that strength and flexibility of loin have much to do with speedy progression. According to the observations of Vincent and Goiffon*, the spine of the back grows incurvated during rapid trotting, the effect of which is to open the

* As stated by Lecoq., Op. Cit., p. 385.

shoulders, causing them to spread farther apart in action, and thus to give more room for the play of the hind feet through the interval between the fore feet. In ordinary trotting, these gentlemen say this does not happen; and hence they account for the re-action felt by the rider through the back in one case and not in the other.

THE TROT is accounted, *par excellence*, the pace in which the British horse excels. Foreign horses, in general, are better adapted for the canter or the manege than for trotting, their trot being high and round, and therefore, in rapid going, necessarily very quick, and yet, with all their action and agility, they do not make progress—do not get over the ground—with any thing like the speed of an English trotter. The action of our trotting horse is that which *tells* in progression rather than makes any parade in gait; and yet this is not of any one peculiar kind, good trotters going, as our dealers say, "in more forms than one."

As was observed on a former occasion, a great deal may be learnt of what we are to expect in the trot by noting well the walk of the horse: if the slow pace be cleverly performed, we have good earnest for the creditable execution of the quick pace. We may even carry our observation farther than this: we may often tell the manner in which the horse will trot from paying attention to his mode of walking. Horses trot with *high* or *low* action, *round* or *straight, darting* or *dishing, ordinary* or *grand*, &c., depending upon the manner and energy with which they move their limbs. People in general, in estimating trotting action, are too apt to confine their observation to the fore limbs, forgetting that the hind are the propellers of the moving machine, and that upon them, after all, must mainly depend progression. While height and rotundity of action give beauty, straightness or projecture give progression; and a certain combination of both it is that constitutes what we are in the habit of so admiring as to call, by way of distinction, *a grand trotter*. Perhaps, in our country, hardly any better examples can be adduced of this perfection in trotting than the royal stud furnishes: the Queen's (not the state) carriage-horses—horses standing from sixteen to eighteen hands in height—whose grandeur or beauty of action is exceeded only by the awful rate at which they get over their ground. Our late sovereign, George the Fourth, was celebrated for his noble coach-horses: their trot in the royal carriages was of the finest description, and he brought his teams to the highest possible degree of perfection by casting (for sale) every horse who was not able to keep pace with his more fortunate competitors. Of a trotting hackney a better epitome can hardly be given than that contained in the distich of the old song—

"He was such a one to bend his knees,
And tuck his haunches in*;"

the "tucking of the haunches in," as I remarked before, having a mighty deal to do with the pace. "The horse that points out his fore legs, and goes with his knee straight, is no trotter," says John Lawrence†; "he loses time by over-striding."

So far as we are able, from general observation, to say what is the fittest form or structure for a trotting horse, we may set it down as a rule having but few exceptions, that shortness of the shafts or cylindrical bones of the limbs, and uprightness in the joints, are more conducive to the performance of this action than length and obliquity. Few race-horses can trot well, owing to the lengthiness of their limbs and springiness of their joints; and as for cart-bred horses, though they possess the requisite shortness of make, their comparatively broad and lax structure is, as I said before, calculated rather for strength than speed. In general, horses celebrated for feats of trotting are by no means pleasant hackneys: when put out at their speed, they use their limbs with that quickness that does not allow time for the operation of sufficient elasticity to amount to spring, and with that force which greatly tends to destroy elasticity; the consequence is, that many or most famous trotters are what riding *connoisseurs* call "bone-setters."

To conclude this lecture with some accounts of the feats of trotting horses, we cannot, that I know of, consult better authority on what has been performed in days gone by than John Lawrence, who appears, as well as being a sporting character himself, to have been at some pains to chronicle these performances. "The fastest trotter" which, this writer has good reason to suppose, "has ever been tried in England, was called ARCHER, from the name of the person who brought him to London." Mr. Lawrence could not conceive Archer's *rate* of trotting (for a short distance) "could be below *twenty-five miles an hour!*" A brown mare, the property of Bishop—a London dealer in horses—not so speedy as Archer, but of greater strength and endurance, is said to have been the first horse that ever trotted sixteen miles in one hour with twelve stone of burthen, and she performed the distance in fifty-eight minutes and some odd seconds. "In 1793, Crockett's grey mare trotted one hundred miles in twelve hours, and had twenty minutes to spare."—"In 1792, a yellow-bay gelding, called Spider," * * "trotted twenty-four miles in an hour and an half." And

* I know not if I quote correctly. In truth, I have almost lost sight of the famous old ballad. Can any person favour me with a copy of it?

† Treatise on Horses, &c. 1810.

Mr. Lawrence's "own brown mare, known by the name of Betty Bloss," * * "trotted fifteen miles in one hour, carrying fourteen stone." Lastly, according to the same authority, "the brown mare Phenomena performed seventeen miles in less than fifty-three minutes, carrying a lad of five stone in weight; and her proprietor afterwards offered to match her to do nineteen, and after that nineteen and a half miles within the hour, both of which offers were declined.

In our own days the Americans appear to have carried off the palm for fast trotting. *Ripton* trotted two miles in harness, over a race-course, in five minutes and thirty-five seconds. Another horse, whose name I have not by me, trotted a mile in two minutes and (I think) twenty-eight seconds.

CONTRIBUTIONS TO ZOOLOGICAL PATHOLOGY.

By JAMES MERCER, *M.D., Fellow of the Royal College of Surgeons, and Lecturer on Anatomy, &c. Edinburgh.*

[Continued from p. 354.]

VII.—*On the Nature and Treatment of Polypus in the Ear of the Dog.*

THERE are few cases in the entire range of the practice of the veterinary surgeon in which his skill and tact in the diagnosis of abstract disease are more called into operation than in those in which, though there may be comparatively slight morbid effects, yet there may be the most important functional derangement in the animal, and which circumstance may set entirely aside his utility. Of such cases are those to which the following belongs; and in placing it before the notice of the veterinarian, I am only actuated by the feeling, that there may be many cases that shall occur to him in future of a nature similar to that which I shall narrate, and in which the scientific principles of diagnosis may be called into operation, and the most important benefits conferred, not only on the suffering animal, but also on its benefactor and his employer.

In the common course of veterinary practice, it is admitted that "of the occasional existence of deafness in the lower animals there is no doubt;" but as to the special pathological cause of such, in these individual instances, there is no sufficient determination.

Of all the subdivisions of canine pathology there is none, perhaps, which has been less taken notice of than that which treats of the diseases of the organ of hearing; for, with the exception of the very vague and barbarous terms of "external and internal canker" of the ear, we find no other diseases admitted or described. And even under this very general nosology there is nothing definite expressed; and whenever any case occurs of a fetid discharge from the ear, it is classed under this arrangement, no matter what the special cause may be.

In my present communication I shall confine myself to the description of a class of diseases of the external ears, of which little notice has hitherto been taken, although in practice they are by no means of rare occurrence; and at a subsequent period I shall again revert to some other important points in connexion with the special pathology of this department of the organ.

Polypoid tumours, as they are usually seen within the external meatus, may be the result of a morbid action in three situations: the first may arise from chronic inflammation of any of the tissues which enter into the formation of the meatus; the second may be connected with a similar state of the membrana tympani; and the third may be the result of chronic inflammation of the lining membrane of the walls of the tympanum, the cavity of which they first completely occupy, and afterwards, extending themselves along the external meatus, ultimately make their appearance at the entrance of this tube.

As the nature and treatment of the two latter forms of polypi differ from the former, and as the remarks that I shall at present offer specially belong to the first form, I shall, therefore, confine my observations to it, and again return to the second and third varieties, should circumstances offer.

Polypi produced from the tissues of the meatus may be divided into two kinds:—first, the soft, vascular, and bleeding polypus, usually produced from the fibro-cartilaginous structure of the outer half of the tube; and, secondly, the hard and cartilaginous polypus or excrescence produced from the lining membrane of its inner half.

As to the first of these forms of polypi, *the hæmatoid*, that arise from the external soft structure of the tube, they may be situated in any part of its parietes, but most commonly at its superior and posterior surface. In form they are generally pedunculated; their surface is rough, irregular, and glistening, in consequence of being covered with a thin layer of mucus, which is often tinged with blood, especially when any degree of violence has been applied to the external ear, and which has also been exerted upon the tumour. When the tumour becomes protruded externally, it has a blood-red

and pulpy appearance, and its sensibility is so great that any manipulation of the concha, so as to investigate the condition of the external meatus, is attended with great pain, and is also often followed with considerable hæmorrhage*.

The second variety of polypous growth, *the chondromatous*, is that which is produced from the lining membrane of the inner half of the tube, the dermo-periosteum, and in its structure it differs somewhat from the former: it is more dense, and almost cartilaginous, and usually having a broad and more sessile base, occupies a greater extent of the parietes of the tube. Its surface is comparatively smooth, pale, and almost insensible to the touch; but according to the extent of the ulcerative process behind and within it, so will the nature and properties of the discharge be with which it is accompanied.

Both these species of polypus of the meatus, the hæmatoid and chondromatous, are most commonly connected with, and accompanied by, ulceration of the softer tissues, or caries of the auditory process. These excrescences are usually situated externally to the seat of ulceration, being produced from the vascular margin of the ulcer; and so long as they are permitted to remain, the latter morbid condition, the canker of the ear, will be kept up for an indefinite period; hence, should the animal be of any value, it becomes a matter of considerable importance to arrive at an accurate diagnosis of the actual conditions of the diseased parts. The symptoms, therefore, which attend the existence of polypoid growths of the external meatus are very similar to those that indicate the chronic form of "internal canker of the ear." These are also preceded by those of general pyrexia, which usher in the local disease, such as general languor and lassitude, loss of appetite, considerable thirst, turning out of the coat, and balling of the fæces. As these constitutional and general symptoms diminish in severity, then those characteristic of the local disease become gradually and more manifestly evinced. The animal has a dull, heavy, and rather watery eye; he moans or whines at intervals; and if his master be present he feels a pleasure, a confidence, and

* According to Dr. Pappenheim, a polypus similarly situated and with the same physical appearances in man, consisted of an envelope and contents. "The envelope consisted of, 1, epidermal cells of various shapes and sizes, extended over, 2, a transparent, finely-grained membrane, under which was, 3, the corium, consisting of pretty strong fibres of a yellow colour. The contents were resolvable into, 1, a fluid like white of egg; 2, cholesterine crystals in great numbers, covered with a very finely grained mass; 3, epithelial cells of various kinds; and, 4, peculiar egg-shaped vesicles, differing much in size, with fluid contents, containing very fine grains; there were also blood-vessels and blood globules."—Vide Pappenheim, Die specielle Gewebelehre des Geohörorgans, Breslaw, 1840; also Cycloped. of Practical Surgery, art. Ear; and Hearing, Diseases of.

a relief in pressing and rubbing his aching ear against any part of his master's body. Under other circumstances he presses it and harrows it against the ground, so as to obtain a slight relief, and then with an instinctive feeling he flaps his ears, and shakes his head rapidly and repeatedly, so as to keep up the pleasurable relief he thus obtains. Should the symptoms be not so severe as those which I have now mentioned, the animal may still be suspected, at a glance, to be labouring under acute disease of the ear, by his running about with little intermission, his mouth open, and tongue protruded and panting, and, with a stupid sensibility, shaking his head, and pointing the affected ear to the ground. These symptoms, however, are most commonly allowed to pass unheeded, and in a few days a partial relief is obtained to the animal by the sudden and profuse discharge of a quantity of fœtid pus. From this time the general and constitutional symptoms disappear, and those indicative of the local affection are alone predominant. The local discharge of pus, or pus and blood, becomes daily more and more fetid, in consequence of the extension of the disease to the bony tissue of the meatus, and the poor animal is thrust aside as an object of loathing and disgust. Should the dog, in the earlier stage of the disease, be muzzled and cast, and an inspection of the meatus be had recourse to, then there will either be found a phlegmonous abscess of the cellulo-fibrous structure of the meatus, circumscribed dermo-periostitis of the inner part of the tube, with caries of the osseous portion, or internal muco-tympanitis, with perforation of the membrana tympani, and evacuation of the matter along the external canal.

In that form of the disease to which I especially refer, where a polypoid excrescence follows and accompanies the ulceration or caries, if a period of three weeks or a month be permitted to elapse between the first exhibition of the discharge and the examination of the meatus, it may be found that the vegetation has attained a considerable size, and the discharge has become more and more profuse and bloody. The extent of bloody discharge and its fœtidity will much depend on the nature of the tumour, and the original tissue of the meatus that may be affected. If there is much blood mixed up with the discharge, then in all likelihood there will exist a soft and vascular polypus, produced from the more vital fibro-cartilaginous structures of the meatus; and should the smell be excessive, and the discharge little tinged with blood, then the original disease will be found to exist in the osseous portion of the tube, and the polypus, if it does exist, will be of the chrondromatous or cartilaginous kind.

In the treatment of these varieties of polypi, it will be absolutely

necessary, in the first place, to establish a distinction between them. This can always be done by an ocular examination, by having the animal muzzled with a piece of firm cord and secured behind his poll, and then casting him upon his sound side, and with a speculum auris, or, in its absence, a pair of common dressing forceps, expanding the opening of the concha exposed to the direct rays of the sun, and obtaining a distinct and complete view of the exposed portion of the tube.

In the first variety—the soft vascular excrescence—if it be within reach and pedunculated (which it usually is, and which may be known by the possibility of passing a small curved silver probe between the body of the polypus and the walls of the meatus, excepting, however, the small space corresponding to the pedicle of attachment of the tumour), it should at once be excised with a pair of curved scissors, or with a small knife having a curved cutting edge of a few lines in length. The removal by the scissors is the safest and most expert mode, as it only requires a little caution and care in introducing their points *upon* the pedicle of the growth, and then, by their expansion, including the entire breadth of its base. It may also be noosed by a ligature of silver wire, silk, or horse-hair; but in this way a considerable time is spent without any corresponding benefit accruing; and it may also be twisted off by means of pronged forceps; but these are apt to leave behind a large and ragged base, from which the tumour may again spring with great rapidity. Immediately after its removal, the base of the tumour should be carefully destroyed with nitrate of silver, and this should be repeated daily so long as there may be any appearance of the regeneration of the growth. In the intervals, the ear should be washed out with the tepid solution of soap daily, and, as often as can be daily accomplished, a saturated solution of acetate of lead, sulphate of alum, or acetate of zinc, should be dropped into the ear; and this should be scrupulously continued so long as the discharge may remain. After the removal of the polypus, it must be remembered that only one part of the disease is removed, and that there still remains, in the majority of cases, an ulcer or a carious condition of the meatus. This is to be treated in the same manner as that which I have recommended for the treatment of the tumour after its excision, and the only circumstance that must be specially attended to, is the possibility of the regeneration of the growth. I may also mention, that if the solution of the acetate of lead be used, the discharge from the ear, after a few applications, may become nearly as black as ink. This is the result of the chemical decomposition of the solution of lead by the sulphureous constituents of the carious discharge. Should this black discharge,

therefore, become diminished in the depth of its colour, and should the intensity of smell which heretofore accompanied it become less, then there is the greatest possibility that the conditions of the former morbid actions have been changed, a more healthy set have been substituted, and, therefore, the disease is now progressing to a favourable termination.

Along with these remedies, and for the purpose of protecting the diseased parts from the influence of external injury by the continued rubbing of the head of the animal against the ground, or any other hard surface, there should be applied a head-cap or hood, made rather full, over the affected ear, and such as are used by shepherds in their treatment of scald-head in sheep during the summer season. This hood I have seen of much benefit in confining a quantity of cotton wadding, saturated with the lotion, in the hollow of the cartilage of the ear, and it also prevents the diseased parts from being constantly exposed to sources of external irritation.

In the second variety of polypus of the meatus, the chondromatous, the treatment must depend much on the concomitant circumstances. If the tumour is seated close to the membrana tympani, and has a broad and sessile base, then it cannot be excised or noosed with any degree of success. It must, therefore, be treated by the daily application of the solid nitrate of silver, applied exactly to its surface, and in the intervals of application the use of any of the abovementioned collyria may be had recourse to. If the substance of the growth be firm and solid, and possesses little sensibility, then a very speedy mode of getting rid of it is to divide its substance with the point of a small knife; and afterwards applying to the cut surfaces the solid nitrate of silver, the surface of the tumour is more easily destroyed and sloughed away. In many instances, however, of this form of polypus, the tumour is so deeply seated, and possesses so little vitality, that, after the removal of the concomitant ulceration of the meatus, it remains as a kind of exostosis within the tube; and having been situated so near the membrana tympani, a corresponding morbid action will have been excited in the tissue of this membrane, and which, by the hypertrophy and thickening that have been induced, a greater or less degree of deafness and stupidity will be the permanent result.

I might have here introduced the description of several cases of the above forms of disease in the ears of the dog, to shew the speedy effects of the methods of treatment that I have recommended in removing what had been viewed as incurable cases of canker; but as this would have taken up too much of your space,

I have rather confined myself to their general pathology and treatment. I cannot, however, too strongly recommend the veterinary practitioner in every case of long-standing canker of the ear to make a careful and ocular examination into the exact condition of the organ, as he may thus find out that, instead of it being an incurable disease, or one that will require much attention, it may prove to be of easy remedy if he can only comprehend its exact nature.

ON THE EFFECTS OF IODINE.

By Professor DICK.

Edinburgh Veterinary College, June 15th, 1844.

My dear Sir,—IN your number for May last, there is a paper by Mr. Thomas Mather, "On the Administration of Iodine in Cases of Diabetes and Hydrothorax in the Horse," in which he gives some statements regarding advice lately offered and experiments made by him as to the effects of the medicine in these diseases, which induce me to give you a short account of my experience with that medicine in those affections. In your number for August last I gave you a short notice of its effects in dropsy in dogs, to aid in a slight degree your proposed work on those animals; and I have since had repeated instances in confirmation of the effects of the medicine in that disease in the dog. As your wish at that time was for your readers to contribute towards the pathology and therapeutics of the dog, I did not think it necessary to enter upon the use of iodine in general, nor is it my intention at present to enter upon the subject in all its details. In 1837 and 1838 several papers on the use of iodine in man appeared in *The Lancet*, and from its being then introduced, in a great measure, as a new medicine, or rather its powers being then more strongly recommended, I determined to try its effects on the lower animals; and in February 1838, I was requested by a respectable horse-dealer (who was proprietor of the forge Mr. Mather's father then occupied) to examine a brown gelding, four years old, which I found to be affected with glanders. As the horse was young, and the owner had paid a high price for him, he was unwilling to destroy him, and he wished me to try if any thing could be done to save him. I therefore determined to try the effects of iodine, the acknowledged ill success of other remedies being a sufficient warrant for the experiment. The horse was immediately removed to a stable within two doors of Mr. Mather's father's forge, and there kept by himself for upwards of six weeks, during which time the medicine was regularly given, commencing

with 3j doses twice a-day, which were gradually increased, until for two days previous to his being destroyed the dose had been increased to ℥ij. During the continuance of the medicine, the ulceration in his nostril continued stationary; but there was a slight diminution of the enlarged submaxillary lymphatic gland. In other respects there was no change upon him, and to my almost daily inquiries of the hostler who had the exclusive charge of him, the answer was, that he always fed quite well.

Annoyed at the seeming inertness of the medicine, previous to having him destroyed, I inquired whether he observed any change in the horse from the medicine: he said "No." On asking if he took much water, he said, "No, he never drinks any." I then repeated the question, Does he never drink? he said "No, he never drinks a drop of water."

This struck me at once as a most important fact, which appeared to be entirely the effect of the medicine, as we frequently find acute glanders preceded by diabetes, and was not, therefore, to be ascribed to the disease, and I determined to give the medicine a trial in the first case of diabetes which occurred, and in doing so I was not disappointed: it at once allayed the thirst, and checked the profuse staling. Numerously repeated experiments had so confirmed my opinion of its power, that I was almost inclined to call it a specific, until I was consulted, in August 1842, on a case by Mr. Tennant, V.S., Worsley, a quondam pupil. The horse had been unwell for several months, and had been under the care of another practitioner, who considered it to be a case of diseased liver. The animal was reduced to a skeleton, with great thirst and profuse staling. I cannot lay my hands on all the correspondence; but I send you two letters, which you may here introduce: from these you will see that I had thus recommended the iodine, but without its having the effect I expected and had found in other cases. I may state that the case was, after I had received the second of these letters, treated, by my advice, by blood-letting and laxatives, followed by tonics, with rapid and complete success. Notwithstanding the failure of the iodine in this case, I have used it with complete success, and so decided are its effects, that cases where a horse will drink five or six pails of water in the day preceding its exhibition will generally be found to content himself with half the quantity on the following day after it has been given—good wholesome food being at the same time allowed. From its effects in allaying thirst, I was led to try it in the cases of dropsy, of which I have already given you an account; and from its beneficial effects in those cases, I was naturally led to expect, that if it was so powerful and efficacious in effusion from one serous membrane, it might be equally

so in others; and I therefore felt anxious to have an opportunity of trying its effects in hydrothorax. Cases of this kind, however, had been of rare occurrence for a considerable period, until this spring, when, on the cold weather setting in in February, the disease became the most prevalent one in this part of the country. An opportunity immediately offered itself in a chestnut horse, belonging to Mr. Steel, within 150 yards of the College. All ordinary means were here used to subdue the disease; but, the case becoming almost hopeless, I determined to try the iodine, and commenced with a dose night and morning. On the following day there was a very considerable improvement, which progressed while the medicine was continued. After some time it was omitted for a day, and the patient began to relapse. It was again repeated with the same beneficial results, and was left off again and renewed with the same effects.

In about three weeks he was at exercise in high spirits, and was soon afterwards sold for coaching. Numerous cases afterwards occurred in which its beneficial action was fully established, and I am persuaded it will be found the most efficient medicine that can be administered in this disease.

It is proper to mention, that while I thus extol its use, a degree of attention is necessary to watch its effects, as it will be sometimes found to act with considerable power on the bowels, inducing purging, and thereby threatening to destroy life, or, if not, producing great prostration of strength from which the animal does not rapidly recover. The best time to give it seems after the strength of the pulse has been subdued; but, as it appears to have decidedly a sedative action, it may be given, even while there is a considerable degree of strength in the arterial system.

It may be used externally in the form of an ointment with great benefit in chronic diseases of the skin, such as ringworm in cattle and dogs, also in the horse and in children. It is likewise efficacious in scald-head, and I have found it more useful in canker of the ear in dogs, in mallender, sallenders, and rat-tails in horses, than I have found it in cases of tumours for which it has been strongly recommended by medical men.

Ever since I observed these effects, I have been in the habit of stating them to my class: first, its power of allaying thirst, and checking diabetes, for several sessions; next, its power in curing dropsy; and, last March, I explained, at considerable length and repeatedly, its beneficial effects in hydrothorax, which, indeed, all the class had ample opportunities of seeing. I am therefore surprised to find Mr. Mather coming forward with this account of the medicine as something new and original on his part, more

especially seeing he only passed in 1840, and was a pupil here the three previous sessions,—that he has since been very generally present at meetings of the Medical Association of the students, and, I understand, a grinder to several of them,—that his brother was present in my class on several occasions when I spoke of the medicine, and the diseases in which it might be used.

I am, dear Sir,

Your's truly,

WILLIAM DICK.

To Professor DICK, *from Mr.* T. B. TENNANT.

Worsley, 27th August, 1842.

Dear Sir,—SINCE I received your's of the 21st instant I have continued giving the horse—concerning which I wrote to you—one drachm of iodine twice a-day; I mean to give one and a half to-night. He keeps improving, but very slowly. He feeds pretty fairly, but not with the appetite of a horse in health.

His skin is quite loose upon his ribs, and in bringing my hand along it it feels quite soft, and the unctuous secretion is plentiful. He is also beginning to cast his coat.

I must say, that he discharges an immense quantity of urine; indeed, I am inclined to think that his lowness of condition is the effect of a morbid action of the kidneys.

Altogether, he has a bucketful of crushed oats and beans, mingled with bran and linseed (all steamed together and made quite sloppy) twice a-day, with grass and sometimes hay, whichever he inclines to eat: still his dung is no softer than a horse's fed in the usual manner. His legs have no tendency whatever to swell. His thirst is still unabated.

I mean to give him some pipe-clay in his water to-day. I would have given this before, but I imagined that the profuse staling was the effect of the thirst. Will you be kind enough to give me your opinion with regard to this?

I am almost confident that I can put the horse in a condition to sell; but that, you know, is not all that is required of a veterinary surgeon: he must restore his patient to his wonted health and usefulness before he can often gain the approbation of his employer.

I may also be permitted to state, that when he came to me his eyes discharged a considerable quantity of matter. That, however, is a good deal stopped.

The horse has had water twice to-day: he drank about a bucketful and a half altogether. I give him as much as he will drink.

Dear Sir,—I WROTE to you about ten days ago, acknowledging the receipt of your's of the 21st ult., in which you desired that I would let you know how Mr. Smith's horse was going on. I then stated that I thought the emaciation was attributable entirely to a morbid action of the kidneys. My opinion is quite confirmed now as to that. The disease has been hanging about him for more than six months. The iodine has done no good, as the thirst still continues. His appetite is not at all what it should be; he therefore does not get into such condition as I should like. Am I to give him up? or can any thing else be done for him, as Mr. Smith is rather anxious about the matter? Since I wrote to you I have been taking a look into *The Lancet*, to see if I could find any information there. In the 6th volume of that work, I see related, at page 408, by Dr. Lefevre, a case of diabetes cured by bloodletting; but whether in this case such a plan of treatment would be successful, I am at a loss to determine, nor am I, in present circumstances, inclined to try the experiment. If you could spare time to write me a line, I shall feel very much obliged.

I remain, your's truly.

LIEBIG REVIEWED.

By Mr. W. F. KARKEEK, *Truro.*

THE influence which the science of chemistry exercises upon veterinary science is much greater than is generally imagined; and I believe that, ere long, a knowledge of the principal truths of chemistry will be expected in every well-educated man, much more the veterinary surgeon, to whom it is certainly as indispensable as to the physician, or any other branch of the healing art.

In the present and some future papers, I purpose reviewing, in a familiar way, some of the principal theories of Professor Liebig on the connexion between chemistry and physiology. This is a field of inquiry that will pay well for cultivation, as it will give the student not only new and more perfect ideas of the vital processes

of plants and animals, but a clear perception of the different actions of aliments, poisons, and remedial agents, and of the causes of life, and of the exact nature of death.

According to Liebig, all the substances which constitute the food of animals should be divided into two great classes—the *nitrogenized* and the *non-nitrogenized.* The former serves for the nutrition and reproduction of the animal body, while the latter ministers to quite different purposes, being used in respiration, in the production of animal heat, and also in that of fat. Out of the fifty-five elementary bodies which compose the material universe, there are at least twelve of them that enter, more or less, into the composition of plants and animals; these are carbon, oxygen, hydrogen, nitrogen, sulphur, phosphorus, iron, potash, soda, lime, silicon, and magnesia. These simple bodies, as they are called, form a part of all organized structures. Moulded into being by the hand of creative Wisdom, and endowed with the mysterious and incomprehensible principle of life, they become converted into the endless race of animals, immense forests, the deep waters of the sea, or the atmosphere that supports and retains the vitality of living beings.

> "All nature swarms with life; one wondrous mass
> Of animals, or atoms organized,
> Waiting the vital breath when parent heaven
> Shall bid his spirit flow."

It must be evident that the increase of mass in an animal body and the development and reproduction of its organs—depend upon the blood, consequently those substances only which are capable of being converted into blood can be regarded as nutritious; so, in order to ascertain what parts of our food are nutritious and what are not, we must first compare the composition of the blood with that of the various articles of food.

When blood is allowed to coagulate, it separates into a yellowish liquid—the serum of the blood—and a gelatinous mass, which adheres to a rod or stick in soft elastic fibres, when coagulated blood is briskly stirred. This is the fibrine of the blood, and which is identical in all its properties with muscular fibre, when the latter is purified from all its foreign matters.

The second principal ingredient of the blood is contained in the serum, and gives to the liquid all the properties of the white of eggs, with which it is identical. When heated, it coagulates into a white elastic mass, and the coagulating substance is called albumen.

Caseine is another nitrogenized compound, and is identical with cheese. The blood of the young animal, its muscular fibre, cel-

lular tissue, nervous matter, and bones, must derive their origin from the nitrogenized constituent of milk.

Our next inquiry will be whence these substances are derived in graminivorous and herbivorous animals.

When the newly expressed juices of vegetables are allowed to stand, a separation takes place in a few minutes; a gelatinous precipitate, commonly of a green tinge, is deposited, and this, when acted on by liquids that remove the colouring matter, leaves a greyish-white substance, well known to druggists as the deposit from vegetable juices. This is one of the nitrogenized compounds which serves for the nutrition of animals, and has been named vegetable fibrine. Again; when the clarified juices of nutritious vegetables, such as cauliflower, asparagus, mangel, and turnips, are made to boil, a coagulum is formed, which it is absolutely impossible to distinguish from the substance that separates as a coagulum, when the serum of blood or the white of an egg diluted with water are heated to the boiling point. This is vegetable albumen.

The third nitrogenized constituent of the vegetable food of animals is vegetable caseine. This substance is chiefly found in the seeds of peas, beans, and other leguminous plants. When these seeds are softened in water, then ground with that fluid, and the mass farther diluted and strained through a fine sieve, there passes through it a solution of caseine, in which starch is suspended. When the starch has settled, the supernatant liquor is a solution of caseine, which is always like milk, turbid, partly from suspended fat and partly from the gradual action of the air on the dissolved caseine, lactic acid being slowly formed, which causes a gradual separation.

Until very recently it was believed that vegetable albumen, fibrine, and caseine, differed from animal albumen, fibrine, and caseine; but the recent discoveries of Müller have shewn that this opinion was erroneous. Liebig has demonstrated that caseine exists in vegetables with all the characters of that found in milk.

But the more important step recently made in this peculiar and very important investigation is, doubtless, the discovery made by Müller, that albumen, fibrine, and caseine, are all nothing more than modifications of a compound to which he has given the name of proteine (from πρωτευω, *I take the first place)*, as being the original matter from which all other varieties are derived. Proteine is composed of carbon, hydrogen, nitrogen, and oxygen; and Müller has shewn that two analyses of proteine do not differ more than analyses of fibrine, albumen, or caseine do, either from one another, or from that of proteine, as far as regards their elements. He has farther shewn that all these bodies, whether they

contain proteine ready formed or not, easily yield it when acted on by alkalies. While proteine, however, contains no inorganic matter, albumen, fibrine, and caseine, each contains small but essential quantities of mineral substances, such as sulphur, phosphorus, potash, soda, common salt, and phosphate of lime. Farther, it has been established by the still more recent discoveries of Liebig, that animal and vegetable albumen, animal and vegetable fibrine, and animal and vegetable caseine, are respectively identical in every particular. We may therefore assume that there is but *one* albumen, *one* fibrine, and *one* caseine; and that it is convenient to consider them all as compounds of proteine, with small proportions of inorganic matter.

According to the theory of Liebig, proteine is produced by vegetables alone, and cannot be formed by animals; although the animal organism possesses the power of converting one modification of proteine into another, fibrine into albumen, or *vice versâ*; or both into caseine, &c.

The following ultimate analyses by some of the most distinguished chemists prove these different positions:—

Ultimate Elements.	Vegetable Fibrine by Scherer	Vegetable Albumen by Boussengault.	Vegetable Caseine by Scherer	Flesh — Beef, by Playfair.	Albumen from the Serum of Blood, by Scherer.	Fibrine (Animal) by Scherer	Animal Caseine, by Scherer, from fresh Milk.	Proteine, from Vegetable Albumen by Mulder.	Proteine, from Animal Albumen, by Scherer.
Carbon.....	53.064	52.7	54.138	51.83	58.850	53.671	54.825	54.99	55.160
Hydrogen...	7.132	6.9	7.156	7.57	6.983	6.878	7.153	6.87	7.055
Nitrogen....	15.359	18.4	15.672	15.01	15.673	15.763	15.628	15.66	15.966
Oxygen..								22.48	21.819
Sulphur...	24.445	22.0	23.034	25.60	23.494	23.688	22.394		
Phosphorus, &c..									

The nutritive process is seen in its simplest form in carnivorous animals, who live on the blood and flesh of the graminivora; but their blood and flesh are, in all their properties, identical with their own. With the exception of hoofs, hair, feathers, and the earth of bones, every part of the food of carnivorous animals is capable of assimilation. "Thus, in a chemical sense," says Liebig, "it may be said that a carnivorous animal, in supporting the process, consumes itself: that which serves for its nutrition is identical with those parts of its organization which are to be renewed."

The process of nutrition in the graminivorous animals appears at first sight altogether different. Their digestive organs are more complicated, and their food consists of vegetables, the great mass of which contains but little nitrogen. We have already seen that vegetables produce, in their organism, the blood of all animals; for the carnivora, in consuming the blood and flesh of the graminivora, consume, strictly speaking, only the vegetable principles which have served for the nutrition of the latter. Thus vegetable fibrine and albumen take the same form in the stomachs of graminivorous animals, as animal fibrine and albumen do in that of the carnivora.

These few facts will give to the student a tolerably clear conception whence the increase of mass in an animal is derived. But another more difficult task remains, viz. to shew the manner in which this is accomplished in the living organism.

We have seen that the organic part of the food contains carbon, hydrogen, oxygen, and nitrogen, the elements of which the organic parts of the body are composed; the inorganic portion also, which exists in the food, contains the lime, the magnesia, the potash, the soda, the sulphur, the phosphorus, and the iron, which exists in the organic parts of the animal body. The body obtains from the food all the elements of which it consists; and if these be not present in the food, the body of the animal cannot be properly built up and supported. But now comes the most interesting part of the question, as to the state in which these elements enter into the body.

We have seen that the plant is the compounder of the raw materials and living bodies, which it derives from the air, the earth, and the waters. The herbivorous animal uses up these raw materials, cutting them into shape when necessary, and fitting them to the several places into which they are intended to be built; but these different substances require to be all resolved into their original elements before they can become a part or portion of the living organism, and are then built up, as it were, by the vital powers according to their peculiar organization and the various structures.

There is a great difference in the various articles of food, as far as their capability of affording the necessary quantity of building materials is concerned; some possessing the plastic materials in an eminent degree, while others possess an exceedingly small per centage of them, varying from 1 to 25 per cent. The following table, which is the result of Dr. Playfair and Brassingault's analysis, will illustrate this. The *azotized* column indicates the flesh-forming principle, whilst the *unazotized* column has reference only to the quantity of fatty matters contained in the various articles of diet: these vary from 8 to 68 per cent. :—

100 lbs.	*Albumen*—Azotized.	Non-azotized.	Water.	Ashes.
	lbs.	lbs.	lbs.	lbs.
Peas	29	51½	16	3½
Beans	31	51½	14	3½
Lentils	33	48	16	3
Potatoes	2	25	72	1
Oats	11	68	18	3
Barley-meal	14	68½	15½	2
Hay	8	68½	16	7½
Turnips	1	9	89	1
Carrots	2	10	87	1
Red Beet	1½	8½	89	1

From this table it must be immediately perceived that the diet most valuable for rearing animals intended for great muscular exertion, are peas, beans, oats, and hay. Labour consists in repeated muscular contractions; and no muscular effort can be performed without the expenditure of muscular fibre. One of the principal elements of muscle is nitrogen, which is supplied with watery muscle from the blood in the form of albumen, which is the starting-point for the various tissues. This explains a fact already established by practical men, uniting, as it were, "practice with science." It is by proper feeding, besides sufficient shelter given to the young stock during the first three winters, that some horses are got to such perfection as we sometimes see them in, having clean limbs, large powerful muscles, and good action; while, had those very animals been kept hard and exposed to the weather, they would scarcely have attracted any attention.

For colts, that food is preferable which contains, in addition to a great quantity of fibrine, the largest quantity of phosphate of lime. The corn-seeds—wheat, barley, and oats—and the red clover among grasses, are valuable articles of food on this account.

It has been suggested by Professor Johnstone, of Durham, that, as in many cases corn is too expensive a food, and these kinds of corn do not exactly agree in other respects with horses (we mean barley and wheat) that bone-dust or bone-meal should be given as an article of general food for growing animals. There are many things which look well in theory that will not bear the test of practice; but, should this succeed, we might then hope to minister directly to the weak limbs of the young stock, and at pleasure provide the spare-boned colt with the materials out of which limbs of greater strength might be built up.

[To be continued.]

A CASE OF INVERSION AND EXCISION OF THE UTERUS IN A SOW.

By Mr. GREGORY, *V.S., Storrington.*

I HAVE read with much pleasure the letters in the last number of THE VETERINARIAN, on flooding and inversion of the uterus; and, observing by the table of Mr. Anderson of Leicester, that his cases of inversion in the sow have proved fatal, I send the following case of inversion and excision of the uterus. It is the only case I ever met with in the sow. If you think it worth a place in your columns, it is at your service. It will afford me great pleasure, should my treatment of the case be of any service to other country practitioners; for, like Mr. King, sen., I attend any case my employers wish me to do.

On the 21st of August last my attendance was requested to a sow, the property of Mr. Coldman, miller, of this place. On my arrival I found a complete inversion of the uterus, and which in her struggles the sow had lacerated to a fearful extent; there was also great constitutional disturbance and prostration of strength. The sow had been left about eight hours, and was apparently well. I feared that, if I returned the uterus in the state it was in, mortification would ensue. I stated my fears to Mr. C., who told me to do as I thought best. I immediately applied a ligature to the uterine vessels, and excised the whole body of the uterus.

The sow continued straining; and I administered an opiate, and after that a dose or two of opening and tonic medicine. She did well, and when killed in the spring of this year weighed thirty-five stone.

I recollect once meeting with a case of inversion in the cow, in which every attempt to retain the uterus in its place was useless, and she was destroyed; but, should I ever meet with such a case again, I should act differently from what I then did.

ON THE CHLORIDE OF LIME.

By Mr. E. C. REED, *Buntingford.*

EARLY on the morning of the 23d of April I was called to attend a cow that was ill, and said to be in a great deal of pain. On my arrival, I found the animal suffering from flatulent colic. She was continually getting up, and lying down immediately—

very restless—a discharge of gas from the anus—pulse increased and wiry—legs and ears warm—respiration disturbed; and had been found in this state by the cowman on entering the yard the first thing in the morning. She had been to grass the day previous. I gave her immediately calcis chlorinatæ ʒij, with pulv. zingib. in some water. In five minutes she was evidently easier, and in a quarter of an hour all symptoms of pain had left her.

ON CASTRATION.

By the same.

On looking over Mr. Percivall's excellent work on Castration, I hope that gentleman will not be offended if I point out what I think he will find an improvement in the method of casting when a rope is used. It is this:—after having formed the middle of the rope into a collar, placing the knot on the top of the withers, and the two ends of the rope backwards, round the hollows of the heels of the hind legs, instead of placing the knot on the breast, &c. I am inclined to think it will be found a preferable way of casting, and the strength of the men applied to more advantage; and I agree with Mr. Percivall, that "cleansing and lubricating" the parts is not productive of any benefit, although it is a general custom with the gelders in all parts of the country; and who invariably, before liberating the cord from the clams, apply the "green ointment" pretty liberally on the end of the cord, and afterwards melt it with the hot iron. I have castrated colts successfully since I have been in practice, and have had no untoward cases, and have never applied any kind of dressing, except cleanliness.

A CASE OF NEUROTOMY.

By Mr. J. H. Darwell, *Veterinary Student, Manchester.*

Having been a constant reader of your valuable Journal for some years, I begin to feel anxious to contribute my mite; and, if you think the following case worthy of insertion in your periodical, it is at your service. It is a very simple one, but is considered a very dangerous affair in this part of the country, therefore it is not practised much.

The subject of the present operation was an aged coach-horse,

that had been lame for three years of the navicular joint disease, and contracted fore feet. The patient had been frequently relieved by the various remedies that are applied for this disease; but at last, he defied all treatment, became totally useless, and the owner wished to have him destroyed. I told him that I thought the horse might become useful again if he was unnerved, to which the owner readily consented.

On the 10th September last the horse was led, but with great difficulty, to the casting-bed. Having got him cast, and properly secured, I commenced the operation by making an incision of about one inch in length, a little above the fetlock-joint of each leg, and excised about one inch of each metacarpal nerve; after which the orifices were secured with sutures and bandages, and the horse allowed to get up, and he walked away apparently free of all lameness, to the great astonishment of many of the by-standers. In a few days the sutures sloughed away, and he was put to work, at which he has continued ever since, to the great satisfaction of the owner.

AN EXTRAORDINARY FECUNDITY.

By Mr. GEORGE HORSFIELD, *V.S., Wentworth.*

AN aged cow, of the short-horned breed, the property of Earl Fitzwilliam, at one of his lordship's dairies, at Wentworth, near Rotherham, Yorkshire, brought forth on the 29th of May, 1844, four remarkably fine calves, two males and two females, all alive; but they shortly died. One of the calves lived until the second day. They were got by his lordship's noted high bred bull, Tankersley, of the short-horned breed.

It may be remarked, that in this animal the procreative property is greater than is generally the case in high-bred animals of this class. The cow was greatly exhausted; her respiration was hurried, and she had nourishing gruels and aperient doses of medicine given for the first two days. On the third day her respiration became natural, and her appetite and strength improved.

The placentas were retained.

On the fourth day I gave the following doses, one every other day, and repeated the same until the membranes came away, which did not take place till the tenth day, when the last of them separated.

EXTRACT OF THE COMPTE RENDU OF THE ROYAL VETERINARY SCHOOL AT LYONS, IN THE SCHOLASTIC YEAR OF 1841-2.

By Professor REY.

A CASE OF VOMITING IN A HORSE, CAUSED BY INVAGINATION OF THE SMALL INTESTINE.

A REMARKABLE case presented itself in a grey mare, of middle size, seven years old, and attached to one of the omnibuses. When she was led out for examination, it seemed that she had laboured under violent colic, which had been aggravated by strong doses of sulphuric acid. Her general appearance indicated loss of strength, accelerated breathing, the inspiration short, the nostrils much distended, and discharging a green fluid of an acetous smell, and mixed with portions of food. The belly distended—not painful on pressure—the pulse small, hard, and frequent—the mucous surfaces had preserved their natural colour. All these circumstances led us to fear the rupture of some important organ, or the indication of some fearful result.

She was immediately placed under an antiphlogistic course of treatment. During the first hour there was considerable vomiting. The animal discharged both by the nostrils and the mouth full two pounds of fluid. The blood which flowed during a bleeding from the jugular rapidly coagulated. Convulsive contractions were observed in all the muscles of the body, and particularly about the chest and shoulders. New and considerable quantities of food were ejected from the stomach; and, at length, she laid herself down, with her muzzle pressing on the litter. The prostration of strength more and more increased—her eyes were haggard—the vomiting was more frequent—the inspirations also became more and more frequent—the pulse could scarcely be felt. The animal again and again endeavoured to raise herself, but immediately fell—and, at length, died about four hours after she was received into the hospital.

Post-mortem Examination an Hour after Death.—There was no fluid diffused in the peritoneal cavity. There was rather a voluminous intestinal mass, hard to the touch, and being the result of many simultaneous invaginations. The central portion of the small intestine, at an equal distance from the pylorus and the cæcum, was strangely doubled, forming several volvuli of such a kind that—proceeding from the exterior to the interior—there were eight or ten distinct vaginations. It seemed as if there were two

forces, the peristaltic and the anti-peristaltic, opposing each other, and, in a manner, struggling to occupy that portion of the intestine in a kind of cylindrical and flexible column, and at certain places the mucous membrane was of a red colour—in others it was brown or black. Its thickness increased from the circumference to the centre. There was a considerable gelatinous, or rather sanguineous deposition; no portion of any of the intestines presented the least trace of rupture. This observation is interesting, for it was the first case in which volvulus of the intestine had been considered as a cause of vomiting in the solipede.

External Pathology and Surgery.

Six hundred and sixty-seven complex surgical operations were practised.

The treatment of these lamenesses, which consists in the application of a fragment of corrosive sublimate under the skin near to the joint that was lame, has continued during the year with almost uniform success. We have lately treated anew 118 horses, asses, and mules, for lameness in the shoulder, and 30 times for lameness having its seat in the articulation of the femur with its basin. This powerful revulsive does not always remove the lameness, but, at least, as often as the transcurrent cauterization, and does not leave any trace of it, the cicatrix disappearing under the skin.

In any time of the year during the rigorous cold, as well as the scorching heat, there are observed tumours almost constantly mortal, which occasionally follow the use of setons. The voluminous engorgement produced by the bichloride of mercury dissipates them all. At two separate times farcy attacked a wound in the shoulder; but a cure was easily obtained.

Castration has been performed during the last year on 24 horses, 8 asses, and 5 mules. Among the different modes of proceeding we gave the preference to the operation with the clams and the "testicle-couvert." All that were operated upon were cured, without exception and without accident. The engorgement that has followed the operation has sometimes been almost nothing, and in every case less developed than in the castrations with "les testicules couvert." No bleeding followed the operation. Lotions of every kind applied to the sexual parts were rejected. The white water and gentle exercise were oftenest recommended.

Ténotomie.—Division of the pectorans tendon has been performed on ten horses, all of which were cured and rendered good service, notwithstanding the operation had been performed accord-

ing to the old method of proceeding, which consisted in making a longitudinal incision, that had the inconvenience of permitting too easily the introduction of air into the wound and producing occasionally sad complications. The subcutaneous operation appears to us to be the preferable one, and we shall certainly hereafter adopt it.

Plantar Neurotomy.—This was attempted on the right fore leg of a mare destined to light draft work. A violent contusion of the foot had caused a permanent lameness, which could not be remedied. The pain and the lameness, however, ceased after the section of the posterior branch of the plantar nerve on either side; nevertheless, the redness and ecchymosis of the horn remained. Since the operation she has taken several long journeys, and the limb seems to have regained its pristine soundness.

Accidents connected with Bleeding.

A very great number of venesections have been made from the jugular vein of the horse and the dog. This could scarcely be effected without the occurrence of occasional accidents. We have, however, met with only one case of thrombus, which occurred to a horse after a bleeding practised in our school. Once only have we been called upon to combat an accident, fortunately very rare, and the consequences of which may be fatal. Some globules of air introduced themselves into the jugular vein while the operator deposited on the ground the vessel filled with blood. Some seconds afterwards the horse staggered, widened all his limbs, and was utterly unable to move. In an instant another bleeding was made on the opposite vein. The blood that flowed from it was of a vermilion colour; but in a moment the respiration of the animal became laborious, he fell, and seemed to die. Frictions with the essence of turpentine on almost every part of him were immediately resorted to, five minutes after which he got up, and was reconducted to the hospital. In another five minutes he appeared to be well.

Thirty cases of thrombus occurred among the horses that were bled at the school; in each of them was a fistula more or less profound. The cauterization was effected by sharp points being applied, and penetrating along its track. In twenty-two of these tumours that were caused by extravasation of blood the vesicatory ointment produced resolution, whether the malady existed or not under an acute form.

Bandages.—Professor Mayor, of Lausanne, in a visit which he paid to the school during the scientific congress, wished to try

on certain animals some applications of the bandage which he applied with so much dexterity in the practice of human surgery. Triangular, and folded in the form of a cravat, this bandage appeared to be exceedingly useful for the dressing of wounds near the base of the different members—in different kinds of javart or peduncle—diseases of the limbs, &c. In all the engorgements of the submaxillary ganglions the apparatus accomplishes every desired object.

EXTRACT OF THE COMPTE-RENDU OF THE ROYAL VETERINARY SCHOOL AT LYONS, DURING THE SCHOLASTIC YEAR OF 1842-43.

By M. REY, *Clinical Professor.*

FROM the 1st of August 1842 to the 31st of July 1843 there were admitted into the hospital of the school 995 animals; namely, 600 horses, 35 cows, 40 sheep, and 320 of other animals.

The diseases of the first were a little more numerous than in the preceding year. The dogs were much inferior in number, on account of the rigorous measures which the authorities took to diminish the propagation of these animals.

Of the 600 solipedes, 535 were cured, and 65 died, or were sacrificed.

The maladies of the latter may be reckoned under the following heads: 18 died of glanders, 29 of other diseases, chronic or acute, and 18 surgical patients. These were sacrificed as incurable.

At the head of the various diseases brought into the hospital was

RABIES.

This dreadful malady is yet among us. Several accidents being observed in our town at the commencement of the year, the most rigorous measures were employed to effect the destruction of every wandering dog. We will hasten to shew the efficacy of the means employed, and the infinite good that has been effected. In 1842, 104 dogs were received into the hospital of the school; 62 of them died of rabies. In 1843, 48 died, of which 14 were cases of rabies. We have in this year had 14 cases of rabies, in which were 6 dogs attacked by that variety of the disease known by the name of dumb madness.

During the last summer, especially after the rapid changes of the weather, we observed this disease to declare itself most frequently.

If in the later months rabies has been rare among the dogs, this happy result is to be attributed to circumstances for which we are unable fully to account.

There are few active remedies that have not been employed in the abatement or the removal of rabies; but every mode of treatment has been tried in vain. There are thousands, however, of ignorant persons who rely on the efficacy of numerous panaceæ, the composition of which is utterly incompatible with the simple rules of pharmacy.

Glanders

Has long possessed the sad privilege of wearing out the patience of experimentalists. I will not add sufficient to disgust you with any remarks that I may offer; but I must honestly confess that I have little hope that this disease will ever be entirely unravelled and overcome.

We may view this malady under three aspects,—its causes, its nature, and its treatment. It is regarded as an enzootic in many of our larger towns. At Lyons 130 animals were destroyed, and 128 in the preceding year. A great deal seems to depend upon the state of the weather. Rains, almost continual, are the precursors of farcy: they have little influence on the production of mange.

In that part of the country which is in the neighbourhood of Lyons this disease is comparatively seldom seen, even with regard to the animals that are employed every night in the removal of various nuisances. It is principally observed among the horses that are agglomerated together. In those in which mange exists the contagion of chronic mange is a question of great importance, and one on which there is great diversity of opinion. The most numerous are in favour of non-contagion, and they increase every day; but occasionally there are proofs to the contrary. We have seen horses that, during six years, have cohabited together without the slightest injury being effected in the stables of the post-office, and in the centre of fifteen horses decidedly glandered; but these are circumstances of rare occurrence.

Maladies of the Chest.

Affections of the lungs and pleura are less frequent than in the preceding year, and they have been equally so in every season. Generally, revulsives have been used. In some cases it has been deemed necessary to have recourse to bleeding. More than once, however, it has been requisite to reserve the employment of this

last resource, and not to forget the precept, that the subtraction of any great quantity of blood is injurious, especially in climates under the influence of almost continual humidity. It sometimes places the patient in a state of feebleness that exposes to a relapse, and retards the means of convalescence.

In the affections of the respiratory passages the revulsive treatment is not always exempt from danger. It occasionally leaves some serious complications, especially when the use of setons has been deemed necessary. When they are applied to the walls of the thorax or the chest, they may be followed by a voluminous engorgement, which has the character of gangrenous œdema, and death.

Pneumonia, complicated with affection of the head, occasionally presents itself.

An entire carriage horse contracted inflammation of the lungs by rain beating upon him. He was sent to the hospital, after having received some prior treatment. He was bled at the jugular. The movements of his flank, his cough, and the character of it, furnished by auscultation, confirmed the existence of acute pneumonia. The artery was distended and the pulse strong and frequent. The antiphlogistic treatment was adopted

On the evening of the same day, about four o'clock, a serious appearance was remarked; the mucous membranes had a yellow tint, and the muscles were in continual action. Five minutes afterwards, there was great irregularity in every motion. He suddenly fell—the muscles of the neck and face were contracted—the eyes were in constant action—the mouth was filled with spume—the respiration was painful—the beating of the heart was tumultuous, and the pulse scarcely to be felt. After some minutes, the crisis all at once ceased; the animal regained his tranquility, and began to eat his litter.

These nervous phenomena were regularly manifested at morning and night: the animal trembled, beat his head against the walls, contracted violently the muscles of his neck, and made vain efforts to relieve himself. He again raised himself a little, and then fell, and remained couched some time after the cessation of the most alarming symptoms.

We usually had recourse to the use of infusions of valerian, given internally. This was replaced by asafœtida, which was repeated in doses of ten grains.

Under the influence of this medication, these fearful appearances lost their intensity, and the horse completely re-established himself.

During the last days of summer, a case of pneumonia, very much resembling this, exhibited itself. The disease presented this remarkable difference, that in place of the symptoms of essential

vertigo were those of abdominal vertigo; thus, instead of violent crises, tumultuous, and returning at certain epochs, there was an embarrassment of the digestive functions, a drooping of the head, and a tendency to walk and press forward. The attempt to cure consisted of light stimulants to the digestive tube, and powerful revulsives applied externally for the space of ten days. The symptoms of gastro-encephalitis were not manifest until the third day after the appearance of the pneumonia. The horse perfectly recovered.

THE NORTON FARMERS' CLUB.

At a meeting of this club, held on the 3d of June, 1844, Mr. Hinde gave a very interesting description of the different breeds of domestic animals. It is worthy of the author, and would have been perfectly unexceptionable if due acknowledgment had been made of the sources whence it was derived. This is a fault that ought to be more carefully avoided than it generally is. However, there is no inconsiderable portion of good writing and excellent delineation.

Mr. Hinde, after a few introductory remarks, proceeded to read the following paper on "The Improvement of the Breeds of Domestic Animals," being the first of a series. It is not, says he, my intention to enter into an inquiry as to the comparative merits of the various breeds or races of our domestic animals, or to endeavour to trace their history or origin: each subject might fairly furnish matter for a separate paper; but, confining myself to a few general remarks descriptive of their properties, and of the mode of crossing to be observed in breeding, my object is rather to provoke discussion, and call the attention of this society to the subject, than hoping to add any thing to the stock of knowledge already possessed by its members. In selecting this subject, I confess I was influenced by observing that it was one that had not already occupied the attention of this society in its discussions; and, while I admit the paramount importance of draining and cultivating the soil (in the discussion of which your meetings have been chiefly employed), I conceived that one evening, at least, would be well spent in enforcing the importance of improved breeds of live stock. The value of this remark will be more apparent when I remind you, that the cattle of our country is estimated at 8,000,000, and the horses at a million and a half, independent of sheep and pigs. Taking these only at £10, there is about a hundred millions of

capital employed in these articles of produce alone; and surely it is worth while to make this enormous sum as productive as we can. As foremost in rank and importance, I will commence with

The Horse.

The number of years which the horse occupies in coming to maturity, the many casualties to which he is liable, and the lamentable manner in which the fond hopes of many a breeder are disappointed when his favourite arrives at a saleable age, have combined to render the breeding of horses any thing but a profitable or favourite employment. The disappointments and loss of breeders are generally to be traced to a want of judgment and due consideration in themselves, rather than to the absence of remunerative prices and public encouragement. Good horses, of any description, always have, and do still, command high and remunerative prices for the risk and trouble attendant on their breeding and rearing; and if breeders would only bear in mind the motto of that eminent man, Mr. Bakewell, that "like produces like," and breed from none but sound and perfect animals, with a due regard to the description of horse to be produced, the world would no longer be filled with diseased and mongrel nondescripts, yclept horses, devouring daily twice the value of their earnings.

The very diseases and infirmities of mares are not unfrequently the cause why they are selected to breed from. A man is possessed of a mare incapable of earning an honest livelihood. Rest, or a summer's run, is necessary, and that that may not be lost, she is put to the nearest horse, in order that she may have an opportunity of handing down to posterity her own worthlessness, and perpetuating her owner's misfortune in the possession of such a breed. False economy—foolish and fatal delusion! the unfortunate breeder perseveres with his principle of "like producing like" from one generation to another, until, worn out in pocket or in patience, he gives it up as a bad affair, and declares that there is no profit attending the breeding of horses.

Another common error is in breeding from a favourite (perhaps a good) mare, without duly considering her qualifications as a brood mare, or perhaps not until the vital functions are impaired by a long life of previous toil. As a matter of fancy, it is all very well to desire to perpetuate a breed to which we are possibly attached by many associations; but we should endeavour to bear in mind, that favourites have often an ideal value set upon them by their owners, and to expect to obtain a really valuable offspring from an undersized, worn-out, or mis-shapen dam, merely because

she may have proved a useful servant, is to raise up hopes that can end only in disappointment.

Another error, and just as common as the last, is that of crossing between a sire and dam of opposite descriptions and characteristics, and without regard to the kind of animal sought to be produced. The owner of a mare having determined on breeding, is pleased with some horse that takes his fancy, and, without considering the consequence of a cross between that animal and the favourite horse of his choice, he goes to work, and the result is a mongrel nondescript, neither hunter nor carriage horse, hack nor cart horse, and he wonders that that parent stock, very probably each good of its kind, should have produced offspring so dissimilar to both. The parents, therefore, should not only be as perfect as can be selected, but should be well assorted in the crossing; for whatever points of excellence either may possess, we must not expect to secure their descent to the offspring if the other parent has a counteracting defect, or is dissimilar in kind.

From these general remarks, I would lay down the following rules to be observed in breeding; and I will endeavour to illustrate and enforce each of them by a few practical observations. 1. To breed from none but sound and healthy parents, and such as are free from all natural infirmities of structure, temper, or disposition. 2. To breed from the most perfect in form and action, and to take especial care that a tendency to the same defect does not exist in both parents. 3. To breed animals of a distinct and positive character; and to take care that the male and female are so assorted as to ensure a certain description of offspring.

We will now consider the first of these rules, viz., to breed from none but sound and healthy parents.

In THE VETERINARIAN of 1840 I find a clever writer on this subject thus expressing himself:—"So strongly do I feel on this point, and so convinced am I, from my frequent communications with gentlemen who usually breed two or more foals yearly, that this has been too lightly considered, if not entirely disregarded, that I cannot pass over this opportunity of recording the testimony of a few cases, as living proofs of the fallacy of breeding from imperfections; and as our profession now engages the attention of all concerned with agricultural pursuits, and read, as I believe this journal is by many who, though not professionals, feel a lively interest in the advancement of our science, I do humbly hope that the following facts may, in some measure, lead to a correction of this popular error."

The writer then goes on to detail the case of a foal dropped blind; and adds, that although the mare herself had certainly good eyes, the horse was very defective; and of all the stock he got,

not one foal escaped the direful effects of his imperfect vision. The next case is that of a mare, subject to farcial enlargements or swellings; and, not being capable of much work, she was put to the horse to breed a foal. It came; and soon after birth evinced symptoms of farcy, dying, before it was two months old, of glanders. Another case is that of a gentleman having a *favourite* mare, but dreadfully lame from the navicular disease. He bred from her a filly that obtained a prize at an agricultural meeting as a yearling, and was then a youngster of much promise. She was, however, occasionally lame before she was shod, and at five years old could scarcely go at all, although every care had been taken of her, and she was sold for a few pounds. The mare was a jibber in single harness, and her progeny, when tried, uniformly exhibited the same propensity. Among others, he mentions the case of a mare that broke her leg whilst running on Epsom Downs, when, although the fracture was reduced, the leg was afterwards crooked. She bore a filly-foal, which had a deformed leg on the same side as the mare, and with precisely the same curved inclination.

I remember, several years ago, breeding from a favourite mare, a remarkably fast trotter, that was subject to sandcracks. She had two foals, both by Lord Fitzwilliam's Camelopard, whose stock, so far as I am acquainted with it, was remarkably sound; but both foals were lame in their fore-feet the moment they were mounted and put into work. I have already stated an instance of a mare with a broken leg producing a foal with the same leg defective; and I know a similar instance in Sheffield at this moment, of a thorough bred mare, belonging to a friend of mine, that came out of a mare with a broken fore-leg, and has a bent leg herself. She is sound, and an excellent mare, but objectionable from the cause I have stated. I remember, a short time ago, a friend of mine, in the Occupation-road, driving a young bay mare, that soon exhibited farcial symptoms, of which she grew rapidly worse, and died. In conversation with her owner, he told me that every means had been tried to check it, but that he thought it would be of no use, as her mother had died of the same complaint!

I could multiply these instances *ad infinitum*, but enough has been said to prove the tendency in like to produce like. And do we not all of us recognise this principle in breeding? We breed from fast trotters, hoping to get fast trotters,—from fine stallions, hoping to have fine foals, and so on; and why not remember, that if we breed from bad eyes, diseased feet, curby or spavined hocks, ring-bones, bad tempers, or false hearts,—why not expect to have these defects handed down to posterity? There has lately died in this neighbourhood, at an old age, a stallion that has been remark-

ably fashionable, and has got an immense deal of stock. He had been a good racer, and was, I believe, perfectly sound in action, but had been fired in his hocks when young, I imagine, for some real or supposed weakness. Now, although I have particularly observed scores of his progeny, I never saw one that had good hock action, and I believe that, at least, one-half of his stock have, at one time or the other, proved unsound.

Since writing the foregoing, I have mentioned the subject to an intelligent young veterinary surgeon, who fully confirmed the opinion I have expressed, and related to me a singular instance that had come under his observation only the day previously. It was of a mare pony, with deformed knees, dropping a foal with knees similarly deformed, and actually ossified when the poor little sufferer was only a few days old.

The causes of unsoundness in horses are so various that I cannot undertake to enumerate them here; but I will allude to them generally, as the rocks or quicksands of breeding, which are almost sure to be destructive of our hopes if not skilfully avoided, to wit:—Unsoundness or malformation of the feet, the most common of which are the navicular disease, contraction, running thrushes, corns, sandcracks, and the like, and having either too narrow or too open and flat a formation. Unsoundness or malformation of the legs, such as splents, ring-bones, crooked or ill-formed joints, causing faulty action and a hitting together of the legs, and weak or sprung sinews, &c. Diseased eyes or imperfect vision are generally the cause of the dangerous trick of shying. Affections of the lungs or windpipe, such as broken wind, roaring, whistling, and so on. Diseases of the hock-joint—a common failing. In addition to these there are many vicious habits, such as cribbing, jibbing, kicking, shying, and the like; and many constitutional diseases, such as farcy, glanders, grease, &c., to which, I have no doubt, there is an hereditary tendency, and which it should always be the object of the breeder to counteract by an opposite temperament in the cross, or (if he takes my advice) to avoid it altogether, as unfit to be propagated from.

Having now disposed of my first proposition, to breed from none but sound and healthy parents, I proceed to the second, viz.—To breed from the most perfect in form and action, and to take especial care that a tendency to the same defect does not exist in both parents. I have endeavoured, in the preceding section of my subject, to impress upon your minds the importance of avoiding all but healthy parents in your breeding studs; but you will still breed to little purpose unless you obtain those essential requisites of form and action and substance, without which no horse is capable of long performing satisfactorily the duties required of him, or of re-

munerating the breeder for the expense and risk of his rearing. After all, there is much that is arbitrary, and totally beyond all calculation, in the mysterious laws of procreation: enough, however, has been said on the principle of like producing like to induce us to select the best and most valuable parents, in order to secure as well as we can the most valuable offspring. It will not be necessary to classify the various breeds of horses, or to lay down distinct rules for the breeding of each, as the same rules will apply to all descriptions. The bold and animated countenance, and active step, the light heart and resolution to go through the labours required of him,—to use a dealer's phrase, "upstanding" carriage and symmetrical proportion of form, are characteristics of a perfect horse of any description. I will, therefore, make a few general remarks on the kind of mare and horse to select, and then point out some minor particulars which, in my opinion, we should endeavour to secure in each kind of horse sought to be bred.

It is a common error in people to breed from tall, long-legged mares (merely as such) in expectation of getting fine tall horses. The mare best calculated to breed fine stock being one that is short-legged, with a deep, roomy chest, carcass, and constitution, a powerful vital and nutritive system, indicative of great powers of generation and nutrition in the formation and rearing of the young. I must not be understood as preferring small mares, short, compact animals, without growth or capacity about them, but in contradistinction to tall, long-legged mares (which are very seldom well-proportioned in depth and roominess of carcass). I like a lengthy well-grown mare, on short legs, with good chest and carcass, and good constitution, and capable of supporting and sustaining the drain upon it of suckling a hearty and a hungry progeny. I would never breed from a mare that does not shew what is called "breed" in the class to which she belongs; I mean a good animated head and countenance, density and firmness of muscle, sinew, and structure; a good chest and shoulder, activity of motion, and well-turned loins and quarters. Some cart-horses will plough or harrow half as much more ground in a day as others, merely from the superiority of their action. Then look at the value of this property to their owner? Again, in travelling along the road, drawing manure, or the like, what saving is effected by horses being able to walk rapidly and cheerfully along, without being distressed by the pace. In hunters, hackneys, and carriage horses, action is an indispensable requisite, and without it either of these kinds of horses is comparatively worthless.

I have mentioned generally the kind of mare to select, and I will now refer more particularly to the peculiarities of form and action to be sought after in a brood mare. Hunters, hacks, and

carriage horses, of the most valuable description, for the London markets and gentlemen's carriages, may all be bred from the same kind of mare, and should have a thorough-bred horse for their sire. The head is well termed the leading point in a horse, and is, in general (like the countenance of the human being) an index to the character of the animal. I should almost go so far as to reject any mare for breeding nag horses that had a heavy bad head and countenance, as too frequently indicating a corresponding heart and temper, or proving a want of true and genuine descent. The neck should not be heavy, but nicely curved, and well brought out of the *top* of the withers, instead of being, as many are, brought out at the *bottom* of the shoulders or chest. The shoulders are about the most important part in a nag-horse, and should have the scapula well laid back at the top, in an oblique position from the shoulder point. The scapula should be long and wide, extending nearly to the top of the withers, but attached so closely, and so well covered with muscle, as to leave no prominence, and completely concealing its motion when the horse is in action. The shoulder point should be high up, and not prominent or heavy. The fore leg should stand in a perpendicular position, the toe of the foot and the shoulder point forming a perpendicular line. The knee should be straight, neither bent forwards nor backwards; but of the two, the former is preferable. The sinews should be distinct, strong, and well-developed immediately below the knee, and continue of a uniform size to the pastern joint. The pastern should be strong, of medium length, and neither too straight nor angular; the foot round, black, and even in its external appearance and growth; the heels open, but by no means low, which is very objectionable in a horse for the road: the frog bold, and free from thrush. To return to the shoulder: there should be abundance of muscle at the back of it, making the horse appear wedge-shaped when mounted, or gradually widening from the neck of the horse to the knee of the rider. The brisket should be deep and narrow, so as to keep the girths well back, and secure the saddle in its proper place. A wide circular chest, in a roadster, is seldom found to possess straight and quick action. A hackney that will not carrry his saddle in the right place, you may be sure is defective in form, and I would rather part with such a one than be at the expense of a crupper to ride him. I do not like a very deep carcass in a roadster. It is necessary in a hunter, and desirable in a harness horse, but in a hack that has to carry a burden on the road, a round, neat barrel, with a good well-rounded and lifted loin, grown completely into the quarters, is more to my taste, and will prevent the legs being worn out, as is too often the case, with carrying too much weight, long before the constitution is impaired. The quarters should be

long and oval on the top, so that, when we stand behind the horse, the haunches shall be as wide as or wider than the hips. In a brood mare, a little more latitude is allowable in the hips, but in a stallion it is exceedingly ugly and objectionable. The hocks (as a most important part, and frequently liable to disease and malformation) should be particularly attended to, and the shank bone and sinew, both in the hind and fore leg, should be well developed and straightly dropped immediately below the hock joint.

In cart-horses the same rules apply, except that the circular chest, and greater width and depth of carcass generally, are not only allowable, but desirable. For the farm, I should say cart-horses are frequently bred of too heavy a description, and might be got equally strong, and much more active, by judicious crossing. We see horses of the description I refer to, for the most part, in porter carts, hucksters' carts, brewers' carts, and the like, for which they are bought up, and frequently at high prices, on account of their superior strength, activity, and durability. Do not, however, even in a cart-horse, overlook the importance of an animated eye and countenance, and a bold upstanding carriage, as sure tests of courage and other valuable properties.

Having thus pointed out what is to be avoided, and what to be desired, in the parent-stock of the horse, we will proceed a step farther, and consider how the observance of these rules may still do but little towards obtaining a valuable offspring, unless the male and female are well assorted, and the attention directed towards the production of an animal of some distinctive character and description. How common and how fatal is this error! How constantly, or almost universally, do we see little, light, weedy mares, of mongrel breed, put to great, overgrown, heavy horses, of no definite breed or description; and, reversing the subject, great coarse cart-mares put to well-bred or thorough-bred horses, merely because the owner has determined on having a foal, and some horse is convenient to get, or cheap in price, or happens to take his fancy, without reference to his aptness as a cross for the mare. If animals are put together that are ill assorted in size or description, or of distinct breeds and character, the breeder can never calculate with any security on the character and description of the produce; and mongrel-bred horses are, for the most part, wanting in courage, constitution, form, action, and every other property which renders them valuable. I would reduce the various kinds of horses, leaving race-horses out of the question as not within the legitimate sphere of our inquiry as a farmers' club, to four classes, viz., the hack or roadster; the hunter; the carriage or harness horse; and the cart-horse. The various modifications in size and character, which the vagaries of nature produce in our

efforts to obtain any of these breeds, will furnish every description of horse that can be required. For the production of the three first classes I should decidedly prefer that the sire should be thorough-bred; and if the parent-stock is only well selected, you need not fear obtaining all the size and substance essential for the production of the most valuable of each of these kinds. In breeding a hack (and allow me to observe here, that no description of horse is so rare and difficult to meet with), neither parent needs to possess extraordinary size or power; but in dispensing with these properties, we have a combination of other rare and essential qualities to be secured. Beauty of form and carriage are not only important, as enhancing the value of a gentleman's hack, but as indicative of correct proportion, and a light heart. The head should be small, lean, and animated, and so set on as to insure its reining in pleasantly to the rider. The neck should be light and tolerably long, or the horse will appear short in front of the saddle; shoulders and chest deep, well formed and muscular, so as to ensure the saddle being well carried; round and compact in the barrel, with loin and quarters firmly united, oval-topped, neat, and strong. Above all, he must possess sound legs and feet, a sound constitution, smooth and quick action, and be safe-footed. A strong, active, Welch mare, crossed with a sound, good-actioned blood-horse, often produces valuable roadsters; but as this is a very difficult horse to procure, and in attempting to breed hunters of greater value we may frequently have undersized ones, calculated for hacks, I should never attempt to breed hacks for profit; but, aiming at something more valuable and certain, run the chance of obtaining hacks or roadsters from amongst them. I am aware that I shall have the old adage quoted against me, that horses go in all forms: but without arguing the point, I will admit that *heart* has a great deal to do with *action*, although I never remember to have seen a really fine goer very ill shaped, or the converse; and while I willingly leave what old John Dockray called "three-cornered impossible brutes" to those gentlemen who are perverse enough to prefer them, I confess that my own taste would naturally lead me to select the most perfect animal in form that I could meet with, as the most likely to ensure me truth and superiority of action. Horses with straight hocks or steep pasterns are seldom agreeable hacks.

In breeding hunters (the most valuable of all horses except racers), three great properties must be combined: viz., power, speed, and endurance. The mare should, therefore, be of the best description of brood mare, sound, roomy, strong, with good constitution and nutritive powers, good action, and well bred; and she should be crossed with the most powerful, sound, and good-moving

blood-horse that can be met with. Never be content with seeing a stallion in his stable only, but have him out and examine whether his action and carriage are true and graceful; for horses that cannot go are of little worth to any one. It may be thought by some that I am too much prejudiced in favour of blood; but to those I would say that, if, by a judicious selection of stock, blood-horses are to be got as strong, and, taking the density of their sinew and structure into account, much stronger than others, and that none but blood-horses can long maintain the speed and sustain the efforts necessary to be made by a well-ridden hunter of modern times, it must be admitted that blood is of the utmost importance, if not indispensable, to a perfect hunter. I admit that horses, without a thorough-bred cross, may sometimes be found with speed and action sufficient to make good hunters; but they will also invariably be found incapable of long-sustained efforts, and, if pressed, their appetite and constitution will give way. Hacks and hunters cannot be too well bred: they move with greater ease to themselves and their riders, while the firmness of their texture renders them less susceptible of fatigue, and capable of much longer sustained efforts, without being thrown off their feed, or injured in constitution. If any one doubts this, let him apply to some hard-riding sportsman, or, to come nearer home, to our respected townsman, Mr. Peach, who has, perhaps, had more experience as to the powers of endurance in a horse than any man in England.

Carriage-horses may be bred in the same way as hunters, but with a little more liberty in the selection of the mare. So much blood is not essential; and we need not be quite so particular about the shoulders and the head for harness, although to have both these good is at all times desirable. The most common description of horse that travels the country as a stallion is what is called a trotting or coaching-horse. Few, indeed, are the mares adapted for these animals, with a view to a distinct kind of offspring, such as I have enumerated. I should confine such horses to these two kinds of mare—one, nearly or quite thorough-bred, with the view of breeding carriage-horses, and the other, a good cart mare, that is rather too coarse and heavy, and wanting a little more activity and smartness of appearance. The former of these is an uncertain way of breeding, although sometimes successful, as in the case of Mr. Henry Barker, of Arbor Thorn, who has an old brown mare, nearly or quite thorough-bred, which he has crossed in this way for many years, with very good results. If I were called upon to name the best carriage-horses in this neighbourhood, I would select the chestnuts driven by Mr. John Sanderson, of New Hall, brothers, by a blood-horse; and the bays driven by Mr. J. Bower Brown, of Shire House, also brothers,

and by a blood-horse. In these there is all the size and power that can be desired, with a lightness and smartness of step and carriage that no mongrel ever possesses.

The breeding of cart-horses must, in some measure, be governed by their own kind of work. A farmer on sandy land may breed a kind of strong carriage horse; and those that are sufficiently good looking may be worked until six years old, and then be parted with to advantage. Others, too strong or not smart enough, might make valuable horses for porters' carts, &c. Those who farm a stronger soil might breed them as near like the engraving as they can get them, and with such improvements as their experience can suggest. Let them work their colts on until six years old, and then they may be taken to a fair for the London dealers, and sold readily at their own price. By pursuing the rules I have thus laid down, I feel satisfied that the breeding of horses would no longer be considered the unsatisfactory and unprofitable employment which it is now considered to be by most farmers, in this neighbourhood at least.

In continuation, Mr. Hinde observed, that he had not alluded particularly to "colour," but, in spite of the adage that a "good horse is never of a bad colour," he would decidedly point out light chestnuts, yellow bays, or light greys, as objectionable, not only to the eye, but as indicative of a delicate constitution. White legs should also be avoided, particularly *before*, as more liable to grease, and terminating in white hoofs, which are always weaker in texture than black ones. Rusty browns or blacks, and other dull and undecided colours, should also be avoided, as rendering a horse (desirable in all essential points) less attractive to the eye, and consequently less valuable.

In the rearing of foals, he would remark that it was of the utmost importance to keep them well, and shelter them (particularly during the first autumn and winter); for if starved and checked in their growth at this period, they seldom attained the same amount of bone and sinew that proper attention during the first year in a great measure secures.

WATERY FARCY; EXTERNAL DROPSY; DIFFUSE INFLAMMATION OF THE CELLULAR MEMBRANE; PURPURA HÆMORRHAGICA.

By W. PERCIVALL, *Esq.*, *M.R.C.S.*

[Continued from No. 198, p. 400.]

CASE II.—*Topical Swellings, unaccompanied by general Tumefaction.*

May 2d, 1841.—A TALL brown carriage-horse, aged, was brought to me, limpingly lame in the near hind leg. The groom said it was as much as the animal could do to hop out of his stable and hobble over to the infirmary, a distance of not more than 200 yards. On placing my hand upon the inner surface of the thigh of the lame limb, where there appeared to me to be a fulness, I felt, just below the plump of the thigh, a roundish corded (but not knotted) swelling, about the magnitude of a boy's arm, extending from about midway between the hock and groin upwards, to the extent of six or seven inches, towards the groin; and there ending, as it had commenced, abruptly. It felt very hot, gave excessive pain on pressure; but, barring its situation, had not the character of farcy. The surrounding parts, the limb itself, saving this tumour, were entirely free from any swelling. The saphena vein could be distinguished beneath the tumour exceedingly distended, and, as far as one could judge from examination with the fingers, appeared to be involved in the tumour—to pass, in fact, through it. The horse had eaten his over-night feed; but was feverish and somewhat fastidious in his appetite this morning. The groom felt certain his malady was "humour," and alleged that he had had the same complaint the preceding spring. Take twelve pounds of blood from him, and give him calomel ʒj ē mass. purg. ʒix. Foment his thigh, and afterwards slowly exercise him.

3d.—He was watered and led out early this morning, and the consequence is his physic is now well working: there is not that fulness about the tumour there was yesterday, neither is it so hot or tender as it was.

4th.—Palpable decrease of the tumour: the purging continues. Foment and exercise.

5th.—The tumour has almost disappeared. Physic setting.

6th.—Progressing favourably. Give mass. purg. ℥ss.

7*th.*—But little swelling remains. Repeat the ball, and continue in other respects as before.

8*th.*—The bowels were again opened during the latter part of yesterday.

9*th.*—No remains of the tumour. Let him go to his own stable, and be fed on corn and green-meat, and exercised twice a-day until ready again for his work.

A Case of the same kind having a different Termination.

A race-horse, by name, STEAMER, for some years past used as a covering stallion, but within this last year emasculated, was brought to me with a tale from the groom that he had received a blow upon the cannon of the near hind leg that had caused lameness, and on account of which he had already been fomenting his limb for three or four days without benefit: indeed, on the fourth morning he proved lamer than he had been before; and this alarming the groom, he had brought the horse to me. I found him halting exceedingly on the near hind leg, and, coming to examine it, detected a circumscribed solid, firm, flattened tumour, four or five inches in diameter, rising upon the inner side of the thigh, about midway between the groin and hock, or rather nearer to the former. It had all the characters of what the groom, as soon as he saw it, pronounced it to be "humour," and was in fact, to all appearance, a swelling arising from subcutaneous deposition of lymph. It felt hot; and the touch of it even, and particularly pressure, caused annoyance and pain. Let him lose immediately viij ℔s. of blood; take calomel ʒj, ā mass. purgant. ℥j, M. Have continual fomenttation to his thigh, and be led out for gentle exercise.

The day after (the 10th of May) the physic has operated, and the patient is better—less lame, and tumour diminished both in volume and tenderness.

12*th.*—A return of his lameness has rendered him almost incapable of hobbling, this morning, out of the stable: when once got out and exercised a little, however, his lameness much diminished. The tumour has lost its defined and circumscribed character—has merged into a general fulness of the inner parts of the thigh, attended with unusual tenseness and solidity of feel of them. Pressure in any part makes him flinch, but much more so in the groin than any where else, and yet no distinct enlargement of the inguinal glands can be made out; nor are there any knots or corded swellings in the course of the lymphatics. The saphena vein is certainly so much distended that it might be at first mistaken for

an impervious or solidified cord; the flexion of the limb, however, disperses its contents immediately. Let him take mass. purg., mass. diuretic, of each ℥ss, M., and continue his fomentation and exercise.

15*th.*—His lameness does not yield, and it is evidently referrible to something we cannot get properly at. The hand, carried as high up into the fold of the groin as the doubling of the skin will permit, causes him exquisite pain; and yet, as I said before, the fingers cannot detect any bubo. Let him be bled again, and take calomel ʒj, with mass. purg. ℥ss, and repeat the same to-morrow.

18*th.*—The secret is out. A swelling is *come down*, or appeared high up in the painful groin, feeling cordiform, as though it were a bundle of tumefied lymphatics, though I do not believe it is any more than deposit into the cellular membrane. It has a firm, solid feel, and pressure upon it occasions insupportable pain.

19*th.*—The swelling has increased even under the operation of cathartic medicine; I, therefore, determined to try what effect iodine would have on it. Let him take, morning and evening, a drachm of the iodide of potassium, and have iodine ointment well rubbed twice a-day into the tumefied parts.

23*d.*—The iodine has been used four days without any benefit; indeed, this morning both fore fetlocks are attacked with swelling, the tumefaction extending up along the flexor tendons and feeling warm, but not evincing any great deal of tenderness. The tumour in the thigh has acquired a softness, and in the middle a feeling like fluctuation. A consultation was held on the case—the horse being a highly valuable one, and much regarded by his master—at which it was agreed to discontinue the iodine, and give in lieu of it a ball in composition much like Plummer's pill, containing 10 grains of calomel, morning and evening.

25*th.*—Abscess has formed in the thigh, from which (by lancing) about a pint of laudable pus was discharged. This relieved him a good deal, and enabled him to walk much better. The swellings in the fore legs have abated, and his appetite is improved. Let him continue his balls, and bathing, and exercise.

27*th.*—A manifest change for the better in all respects. The swellings are growing less, and the discharge from the thigh has degenerated into a sero-albuminous issue.

June 9*th.*—He returned to his own stable, rid of all his ailments, and recovered in health, wanting only condition.

CASE IV.—*Shewing that these partial or topical Swellings originate in one and the same Disease as the diffuse or general Swellings.*

The same brown carriage-horse, whose case (numbered II) stands at page 442, experienced, during the springs of 1842 and 3, attacks of swelling in the legs; but they were nothing more than what the groom—knowing his "constitution"—was able to overcome by cathartic and diuretic medicine, and exercise.

This spring (1844), however, he has again entered my list for a similar but greatly more severe attack to what he suffered in 1841. He has, during the early part, been in the country, away from the groom, and has not, as he says, received that attention as to physic and exercise and diet which he finds it necessary to pay to him, and to the neglect of which he ascribes his present malady.

On the 11th of May, of the present year, the horse, having been but a short time out of the country, was brought to the infirmary about noon with every appearance of being very unwell: he was breathing quick, had his nostrils dilated, lining membrane reddened, an excited countenance, hot mouth and skin, and accelerated pulse. The impression produced by the symptoms present was, that the attack was bronchitic; and, in accordance with that notion, a gallon of blood was immediately abstracted, an aperient given, and the compound terebinthinate liniment rubbed upon his breast and throat.

14*th*.—Yesterday he was very much better, his disturbed breathing having left him; and to-day he is so much recovered, that I ordered the groom to lead him out of his box for a little fresh air and exercise. Scarcely, however, had he commenced his promenade, when the groom returned with him, saying he found him shewing lameness in the off fore-leg. I examined the limb, and found a circumscribed ovoid tumour upon the inner side of the arm, warm to the feel, and very tender on pressure, solid and firm, and not pitting. "Oh!" exclaimed I immediately, "why your horse has got his old complaint again;—the same disease he had in the spring of 1841." Here was a *metastasis*, and a quick one, from the mucous membrane of the air-passages to the subcutaneous tissue of the arm. I must alter my therapeutics. Let him lose another gallon of blood, and take afterwards a drachm of calomel in nine drachms of cathartic mass; have his diseased limb plunged into a warm bath, and take walking exercise twice a-day.

15*th*.—The tumour is increased in size, being now the bulk of the half of a small pumkin. It is warm and painful. Let a wet bandage be kept rolled round the arm in the absence of the fomentation.

17*th.*—Yesterday he was thoroughly purged; and the consequence was, towards evening, a sensible diminution, or rather dispersion, of the tumour, and the falling of the swelling down into the leg. This morning, however, another swelling of the same kind appears upon the hind part of the thigh (or the quarter) of the off hind limb, circumscribed and flattened, and warm and tender, and solid and firm to the pressure of the fingers, exactly the same as the one upon the arm was. The groom has also drawn my attention to the *withers*, which, strange to say, I find exhibiting the same sort of tumidity, heat, and tenderness, as the limbs at first did. There is still a blush upon the nasal membrane, and it has a yellowish cast, as if there was bile circulating in the system. The conjunctive membrane, likewise, has something of the same pinkish yellow hue. The tongue has the aspect called *soapy ;* but that I think nothing of, as it is often so in appearance. The horse has recovered his appetite and spirits and air; in fact, they are nearly or quite as good as they are, perhaps, in health. Pulse 60, and firm in beat. Take four pints of blood away, and let him take a ball composed of half-ounces of cathartic and diuretic masses, and continue the same daily until he purges again.

18*th.*—The near arm is attacked with a general swelling, and the off one is more enlarged than ever, the swelling extending into the breast and axilla, from which latter the skin hangs or rather bulges from distention in folds.

20*th.*—His bowels have been again well purged, and that aided by the fomentation and exercise: he now walks out four times a-day, half an hour each time—has a little lessened the swellings; but the greatest difficulty has for the last two days been experienced in getting him along in his exercise, the arms and axillæ being tumefied to that extent that it is only very tardily, and with pain and difficulty, he is compelled to move one leg before the other. Bloodletting does more good in this respect than purgation; but it will not do to carry it too far, for fear of debility and consecutive dropsy; therefore take away only another four pints, and now commence with the compound mercurial ball* three times a-day.

21*st.*—The arms, whose size was somewhat reduced yesterday after the purgation, are prodigiously increased in bulk this morning; and the thigh likewise, where the swelling has become general also, is much larger than it was. Notwithstanding these alarming tumefactions, the patient holds a cheerful aspect, and feeds pretty well; not complaining, seemingly, except at such times as he has to walk, and then it is only by coaxing and almost driving that he can be got along. His pulse continues 60, and retains strength, but

* Containing a scruple of calomel, with guaiacum and oxy-sulphuret of antimony, meal, and common turpentine.

the coagulum of every parcel of blood abstracted manifests less firmness and tenacity, and swims in a larger pool of serum. Draw another four pints of blood, and continue the compound mercurial ball, and fomentations, and wet bandages, and exercise.

23*d.*—An evident change for the better. The tumefaction in the limbs perceptibly pits, and is dropping. Continue medicine, &c.

24*th.*—Progressive improvement. Take the ball only *twice* a-day.

24*th.*—Amending daily. There being some appearance about the gums, and some slight taint in the breath, indicative of mercurialization, let the ball be given only once a-day.

29*th.*—The cuticle is cracking in places where the inflammation and swelling were greatest—upon the inner surface of the off arm, and upon the withers as well; and from the cracks is oozing a yellow serous fluid, which concretes among the hair.

31*st.*—The cuticle, and hair with it, is desquamating from the places where it cracked. He is going on so well there is no need of pushing the mercury farther, therefore discontinue his ball.

June 10*th.*—Dismissed to his own stable, free from any swelling, save what little is seen in the morning, before exercise, about the off fore fetlock, amounting merely to filling. His condition, which is a good deal reduced, had better be got up again, gradually, by feeding moderately on corn and vetches, and exercise twice a-day, not carried to fatigue.

CASE V.—*Shewing Swellings of the Limbs accompanied by that Disease of the Schneiderian Membrane which by some has been called* SCARLATINA, *by others* PURPURA HÆMORRHAGICA.

In October 1841, a three-year-old colt, very fat, came to me on account of having "swelled legs." Some aperient diuretic medicine was given, and exercise enjoined; and he was sent away. Next day, however, he came back, swelled up to his knees and hocks in all four limbs; and the tumefactions felt warm and firm, and gave pain when pressed, assuming all the appearances, in fact, of those described in the former cases. Repeat his medicine and exercise.

On the 25th (the following day) he purged freely; but the swellings did not give way from the evacuation; though undiminished in volume, however, they feel softer, and pit under the pressure of the fingers. Take away six pints of blood, apply bandages to his legs wetted with cold water, and let him walk out thrice daily. There is but little fever in the system at present, and both appetite and spirits are good.

28*th.*—Since last report the swelling of the limb has increased, and now is extending upwards into the arms and thighs, with every character of diffuse inflammation of the cellular tissue, or inflammatory dropsy, or water farcy, or by whatever other name it may be called. The nose has likewise become involved in the disease, the nostril of the near side being swollen to that extent that it is with difficulty I can get a view into the interior to look at the membrane. Abstract six pints more of blood, and give a ball, morning and evening, containing calomel ʒss, digitalis ʒss, purging mass ʒj, diuretic mass ʒij; and continue the cold water bandages and the exercise.

Nov. 1*st.*—The medicine, exercise, &c. last ordered have been persevered in, without, however, any perceptible benefit, the limbs continuing as much swollen as ever; and there presenting itself to-day a new symptom, *petechiæ* upon the Schneiderian membrane upon both sides of the *septum nasi.* There is fever in the system, but it seems disposed to run into the *low* kind. Neither his appetite nor spirits maintain that buoyancy they possessed at the beginning, and there is considerable difficulty in getting him along at his exercise; and yet if he is allowed to stand in his box—for he by no chance hardly moves of his own accord—his limbs swell frightfully. I dare not bleed any more; neither dare I purge, for fear of inducing *diarrhœa.* What is to be done? I cannot imagine such a case would be benefitted by tonics—supposing even, with the fever existing, it would bear them. I will try mercury. Let him take every eight hours a drachm of calomel with five grains of mercury, meal, and common turpentine.

5*th.*—An ounce and a half of calomel have been taken without affecting the mouth or breath. The swellings have not sensibly augmented; neither have the *petechiæ* or red spots upon the nasal membrane undergone any alteration, save that they are not of such a bright red aspect as they were at first. He is growing so weak at his exercise, that, with declining appetite as well as strength, I am afraid to carry the mercury farther. Let him, therefore, take iodine—ʒij of the iodide of potash, morning and evening, with meal and turpentine.

8*th.*—An evident change for the better; his limbs are less tumefied, and his appetite is improved. For some days the man has been watching an opportunity to catch some of the patient's urine, but has not succeeded until this morning. Tested by bichloride of mercury, it proved albuminous, though heat failed to disclose the albumen. I had hair, to the extent of about a square inch, shaved off the skin of the hind part of the buttock; and it appeared to me that there were some red spots—*petechiæ*—upon the cutis,

like those within the nose; but, from the *rete mucosum* being black, they were by no means so distinctly made out as I could have desired.

9*th*.—A tumour, the size of a hen's egg, appears this morning upon the nasal bones; it has a hard, solid feel, and cannot bear much pressure.

10*th*.—The swelling upon the nose turns out to have been occasioned by the pressure of the halter, produced by the dragging force the man has been using in leading out for exercise.

11*th*.—His appetite is not so good. Omit his medicine.

12*th*.—A relapse, and an awful one. Both nostrils are again attacked with fresh swelling. A mucous discharge from them has made its appearance; and there is, besides, tumidity and tenderness of the entire nasal half of the face. The limbs, also, are more swollen, in particular the hind ones; and circumscribed tumefactions have arisen upon the inner side of one thigh; and effusion of fluid has taken place in the bursæ of the stifle-joints. The petechial spots upon the nasal membrane are evidently affected by the fluctuations of the disease in other parts, sometimes appearing red, at others of a modena or purplish hue; their colour is likewise influenced by exercise. On account of this alarming accession, another blood-letting was deemed advisable, no more than four pints being abstracted; also, recourse was again had to mercury.

13*th*.—He has been gradually getting worse. This morning, to our surprise, all his swellings appear diminished, as though they were about to leave him, and yet in other respects he is so much worse, that I doubt whether he can live out the day. I am afraid this sudden and unexpected abatement of his tumefactions portends, as it too often in such cases does, the approach of dissolution. At noon he lay down, not having done so, observably, since his limbs took to swelling so much. In the course of the afternoon he rolled about, as though "griped," and had a drench of ether and laudanum given him, which produced relief. In the evening this was succeeded by symptoms of delirium, in a fit of which (at 7 o'clock P.M.) he expired.

Post-mortem.—Lungs, dark coloured from congestion. Trachea and bronchial tubes, normal, the *petechiæ* having disappeared from the lining membrane of the nose. Peritoneum, normal; stomach exhibiting a slight blush, intestines without any; liver, pale; uriniferous tubes containing pus; cellular tissue, in the swollen parts, loaded with yellow sero-albuminous deposition.

THE VETERINARIAN, JULY 1, 1844.

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

MANY of our friends have inquired how the subscriptions connected with the Veterinary College of Incorporation have gone on. We have been compelled to reply that they have not succeeded to the extent we could wish. In May 1844, they reached the sum of £518..16*s*..6*d*. At the close of June, the following was the addition to the list :—

	£	*s.*	*d.*
Mr. James Child, Hackney	10	0	0
— J. H. Langworthy, Gloucester-mews, London	5	5	0
— W. J. T. Morton, Veterinary College	5	5	0
— Barlow, Cotgrave	5	0	0
— Hollingsworth, Manchester	5	0	0
— Karkeek, W. J.	5	0	0
— Pyatt, H., Nottingham	5	0	0
— Robinson, W., Tamworth	5	0	0
— Rogers, F., Knightsbridge	5	0	0
— Burrell, Great Windmill-street	3	3	0
— Pritchard, R., Wolverhampton	3	0	0
— Plomley, W., Maidstone	2	2	0
— Burley, jun., Leicester	2	2	0
— Darby, Leicester	2	2	0
— Kerr, J., Camden-town	2	2	0
— Peach, T., Sheffield	2	2	0
— Taylor, C., Nottingham	2	2	0
— Taylor, H., Sheffield	2	2	0
— Walker, T., Rugby	2	2	0
— Wardle, W., East Sheen	2	2	0
— Fryer, jun., Catterick	2	0	0
— Farrow, G., Ash	1	1	0
— Howish, J., Barnstaple	1	1	0
— McRobie, Sterling	1	1	0
— Walker, D.	1	1	0
— Baker, D., Chepstow	1	0	0
— Lepper, H., Aylesbury	1	0	0
Account stated in May	518	16	6
Joint sum collected ...	602	11	6

It appears, then, that there is a very considerable sum to be collected in order to make up the £1000 that we were compelled to borrow, and we do entreat our friends to recollect it.

THE VETERINARY ART IN INDIA.

By J. GRELLIER, *Esq.*, *M.R.C.S.*

[Continued from p. 380.]

THE reason assigned for the absence of the gall-bladder in horses is the continual feeding of the animal, and the smallness of the stomach preventing the food from remaining there sufficient time to be digested as in other animals. This function, therefore, in part, takes place in the intestines. From this structure it will be obvious that gall-bile would be prejudicial, hurrying the motion of the bowels so much as to prevent the full extraction of the nutritious parts*.

The simple structure of these parts in the horse accounts for his being less subject to complaints of the liver than animals whose biliary system is more complicated, as in the human subject, sheep, oxen, &c.

OF THE JAUNDICE OR YELLOWS.

The existence of this disease is known by the animal being very costive, the fæces very pale and small in quantity, and his urine deep-coloured; the inside of the eyelids, and what is termed the white of the eye, are tinged with yellow; his appetite diminishes; he becomes dull, and hangs his head. If the obstruction of bile is great, and the liver is any ways inflamed, he will, perhaps, point his head to his right side, expressing uneasiness more than direct pain. If the disease is not detected, the animal will very soon become poor and out of condition.

The existence of inflammation in the liver of the horse has been disputed. I will only assert, that I have frequently seen instances of jaundice, and two or three times attended with considerable pain in the right side. One case in particular was in the 13th Dragoons, where the animal was so much reduced with all the above symptoms in their most aggravated form, that it was not supposed possible that he could survive. He was blistered on the regions of the liver, and a very strong dose of calomel was given, which entirely succeeded.

* The gall-bladder is the receptacle for a part of the bile from the liver, where the more watery parts, being absorbed, render the residue very acrid and stimulating, generally termed gall. In animals that have a gall-bladder, as in the human subject, sheep, oxen, &c., there are two kinds of bile which pour into the stomach. That which comes immediately from the liver is very mild, and flows almost continually in health, while that which is in the gall-bladder flows only when the stomach is full. The horse has but the former.

I do not advance this as a positive inflammation of the liver, but it certainly, in my opinion, must have been inflamed sufficiently to produce pain. This is the more probable when the quantity of bile is considered, which, being obstructed in its natural passage to the stomach, is obliged to be absorbed from the liver and carried into the blood. By this course it also gives a yellow tinge to the secretions.

This disease is produced generally from inaction after an active campaign, or any other continued customary exercise; it also frequently attends a change of diet or temperature.

The cure generally succeeds by the following course of physic repeated two or three times, with intervals of six or eight days between each dose:—

Take of calomel 2 drachms
Soap sufficient to make it into a bolus.

Twenty-four hours after it has been administered, if it does not purge, an ounce of aloes may be given, softened into a ball with soap, and a few drops of oil of aniseed or mint. His clothing should be increased, and he may be gently exercised morning and evening. If it is observed to be accompanied with pain in the right side, or lameness, a blister over the regions of the liver will be necessary.

Ulcerated Liver.

This is a disease which sometimes occurs in England; and in this country I have reason to believe it to be very common, from many cases which I have already had an opportunity of witnessing.

Unfortunately it can seldom be detected until too late to receive any benefit from medicine. I have known a horse to be taken ill and die in two or three days. The liver was found indurated in some parts, and there were very putrid ulcers in others, the organization of the whole being entirely destroyed; he must, therefore, have been diseased a long time previous to his appearing ill. I imagine it must have proceeded from scirrhus, particularly as some parts of the liver were evidently in that state.

The first instance of this kind I ever saw was in a horse belonging to an officer of the 25th Dragoons. He had become very dull, and off his appetite; his coat was, however, smooth and loose. On examining his eyes, they were tinged with yellow; his bowels lax, and his fæces very pale. The symptoms indicated a disease in the liver; but neither inflammation nor simple obstruction, as the former would be attended with pain or lameness, and the latter with pale, hard fæces, and dark yellow urine. A gentle

dose of physic was first given, with a full proportion of calomel, which operated, and removed the yellow tinge: it did not, however, succeed in restoring his appetite, spirits, or condition. Calomel was then given every night, in doses of fifteen grains, for six or eight days, after which the physic was repeated to carry off the mercury; the horse, however, still continued the same. Cordial medicines were next had recourse to, as there were evident symptoms of debility, though we were entirely unacquainted with the immediate seat of the disease: this was, however, not more successful. The horse was then sent to Arcot, conceiving it possible that he might receive benefit from care and rest, as he had been through two very active campaigns. After a few weeks, without any other visible symptoms but gradual decay, he died. From what I could learn from an officer who was present when the animal was opened, the liver was an entire mass of ulcers and putrefaction.

This disease may very possibly commence or succeed slight obstructions; for the vessels which produce the bile in the liver may become deranged, by which the quantity and quality of the bile are altered, which I think evident, from the animal being generally lax, though not proceeding from healthy bile. Whatever the cause may be, I will not presume to decide, as, from the little attention which has yet been paid to this disease, it can be only surmise. We are, however, authorised to conclude that it is a chronic disease in the first instance, for such a state of the liver could never take place in a few days; there must, therefore, be a state of pre-indisposition, which, if detected, I think the cure would by no means be difficult, as mercury is as much a specific in liver cases in the horse as it is in the human subject.

The knowledge of this disease is at present so deficient, that we can urge but little in the form of relief. In respect to the knowledge of it which the natives possess, it is very trifling, and productive of no advantage. They are entirely unacquainted with any symptoms attending it—they only know that it sometimes exists, from observations which they have made in opening the animal after death, where they have sometimes found worms in the ulcers of the liver. From every inquiry I have made on the subject of and concerning them, they only know that it does sometimes exist, without possessing any one single proof or symptom by which it can be detected in the living state. If a horse has a tedious illness and decay for which they cannot account, they frequently assume a kind of logical knowledge of its existence: if it is no other disease, it must from necessity be the one in question; and from the frequency of this destructive disease, they may be sometimes right; but even their conclusions of its existence, though most

generally fallacious, are never made till every hope of relief is past.

I can offer nothing in mitigation of this disease. Perhaps, if the animal was more particularly observed, and his state investigated when he appears lower than ordinary, or falls off either in condition or feeding, I think obstruction or affections of the liver would be very frequently detected. In this case medicine, as recommended in the last chapter on the jaundice, might probably succeed; or small doses of calomel, of twenty grains, might be rolled up with a little new bread in the form of bolus, and given every night; and an ounce of a strong mercurial ointment might be well rubbed over the region of the liver every day, for ten or twelve days; after which, one or two doses of physic might complete the cure.

It is only by seeking it in its incipient state that we can hope for success, as when it is more advanced a cure is impossible. The animal under the above course may be much reduced, which would have been equally the case, only more tedious, had medicine not been employed; and though the animal be reduced by the medicine, his return to condition would be the more probable. It is very possible that this disease might, by the above means, be frequently prevented; and if the study of the prevention of diseases was more extensive, it might perhaps be of more real service to mankind than a cure—or, what is most frequent, a tedious alleviation, which is so often observed in the human subject.

THE ATTACHMENT OF ANIMALS.

Contributed by C. LEE, *Esq.*

I WITNESSED a few weeks ago a strong example of conjugal attachment in a rook. We have a rookery here, and one day, hearing an awful cawing and noise, I went out, and found on inquiry that the rooks in fighting had struck one of their companions and beat him (or her) to the earth. The poor bird was much hurt, and, I thought, paralyzed, for when I put him on the ground he fell on his side. The by-standers wished to put him out of his misery, as they called it, by wringing his neck; but I determined to give him a chance.

I bribed the gardener's boy to take care of him and feed him, and had him put into a bushel basket with some peas and water. In a few days he was rather better, and I put him in the garden; and, going one morning to inquire after him, the gardener told me

he was much better, and "his *Missus* had been to see him." And sure enough there was his mistress, or, rather, his wife (for I will not libel birds which set so good an example), perched on a little tree near him. Very soon the others came to pay him a visit, and he held a levee several times a-day. He kept getting better and better, until one day he flew off to the rest; and I have no doubt I have seen him many times since. He rather mistrusted my good offices for a day or two, but after that he was not in the least degree frightened.

I witnessed also, a few years since, a strong instance of sagacity in a horse. My father, who was seriously ill during several years, rode every day a beautiful and remarkably sagacious pony, but of such untameable spirit that he used to run away with and throw off, at times, whoever got on his back. No sooner did my father approach to mount him, than he stood as still as the veriest jade could do; he only replied to the whip by a switch of his tail—never once shied, and never went out of a jog-trot pace.

No sooner did any one else mount him than the scene was totally changed: he reared, bolted, and would not bear to be touched with the whip. At my father's death, we gave him (under restriction of being never parted with) to Sir Thomas Miller, a humane horse-master; but he ran away with the baronet, and threw the baronet's children. The groom was then sent on the downs to tame him, but he ran away with the groom; and, after keeping him some months, Sir Thomas sent him back to us. He died, I am sorry to say, a year ago, or, rather, I had him destroyed, after vainly attempting to recover him from lock-jaw. He was about twenty years old, and as good as ever. A beautiful little tortoise-shell cat used to sit on his back day and night: he would put his head on the partition of the stall, and she would lick and clean his ears just as she did her own kittens. Before he died I had him removed to a loose box at a distance: the cat found him out, and in his last hours she left her usual haunts, and stayed with him. I had him honourably buried, and a weeping-willow marks the spot; but I never think, without a pang, of the sad end of an animal, whose equal (for his size) was scarcely ever met with.

ON HYDROPHOBIA AND ITS TREATMENT.

By T. M. C.

ALLOW me, through the medium of your highly valuable and widely read Journal, to offer a few remarks on the nature of hydrophobia, and the treatment I would adopt, had I a case to attend;

hoping by this means to procure a discussion which may lead us to some useful mode of treatment in this perplexing and dreadful disease.

Hydrophobia is a specific disease, communicable from the brute part of the creation (particularly the dog tribe) to man, therefore it is an affection *sui generis*.

In the *dog* I am led to consider it as a series of convulsions, and as regards *man*, I would add the word "sympathetic;" for although symptoms and autopsy may, generally speaking, bear the signs of inflammation, still cases are occasionally met with in which there is so little organic derangement that the surgeon is hindered from pointing out the part affected; consequently we are led to consider what could be the cause of death with so little organic lesion. Is it impossible to trace it to spasm of some part of the brain? I think not.

The early symptoms in the dog are feverishness, sullenness, restlessness, and snapping, which, in a short time, become of a convulsive nature; for we find him taking food with a quick, single swallow, shewing that the pharynx and fauces are affected, as is the head, being carried in a peculiar position, low down, and a little on one side, with a choretic movement; moreover, there is a propensity for biting or catching at some imaginary being—the eye is found bloodshot from contraction of some minute vessel—there is strabismus, from muscular spasm, and distortion of the eye and of one or both sides of the face from spasmodia. As the disease advances we find it assuming a more direct convulsive character, every action and pain being of that nature, and the *head* participating with the rest of the body; for the dog will, at times, obey the commands of his master, and at other times cannot understand them. There is not in the dog that great dread of water which is generally supposed; as he is oftentimes seen to bury his face in it, which, no doubt, affords him relief, as the tongue, being the perspiratory organ, is much swollen: the inability to swallow is caused by spasm of the fauces, &c. brought on by the attempt to drink; forming, in my opinion, the most unequivocal sign of its convulsive nature.

So we find the disease in man—either severe convulsions or spasm of some organ, sometimes raging and subsiding in regular intermittent paroxysms; the head particularly denoting the intermission by the occasional delirium and returning consciousness. That the affection may be considered "sympathetic," I rest upon the general resemblance of symptoms, but particularly upon the spasm caused in the attempt to drink. How is it that in many a rational being the sight of liquids will sometimes bring on spasm? How can we account for the pharynx refusing its office, and bringing

on such a train of distressing symptoms, but by sympathetic action.

The treatment I should adopt is simple: emetic (per anum) so as to keep up constant nausea, and also the *dashing* of cold water along the spine every fifteen or twenty minutes. In the interim, I would wrap the patient in blankets. The reason for the above course is this: I conclude the body at the time to be labouring under great or positive excitement, and by the above treatment it would be reduced to the lesser or negative state: it is also calculated to bring on cutaneous perspiration, which is desirable under any opinion we may form of the disease.

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Ibstock, June 7, 1844.

DISEASES OF THE INTESTINAL TUBE, WITH WOUNDS AND PERFORATIONS OF THE INTESTINE.

By Professor REY.

THESE affections of the digestive canal are not very serious, nor have they been very numerous during this year; but the different crops of grain were never before gathered in under circumstances more unfavourable. The frequent rains that occurred prevented every thing from growing to complete maturity. Nevertheless, we have not observed in the clinical department any cases of those indigestions complicated with cerebral phenomena which are usually termed abdominal vertigo, or gastric encephalitis. This is, certainly, not due to any uniformity of temperature, for that has been very favourable. We should be rather inclined to attribute the rarity of this affection to the absence of any great degree of heat.

We have, also, only observed a very few of those cases of common enteritis which are so frequent in the spring, and which are usually complicated with diseases of the respiratory organs, and the mucous membranes in general. These affections, which usually appear under an epizootic form, were observable in the beginning of February, when the weather was prematurely hot, for they disappeared as soon as the cold wet weather set in. Towards the end of the summer we observed a few cases in horses, complicated with jaundice.

If the parietes of the abdomen are wounded, the intestine, which in herbivorous animals occupies so large a bulb, is displaced, forms herniæ, or is itself wounded, and fatal complication of disease does

arise. The danger of wounds penetrating into the intestines of animals, and particularly herbivorous animals, has been strangely exaggerated. The cases that we have had the opportunity of observing have proved to us that perforations of the intestine are not necessarily mortal, unless an effusion of the stercoral matter has taken place.

Case I.—*Rupture of the Rectum.*

A small draft horse, aged, was brought to the hospital, suffering under indigestion, caused by clover. For twenty-four hours he suffered great pain, and was very much blown. The groom had administered several clysters, but the meteorization that was so evident in the rectum did not appear to him to be an obstacle difficult to vanquish. He introduced the syrine too violently, and threw up a great quantity of fluid without displacing the instrument. When brought to us he was in a most alarming state—he walked with difficulty, evidently suffered when he stood up—his limbs were all drawn towards the centre of gravity; red blood flowed continually from the rectum and along the extremities; the respiration was small and hurried—the pulse quick, and scarcely perceptible—the conjunctivæ injected—the eyes prominent, and the pupils dilated—the ears and extremities cold, and the body covered with abundant perspiration. It was easy to perceive that there was an internal hæmorrhage; and on introducing the arm, a rupture of the lower intestines was perceptible. It was useless to attempt any kind of treatment, and the animal died a few hours afterwards.

On post-mortem examination we perceived a rupture of the rectum, near to its origin, about a decimetre in length, and in a longitudinal direction. The peritoneum was penetrated in the neighbourhood of this rupture; a communication had been thus established, through which the fluids passed, mingled with stercoral matter.

We found, beside, several other lesions—inflammation of the mesentery and epiploon—rupture of the diaphragm produced after death, and the thorax, abdomen, cæcum, and colon, contained fœtid gas, which took fire when a candle was brought near to it.

This case is analogous in its results with those observed under similar circumstances, and may be added to those which tend to prove the danger of effusions of fæcal matter. It would be difficult to assign the actual cause that produced it. It was, doubtless, effected either by the action of the clyster-pipe or the pressure caused by the injection of a considerable quantity of fluid. The appearance of the edges of the wound incline us to believe the latter supposition most probable.

CASE II.—*Abdominal Hernia and Stercoral Fistula.*

A mule, seventeen years old, and of moderate size, received a violent kick on the right flank, which occasioned the development of an oblong hernia, about the size of a man's head. It was brought to us on the 18th of February, four days after the accident, and submitted to an antiphlogistic treatment, in order to reduce the pain and tension of the injured part.

24*th.*—Hernia of the large intestine was perceptible. The reduction was easy, but the extent of the solution of continuity of the abdominal parts left little hope of its permanent utility. No sooner was the bandage removed, than the intestine escaped afresh. The patient was left entirely without treatment until the 1st of March, at which period an abscess situated on the anterior part of the hernia was punctured.

A new abscess shewed itself about five days afterwards. Some farther efforts were used to endeavour to obtain a reduction of this tumour, but they were rendered fruitless by the adherences that had been formed between the sacs and the displaced viscera. The mule was, therefore, given up to be experimented upon. A new abscess was punctured, but so deeply that the intestine was wounded, and fragments of food escaped by the incision.

During some days he did not appear to suffer any fatigue. The digestive functions were regularly exercised; the appetite was returned; and the animal was particularly eager for drink. The wound was almost well, and formed a true fistula, permitting the introduction of the little finger. A yellow fluid was permitted to run, drop by drop, mingled with some remains of food, and exhaling the odour of fæcal matter.

The exterior opening had a considerable resemblance to the anus of a dog. The intestinal mucus was united with the skin, and formed, round the circumference of the sore, several organized scars. This state continued during a month, without any alteration. An attempt was made to close this fissure by moistening the edges of it, and establishing a suture. A reunion was impossible; the suture immediately detached itself. The patient was kept for three or four weeks, and then destroyed for anatomical purposes.

On post-mortem examination of the abdomen, a rupture of the muscles of the right flank was perceived. The herniated portion included the whole cæcum, the point or extremity of this was folded back in an inverse direction to that of its natural state, and corresponded with the cavity of the basin.

The herniary sac, formed by the skin and thick muscular tissue, was separated from the peritoneum, and adhered strongly at all points to the surface of the cæcum. We were compelled to have

recourse to very minute dissection, in order to detach this portion of the intestine.

This case of stercoral fistula, which is so rarely seen in monodactyles, tends to prove the harmlessness of wounds penetrating through the abdomen and the intestines, in which adherences can be established sufficiently soon to prevent the effusion of excrementitious matters into the peritoneum.

Case III.—*Perforation of the small Intestine in a Cow.*

This was produced by a blow with the horn of another cow, which bruised the muscles and the skin between the 8th and 9th ribs, near to the right hypochondrium. We observed, at the end of about twenty-two days, a wound, from which an abundance of chymous fluid flowed. She died eight days afterwards, and, on post-mortem examination, a wound was discovered penetrating into the abdomen, through the parietes of the thorax and diaphragm. Folded back on itself, at fifteen centimetres from the pylorus, the duodenum was found closely attached to its sides by means of white and almost tendinous fibres. The abnormal opening was much larger than that of the adjacent points of the canal, and only gave passage to the food. It was rounded and irregular. The extremities of the part that had deviated formed an acute angle at the back, whence proceeded an internal prolongation which directed the aliments towards the exterior orifice. The remainder of the intestines only contained thick mucus, which were folded and crumpled.

This unnatural anus offered no traces of inflammation. The same accident in a horse would, doubtless, have produced death much sooner; but in the ruminant the lesion passed into a chronic state, and organization commenced. The cause of death was the absence of the formation of reparatory chyle, which could not be produced in an empty intestine. The process of absorption had completely ceased throughout the greater part of the digestive canal. Life could be no longer sustained, and, consequently, the animal died of inanition on the tenth day. It is very probable that life might have been prolonged by the introduction of nutritive matter through the wound in the rectum; but it is difficult to arrive at any exact diagnostic, or ascertain the commencement of a stercoral fistula. We can only suppose it to be near to the stomach from the nature of the matter which had exuded. This case is interesting on account of its rarity, and it will be useful in a physiological point of view. It shews the small degree of vitality in the peritoneum and intestines, a vitality which is supposed, and with reason, not to be much feared in wounds of the paunch, but greatly to increase the danger of those of the abomasum or fourth stomach.

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LECTURES ON HORSES.

By WILLIAM PERCIVALL, *M.R.C.S., Veterinary Surgeon First Life Guards.*

THE GALLOP.

A HORSE by nature walks, trots, and gallops; and with these three paces his speed may be said to receive augmentations from the comparative slowness of the walk, until it arrives at the proverbial fleetness of the gallop: hence the word *gallop*, in a variety of figurative senses, is used to imply fast motion or great haste. Its literal meaning, as regards quadrupeds, is given in our dictionaries to be *moving forwards by leaps;* and the animal in the act of galloping creates that motion in his body which certainly strikes the casual observer with the notion that he is making at the time a succession of jumps or leaps. Indeed, some equestrian writers have gone so far as to define the gallop of speed or racing gallop to be nothing more than a repetition of leaps. Mr. Blaine observes, that "as the two fore feet at once beat the ground together, and then the two hinder, so it is evident that the gallop of speed is nothing more than *a repetition of leaps*." Lecoq likewise describes the *galop de course* as consisting in *une succession de sauts*. In the face, however, of these worthy authorities, I must say that, to me, the gallop and the leap appear acts of a different nature, and consequently that we are in error when we say that the one is no more than a compound or repetition of the other. In galloping a horse—in hunting for example—the rider needs no person to tell him of the moment his horse is taking a leap, however trifling it may be: his own sensations inform him of every *grip* or furrow his horse leaps in his course, and should he have occasion to make a succession of such jumps, the rider's sensations in his

saddle are of a very different—very uneasy—kind, compared to such as he experiences during the act of galloping. This arises from two causes:—from the spring or movement of the body necessary to produce the leap being more forcible and sudden than that required for the gallop, and from the latter being created and continued rather by the successive action of the two hind feet at one moment, and of that of the two fore feet at the next moment, than by the synchronous efforts of either biped, as happens in the leap. The two great propellers of the animal machine—the hind feet—are in the leap required to act *simultaneously*, to make one grand propulsory effort: not so in the gallop, that being a movement requiring maintaining, not by synchronous exhausting efforts of the hind feet, but in swift succession, first by one then by the other; and the same as regards the office performed by the fore limbs; which latter probably amounts to little more than the sustentation of the fore parts of the body.

The vault into the air required for the leap is only to be effected by extraordinary subitaneous effort; but the stride of the gallop, requiring frequent repetition, does not exact this effort—amounts, in fact, to no more than a sort of *lift* from the ground, multiplied into a reiteration of forcible heavings forward, maintaining, increasing, or diminishing the momentum of speed, effectuated by throwing the hind feet as far forward underneath the body as possible, plunging them one after the other with inappreciable rapidity into the earth, and thus by two strenuous thrusts against the ground, one in aid of the other, working the animal machine onward in its fleet—almost flying course. In the gallop as in the trot, no sooner is a certain momentum acquired than by each successive propulsion of the hind feet the body is sprung or lifted off the ground, flying, as it appears, in the air; and the greater the speed the more this volitation becomes apparent; hence the appellation given to the pace manifesting the utmost speed of FLYING GALLOP. Even this, however, according to my judgment, is an action different from leaping. When a horse leaps or jumps in his gallop—which he will do sometimes when he is *beany*, and has but just emerged out of his stable—he is said to *buck*, because his action then resembles that of the deer, in whom the gallop might with a great deal more propriety be called a succession of leaps: even the deer, however, cannot continue this bucking action after being driven into his speed or into a state of fatigue, shewing that in him it is to be regarded rather as a gambol than as his proper working onward action. And that the hind and fore feet, in pairs, are not grounded synchronously, I think, admits of demonstration in two ways:—first, by the position they assume, one in advance of the other, in the gallop; secondly, by the clatter the steps of a horse in a gallop

are known to make upon hard or resonant ground, and which may be heard either by a spectator or by the rider himself; whence we probably derive the phrase *a rattling gallop.*

In the WALK, we found the four limbs acting in such regular alternation, crosswise or diagonally, that they seemed to beat one, two, three, four. In the *trot,* we found this regularity of movement, in regard to *time,* interrupted and in part destroyed; the same *order* or succession of movement—the diagonal—being still preserved. In the gallop, however, both the time and order are altered. The diagonal movement is no longer seen. Both fore limbs are projected together, one more or less in advance of the other; and their projecture is followed by the simultaneous advance of the hind limbs, the feet of the latter lodging upon the ground contiguous to the places just quitted by those of the former, with that hind foot foremost which corresponds to the fore foot that is leading. So that galloping differs (leaving the consideration of speed out of the question) from either walking or trotting, in the circumstance of the fore and hind feet being projected in pairs, and also in that of the fore and hind feet of the same side being generally in advance of their fellows.

With the fore leg which is projected in advance of its fellow, the horse is said in his canter or gallop *to lead:* commonly, more from the directions of art than from any propensity of nature, the *right* is the limb that takes the lead, it being by riding-masters and horsemen of judgment regarded as a fault to lead with the left leg. Whether natural inclination be for the right or for the left leg, I will not pretend to say; but this I know from experience, that it is an extremely tiresome task to make some horses lead with the right leg. There are very good equestrians, however, to whom it is quite a matter of indifference which is the leading leg, providing the horse canters or gallops *in a proper form.* The slower the pace the more conspicuously prominent, in general, is the leading limb: as the pace increases, this becomes less and less remarkable, until at length, at full speed, so even is the projecture of the limbs, that it is difficult or impossible to say which is taking the lead. Where the opposite leg is leading behind to what is in advance in front, the harmony of action being destroyed, so uneasy a seat is given to the rider, as well as a shake of that nature to the whole frame of the horse, that forbids, on the part of both, the discordance to be of long continuance.

The action of the limbs in pairs it is that renders it so difficult—nay, generably impossible—for a horse to strike at once into a gallop; most horses requiring some preparatory movement before they can work their limbs into the required action and speed. The momentum once gained, however, the machine by repeated strokes

of the limbs is easily kept in motion. The knowledge of this fact constitutes the basis of the wager so commonly offered by connoisseurs, that a man shall run 50 yards before a horse can gallop 100. Were the race prolonged to 150 yards, the man would find he stood not the slightest chance of winning it.

French equestrians distinguish three kinds or gradations of gallop:—1. The ordinary or hunting gallop, or the gallop with three beats; 2. The manage gallop, or the gallop with four beats; 3. The racing gallop. The first and third of these accord with our own practical notions of the pace, but the second can mean no more than our *canter:* though where to draw the precise lines between the canter and what we call *the hand gallop,* and between the hand and the hunting gallop, or between the latter and the gallop of full speed, may prove more than any of us are able satisfactorily to do. There is, certainly, a wide difference between the paces of canter and gallop; but to say with precision where one ends and the other begins—whether the canter ought not to exceed six or seven miles in an hour, or whether it ought to amount, as others think, to eight or nine miles in the time, are points too knotty for me, as a veterinarian, to unravel. Neither is it easy to determine whether Lecoq is right or wrong in pronouncing there are but three instead of four beats to be heard in the ordinary gallop; though I hesitate not to think he is in error when he says, that the gallop of speed is a pace by itself in which the body is transported through *a succession of leaps.* Mr. Blaine, indeed, notwithstanding he pronounces the gallop of speed to consist in a repetition of leaps, refuses assent to the doctrine of "foreign manege masters," that "all the gallops are distinct paces. On the contrary," says he, "I think them all constructed of one and the same action; of which a sufficient proof presents itself in the certainty that the horse can change from either of the gallops into the other without art, without alteration of his centre of motion or equipoise, or without interrupting the harmony of the moving members, but merely by an increased or diminished effort of the same action."

Lecoq presents us with an interesting analysis—a thing difficult in practice to obtain—of what he regards as the veritable, the ordinary gallop. In a complete stride or step, "the body is supported, 1st, upon one hind foot; 2dly, upon two diagonal feet; 3dly, upon one fore foot; 4thly, it is without support—in the air." "And this succession of tread is so conducted," adds Lecoq, "that the prints made by the two diagonal feet appear in advance of those of the opponent diagonal feet: the horse being said to gallop with the *right* or with the *left* leg, according as the right lateral biped or the left take the lead."

Barring the broad and obvious distinction there exists between the gallop and the canter, it is difficult, if not impracticable, as I said just now, to draw any lines of division in the gallop farther than as regards the rate at which the animal is going. At the same time we must all admit that the gallop, as we witness its performance by horses of different breeds and shapes, is a pace admitting of many variations from any standard of galloping action or rate of speed we may presume to set up. Lecoq's marks of distinction of four, three, and two beats, will not, I think, bear the scrutiny of practice; and even if they did, the performance of any of the gradations of the pace, from the canter to the gallop, will prove altogether different by the heavy or cart-horse from what it would by the light and active or thorough-bred horse. And again, of horses of the same breed, some are formed peculiarly well for galloping; whereas the make of others seems better adapted for trotting. The racing gallop is evidently so far a peculiar pace that no other description of horse can execute it with the same perfection as the race-horse. With the dart-like projecture of his limbs, lifted no more than sufficiently off the ground to go clear of obstacles; with his bending his back and loins, and lowering himself, and laying himself out at his full length along the ground; and with the vast strides and springs forward he in this position is capable of making, he in fleetness excels almost every other animal, and far surpasses every fellow of his own kind, not thorough-bred, that can be brought against him. So far the race-horse—I might in pride say *the English racer*—is an animal veritably *sui generis*. Contrast the clumsy gallop of the cart-horse—if the pace as he performs it can be so called—with the airy skimming movement of the race-horse; nay, compare the high, round, or clambering gallop of the foreign horse, or that of many of our hacks, our trotters especially, with the racer's action, and how strikingly different are they found! All this will go to demonstrate the truth of what I have just asserted, that, so far as regard different horses, there are many and various kinds of gallops, though to class them or make any sort of useful arrangement or distribution of them is a task to which we, for the present at least, may find ourselves incompetent.

The circumstances of the cart-horse hardly being able to gallop at all, while the race-horse is evidently "made for galloping," may serve, on due consideration, to throw some light on that conformation of body and limb which is peculiarly characteristic of a good galloper. Length everywhere in the form of the body appears indispensable: length of neck, back, and loin; length of limb, of arms, and thighs, and pasterns, are all seen to advantage in the well-formed racer, and must predominate in any horse we may

select in expectation of being a good galloper. On the other hand, shortness of make, combined with uprightness in the joints, such as we evidence in the dray or cart horse, may serve for trotting, but can in nowise answer the purposes of galloping: it is impossible for spring and speed to result from such conformation. We are not, however, to take it for granted that length of body and limb are the only requisites—that all horses so made can gallop: some there are that have not the faculty of speed, other requirements being wanting. As with the other paces it would, indeed, be a consummation of the equestrian's skill could he in every instance connect speed or action with form, and determine when, for want of the necessary adjuncts, although the form was present, the speed must be absent. As, however, I observed on a former occasion, in consequence of the vital influences having a share in the production of action and speed, there seems faint chance of the horseman ever arriving at such perfection in his art, even supposing the knowledge to be within our reach: which, by the by, we are no means assured of.

So long as the horse is cantering or but hand-galloping, the hind feet advancing in lines either between or to the outer sides of the fore feet, impress the ground somewhere about the places the fore feet have just quitted; as the pace increases, however, the reaches forward of the hind feet become so much the greater, thus proportionably augmenting their leverage, which, combined with their increased quickness of action, accounts for the additional speed. Horses whose chests are not contracted, and who tread close with their hind feet, throwing them well under the centre of gravity, advance them in the interval between the fore limbs; such as have narrow chests or go wide behind, however, throw their hind feet forward in lines outward of the fore ones: in both cases, at speed, the hind feet reaching considerably beyond the prints of the fore feet. And this forward throw of the hind feet underneath the body is one of the best criterions we can have of the horse being a good galloper.

The gallop being the pace of speed, it is natural to ask what feats of dispatch can be or have been performed by our fleetest horses. There is a story still rife among our jockeys, that the renowned Flying Childers ran a mile in a minute. This, however, is an exploit that never was, nor probably ever will be, performed by living machinery: for a course at the rate of sixty miles an hour we must make our medium of transport a steam carriage, and our road a railway. In 1772, however, according to our annals of sporting, a mile was run by Firetail in a minute and four seconds, which appears to be the greatest feat of speed on record.

THE CANTER.

I have already observed, that the canter may be regarded rather as an artificial than as a natural pace; not that it is never seen in a state of nature, for, as I said before, foals may not infrequently be seen cantering after their dams: still, however, to perform it well or gracefully requires more training and practice than any other of the paces. Distinguishable at once as the veritable canter is from the veritable gallop, yet may a horse's gallop be so reduced or his canter so increased in speed that it may puzzle any of us to say whether the pace he is going be really a gallop or a canter. Mr. Blaine conceives that "at no period in this pace (the canter) is the horse *all in air;*" "whereas in the slow gallop there is a period in which the legs are all in air; so an essential difference occurs." Were Mr. B.'s *data* founded in fact, the distinction between the paces of canter and gallop would, indeed, no longer puzzle us; but the canter, no more than the gallop, is not uniformly executed by all horses: some horses there are that canter so slowly that, as Mr. Blaine observes, they have "always a point of contact with the ground:" others, on the contrary, there are that at every step in their canter manifestly spring all four feet *off* the ground; and so confound any definition we might construct in accordance with the going of the former. Lecoq calls the canter a gallop with four beats, and thus distinguishes it from the ordinary or hunting gallop, which has, he says, *three* beats, and from the racing gallop, to which he assigns but *two*. I need not, however, repeat here, it is my opinion that these asserted differences are not founded in observation. That, according as the rate of speed varies from the canter to the fleetest gallop, there will be great differences in the *time* of succession of the beats of the feet, I have already admitted; but, that their *order* becomes different, or that they become, as in leaping, perfectly *synchronous*, I very much doubt. Unfortunately, it is only in the canter and the slower rates of gallop that the matter admits of any sort of ocular demonstration.

The canter will not only vary as performed by different horses, but will also prove unlike any standard of the pace we may form in our mind, according as it has been the product of instruction by a riding-master, or as it has come naturally, or been the result of common-place training, or practice on the road. The school or manage canter differs from the others in being a performance of more gracefulness, better carriage, and one that calls forth much more exertion of the bodily powers of the animal, particularly of his hind quarters: indeed, it requires certain form of body and action for its perfect execution, and on this account is performable

only by horses in possession of such properties. The lopping or road canter—the careless, loose-reined swing in which the neck is straightened and the head protruded—is altogether a different performance of the same pace. Lecoq says, that the elevation of the fore quarter in the canter is the reason why the beats, which in the gallop were simultaneous, become separate and distinguishable, the fore limbs taking longer to descend than the hind ones: since, after all, however, both pairs of feet (hind and fore) must take their turns in being planted upon the ground, and since the hind cannot accomplish progression without the aid of the fore limbs, the only difference this elevation of the fore quarters can produce is lengthening the interval the hind feet are upon the ground, according to the prolongation of that of the fore feet in the air.

All paces admit of improvement by practice, none in a greater degree than the canter. No pace allows of the display of such grace and elegance of movement and carriage as the canter, and the manifestation of these is always a proof to us that the animal has either received "lessons in the school," or else has been used to a rider skilled in equitation. It is the easiest of the faster paces to the rider, and, perhaps, the least fatiguing to the horse when he has once learnt to perform it with facility, and on this account is often preferred by gentlemen, always by lady equestrians. A good cantering hack is a valuable acquisition. Some of the foreign horses canter with remarkable ease and elegance, a property they owe to the superior aptitude they possess over Britsh horses of going upon their haunches; and nothing conduces more to engender this aptitude, where it is not natural in a horse, than school discipline, of which the continental horses in general get, I believe, a great deal more than our own horses do: indeed, with the exception of military horses and a few others, the nags used in this country rarely see the inside of a riding-school.

THE AMBLE.

We might regard what goes by the name of the *amble* as a pace truly artificial had it not been occasionally seen in foals, and, as Lecoq informs us, was it not natural to certain wild animals, in particular to giraffes? All equestrian writers appear to agree in their description of it—in its being a pace performed by the combined operation of the fore and hind limbs of either side; one biped being in the air while the opposite one is upon the ground, and thus alternating their action. Lecoq has happily likened this one-sided action constituting the amble to the gait of two men marching *à la militaire* in open file, with an interval of about a

couple of seconds between their steps. We are informed by the same authority that every advance made by either biped amounts to about a third more than the admeasurement from fore foot to hind, while the animal is standing still; and that while the pace is performing the hind foot invariably over-passes the print of the corresponding fore foot, thereby obtaining great advantage of leverage.

'If," says Lecoq, "the amble has with reason been banished from the manage, it is no less sought after, on account of the *douceur de ses réactions*, by persons who prefer ease or convenience to brilliancy of pace or action. A distinction, however, must be made between *the ambler by nature* and the horse in whom the pace is the product of education or the result of weakness."

In former days—in those good old days when the pillion was in fashion—the amble bears record of being a pace in considerable estimation: an ambling horse was a treasure as an easy and safe roadster, and if not so very expeditious in his movements for a short distance, yet by his untiring continuance in the same pace, at the end of a long journey was he found to have gone over more ground, and in less space of time, than any person unacquainted with his pace would have imagined. At the present day, however, one never sees an ambling nag; neither are canterers so abundant as they used to be: walk, trot, and gallop, are all people in these days of reduction of every thing down to the scale of bare *usefulness*, seem to care about.

A SINGULAR CASE OF GASTRO-ENTERITIS IN THE HORSE.

By Mr. T. WRIGHT, *Brighton.*

THE following very interesting case having recently occurred in the practice of Mr. E. N. Gabriel, I am induced, through the kind consent of that gentleman, to forward an account of it to you for publication, if you should deem it worthy of insertion in THE VETERINARIAN.

The patient was a pony about fourteen hands high, in good condition, and constant work, the property of a Mr. Edwards, in whose possession he had been nearly three years, and had not been known during that period to shew any symptoms of illness until Friday, the 14th of June last, when, on returning home in the evening of that day, he was observed to have lost his former gaiety, to look

dull, and refuse his food, upon which the farrier was sent for, and he was bled.

On Saturday the 15th, the pony not being any better, Mr. Gabriel was requested to visit him. He being from home, I went and saw him. I found him with his head hanging pendulous—pulse 70, and weak—respiration accelerated, but not laborious—conjunctival and Schneiderian membranes highly injected, approaching almost to a scarlet colour—his extremities very cold and his mouth hot. I had his legs well hand-rubbed and bandaged, and his body warmly clothed. I gave him a fever ball, and ordered him chilled water, and slop mash diet.

Mr. Gabriel saw him during the day, and ordered him another fever ball in the evening.

16*th*, 9 *o'clock* A.M.—Symptoms much the same as yesterday—pulse 74—respiration more tranquil—has been lying down during the night—drinks plentifully of water, but has not touched his mash. He was ordered to have a fever draught, and friction again to be applied to his extremities, which remain very cold. The slop diet to be continued.

3 P.M.—Pulse 78: the symptoms remain unaltered, but the bowels are constipated. Give him aloes ʒij in a ball.

17*th*, 10 A.M.—Pulse 80—extremities warm—membranes still highly injected—bowels gently responding to the action of the medicine—has been down again during the night. He was ordered to have a fever draught immediately, and a ball in the evening; he was also ordered to have gruel, which he drank very readily, but would not touch any solid food.

18*th*, *half past* 9 *o'clock*, A.M.—Pulse 90, and full—respiration very quick, but not of a laborious character—bowels again constipated—abdomen tympanitic, but there is not the slightest pain evinced on pressure being applied to any part of it: he lay down again last night. He was ordered to be bled, and to have a stimulating liniment applied to his abdomen. I had not succeeded in subtracting more than about ℔iij of blood, when I was obliged to desist, as the patient began to reel and shew evident symptoms of approaching syncope.

6 P.M.—Pulse 98, but scarcely to be felt at the jaw—abdomen intensely tympanitic, and bowels still constipated, but not the slightest symptom of abdominal pain. He was ordered a draught composed of sol. aloes ʒij, olei lini ʒiij, ol. tereb. ʒj, and to have his abdomen stimulated.

19*th*, 7 A.M.—Pulse 104—purging briskly—fæces of an intensely fœtid character, and mixed with mucus—drinks thick gruel, but turns away disgusted at any other kind of food being offered to him. He did not lie down last night. On my visiting

him about two hours after Mr. Gabriel saw him this morning, although he then followed him round the box evidently possessing the faculty of sight, I found him to have complete amaurosis in both eyes.

3 P.M.—The purging has increased with considerable violence, tympanitis gradually decreasing—he has no appetite, and drinks but sparingly of his gruel. He was ordered to have mucilaginous draughts, and to be horned with thick gruel.

20*th*, 9 A.M.—Pulse 108. Notwithstanding the most active treatment, in order to controul the violence of the purging, it still continues—tympanitis entirely removed. He is getting very weak—did not lie down last night—reels if he attempts to move, and shews great debility.

21*st*, 11 A.M.—This morning there is a remission of all the violent symptoms; but they have disappeared to admit of the presence of others, which, although they are not of so alarming a character to the bystander, yet to the veterinary surgeon's experienced eye tell a tale easily understood. His eyes, although they are still perfectly insensible to light, have a brighter appearance, and he has by the movements of his ears an evident desire to know what is passing around him. His coat looks well, and his extremities are not so intensely cold; but the appetite is entirely gone, and his pulse is almost imperceptible and very quick. He has not lain down since Monday night.

He continued to remain in this state until the evening, when there was a total relapse. His breathing became very laborious and quick—he stood with his legs projecting, or staggered almost to falling if he attempted to shift his position. I left him about eight o'clock in the evening, evidently dying.

In the morning of the 22d, he was found dead; and it seemed to all appearance, from the position in which he was lying, that he fell and expired without a struggle.

Post-mortem examination.—On removing the intestines from the cavity of the abdomen, they presented an appearance of intense inflammation throughout their whole extent. On laying open the stomach and exposing its inner surface, there was found, situated near to its pyloric orifice, a large unhealthy-looking ulcer, which evidently, from the callous condition of its surrounding margin, was not of very recent formation. Rupture of this viscus must shortly have taken place, as its coats in this particular part were so thin as to admit of being very easily torn. On our investigations being carried farther into the intestinal tube, there were found, situated on the internal surfaces of both the large and small intestines, an immense quantity of ulcers of a minute size, which, by coalescing, had formed broad ulcerated surfaces, ragged, and in some parts

sphacelated. The mucous lining membrane, throughout its whole extent, was very much diseased, and presented an appearance of a light slate colour or dusky hue. The liver did not offer any appearance of disease of a chronic character, but was slightly inflamed; the lungs were very much congested; the heart and pericardium were perfectly healthy.

My motive in sending this case to you is to shew the difficulties with which the veterinary practitioner has to contend in forming a diagnosis as to the probable situation or nature of the disease under which he beholds his patient labouring; for although, on the post-mortem examination of this animal, there was such a mass of disease developed, yet, until within a week of his death, he was fast improving in condition, and doing his work so gaily and easily that no one could possibly have imagined that any thing like disease, much less of so important an organ, was lingering about him. During the time of his illness, also, there was a total absence of any symptoms that would indicate the extensive mischief going on in the stomach and intestinal canal. He stood quiet and stupid, occasionally brightening up, moving about his box, and walking into the yard. There was no lying down and getting up again; no looking round at his flanks; no partial perspirations—not even pawing of the litter.

The nearest approach to a correct diagnosis that could be formed from the rapidity and smallness of the pulse, together with the highly injected state of the membranes, was hepatitis: instead of which we find a large irregular and unhealthy-looking ulcer in the villous portion of the stomach, with hard and abrupt edges, nearly resembling the ulcers of glanders; extensive disease of the mucous membrane of the large and small intestines, approaching in several parts, but not particularly in the larger intestines, to a state of sphacelus: innumerable ulcers spread over the whole of this surface, varying from the size of a pea, where they remained separate, to that of a crown-piece, where they had run into each other: and yet the subject of all this disease continued standing, without any apparent suffering, with the exception of the total loss of appetite, to the last moment; and then fell as he might have done in a fatal case of inflammation of the lungs, and expired without a struggle.

MEDICAL EXAMINATIONS.

We insert, from the *Lancet* of the 13th of July, a letter from a correspondent respecting the advantages of repeated examinations during the course of a medical education. With the opinions which he advocates we cordially concur, and gladly avail ourselves of the opportunity to make a few remarks on the subject.

"To any one who is acquainted with the real working of the human intellect, it must be obvious that an energetic stimulus is alone capable of inducing the great majority of individuals to devote themselves to severe intellectual labour. Indeed, there are few, even amongst those whose lives have been continued scenes of mental effort, and who have grown grey in the pursuit of knowledge, who would not confess, if questioned, that their daily labours cost them an effort, and that it is merely by the strength of a firm and steadfast will that they continue them. Such, at least, has been the reply made to us by several eminent men, whose lives have been prodigies of intellectual effort, and with whom study has been said to have become a second nature. In the attainment of knowledge, as in every other human pursuit, a great development of the will is an indispensable requisite for success. By its assistance all repugnance is overcome, all aspirings after more congenial occupations are stifled, and the intellect is daily bent to its wonted task. In mature life there are incentives which suffice to call the will into action in many instances, such as ambition, vanity, or even the desire to acquire knowledge for its own sake. And thus is perpetuated a race of students who are not unable to appreciate the enjoyments of life, as is often stated, but who, by an exercise of the will, forego pleasure, or defer its enjoyment to a future period which often never arrives, in order to attain the end they have in view.

"If this is the case with many, if not most sages,—with the philosophers who have written nearly as many *tomes* as they number years,—if they are, at heart, school-boys, longing to throw their books aside and take to the fields, but are restrained by their will, the most inflexible of all masters, what must it be with the student, who has not yet arrived at the age of manhood? With a mind too frequently undisciplined to mental exertion, how can he be expected to devote himself unremittingly to study for several years, unless the incentive which he has be all-powerful? The experience of every day shews us that with young men the sense of duty, the knowledge of the importance of their present efforts for their future welfare, is insufficient to ensure assiduity and zeal during the years allotted to the acquirement of professional know-

ledge. They are, especially at first, too far removed from the more serious cares of life to feel much anxiety respecting their future career, and, like the epicureans of old, are ever inclined to make the most of the present. Thence it is that various devices are resorted to in our medical schools in order to give the necessary impulse. Attendance on lectures is rendered compulsory; weekly examinations are resorted to by the lecturers, and medals are given.

"But all these measures fail in obliging the really idle and apathetic to labour. A pupil who attends negligently—who passes the weekly examinations disgracefully, and is never a candidate for honours, acquires a bad name; but at the termination of his curriculum there is nothing to prevent his presenting himself for the final examination, or to prevent his obtaining the diploma, if he has employed the last few months in "grinding," and is tolerably fortunate. Is he, however, entirely to blame for having sacrificed the greater part of his time in frivolity, and thus neglected the opportunities he has enjoyed of acquiring a thorough knowledge of his profession? A portion of the blame certainly lies with those who have only once or twice taxed his energies by that which he the most dreads, and which always proves the strongest possible incentive to study,—namely, a severe examination, on the success of which his entire career depends. Instead of one or two examinations, we think that a pupil ought to undergo five or six, at stated periods, in the course of his studies, as is the case in Bavaria and in France, and each examination ought also to be made an indispensable stepping-stone to the next. Were this system adopted, a much greater amount of information would most certainly be acquired by medical students than under the present system. As a limited number of subjects only would form the matter of each examination, the examiner would be able to investigate in a much more searching manner the knowledge possessed by the candidate. On the other hand, the candidate, having only two or three subjects to study, would be able to prepare himself much more successfully than when his attention and mental powers are overwhelmed by the mass of knowledge which he has to acquire. "Grinding" would still take place, it is true; but it would be altogether a different thing from what it now is. Were a student to "grind," as the term is, during five or six months, for each of his five or six examinations, the "grinding," instead of doing harm, would do good. It would, indeed, amount to three years' hard study.

"It is sometimes said, that repeated examinations, each on a limited number of subjects, are objectionable; because students are apt to abandon entirely the study of the branches of science on which they have been examined, thus passing through a desultory

course of study. This objection, however, presents but little weight, as the branches of a medical education may be so arranged, that the one on which the candidate is examined always implies a knowledge of those on which he has already been questioned. Moreover, the last examination may be made to resume all the others, if it be considered to be desirable. There is another great improvement which ought to be adopted in examinations by the medical bodies granting degrees in this country. All examinations ought to be completely public, that is, open to the profession. Such publicity would act as a powerful check, both on the examiners and on the students. To the students it would, indeed, be an incalculable advantage. Many now present themselves for examination presuming on the good-nature of their examiners, or on their own good luck, who would think twice before they exposed themselves to the ridicule and scorn of their fellow students. We are surprised that examinations for scientific degrees were not long ago thrown open throughout Great Britain, and are convinced that it will not be very long before some measure of the kind will be everywhere adopted. A candidate who is really full prepared, so far from fearing a public examination, would court it, as he knows that in addition to his examiners he will have a jury of friends and fellow-students to support and disinculpate him, should he not be treated as he thinks he ought to be by his examiners. The students who object to public examination are those who doubt their own knowledge, and confide more in the indulgence of the examiners than in their own information. They are glad to have no witnesses of their probable defeat, as they are then able to revile their examiners, which they could not do had their comrades witnessed their discomfiture. The dread which such persons have of their fellow-students is, undoubtedly, justified by the facts of the case, as the latter will ever constitute a much more severe jury than the great majority of examiners. The feeling, however, is a wholesome one, as it would induce them to prepare more diligently for the examination which they had to undergo."

THE ART OF APPROACHING, SEIZING, AND TAMING DOMESTICATED ANIMALS.

By M. GODINE, *Jun.*

THE art of approaching, seizing, and taming domesticated animals is a new consideration in the veterinary profession. I am not aware that any author has yet spoken *ex professo* on this subject, so

interesting both as regards the preservation of the animal, and the safety of the man under whose care it is placed. I shall, therefore, treat of it in this twofold relation, and trust that the public and the veterinary world will alike appreciate its importance. The scientific man ought, both on account of his personal safety and his reputation, to be possessed of a certain degree of dexterity in these matters, as the public are apt to attribute any accident that may occur to his want of skill. Every horse or cattle proprietor must be aware of the tedious and expensive legal proceedings that frequently result from an accident, the owner of an animal that has run away being, in the eye of the law, responsible for any injury it may inflict.

We will commence with the horse, that animal being the primary object in the studies of a veterinarian. That which we have to say of him will naturally apply both to the ass and mule: cattle and sheep will be treated of in a separate article.

In order to classify our precepts as much as possible, it is our intention to consider the horse under the various situations in which he is found; viz. in the stable, at the post, saddled, harnessed, or naked and at liberty.

In whatever situation a horse may placed, it is necessary, previous to approaching him, to form a rapid study of his character, and to judge whether he is timid and tractable, or furious and vicious. His physiognomy, and the manner in which he either retreats or pauses before a person, will always afford sufficient indications of his disposition. The animal is gentle and docile when his eyes, motions, and position, speak tranquility or confidence. We may then approach him without fear towards his shoulders and head: but if the eyes are wild and threatening—if he glances rapidly around him—if the ears incline towards the nape of the neck, and, instead of his head he presents his croup, or extends his neck and opens his mouth in a threatening manner, then we must be careful not only how we approach but how we quit him. It will occasionally happen that a docile but lively horse wounds those who approach him carelessly.

When the horse is in the stable, before going up to him he should be spoken to. If he obeys, moves aside, looks gentle and quiet, or stands still, go up to him, caressing him and approaching towards the near shoulder; seize the halter with one hand, and with the other put on a bridle or reins, and lead him out either to be saddled or harnessed, or for whatever purpose he may be required. These observations relate chiefly to the groom or horse-dealer. Where the persons habitually employed about the animal shew confidence, the veterinary surgeon or the person examining him seldom needs to be afraid; but if the groom approaches the animal

armed with a whip or some other means of attack or defence, then it becomes necessary to act with prudence. Although it frequently happens that the animal is more frightened than vicious, still it is as well to take proper precautions in order to avoid the danger of kicks and bites. A vicious, mischievous animal may usually be known by his obstinately presenting his croup, and refusing to assume any other position, or advancing his head and opening his mouth in a threatening manner. A veterinary surgeon who has to examine such an animal must rapidly approach his left shoulder, and, in order to protect himself from the fore-feet and teeth, seize the halter firmly with the left hand, resting the right hand on the shoulder, and keeping the arm extended and the body slightly inclined forwards, in order that his legs may not be too near the animal. With the arms thus firmly supported, and the hands, one placed on the chin and the other on the shoulder, a sort of buttress is formed, which keeps the animal quiet sufficiently long to admit of his eyes being covered, or barnacles or a muzzle being put on, or his bridle or harness, or some other means by which still more command over him may be obtained.

A snaffle-bridle with two straps is used to master a vicious and furious horse, and prevent him from injuring the man who rides or conducts him. When this is on, the animal can seldom injure any one, be he ever so vicious and dangerous. When his eyes are covered, and he is kept with a firm hand between two straps, he is reduced to prompt obedience. He should then be caressed and not ill-treated, and caused to move round in a circle; and when he is thus thoroughly conquered, he will submit with a certain degree of resignation, and even in this position go through painful operations.

These means, so simple in their application, have often been of service to me; and during my practice in the army, especially in farms and remote places, where we seldom meet with courageous or intelligent assistants.

I have constantly remarked that horses the most difficult to fire either in hobbles or in the frame, or even in harness, will yield to the most simple means. It is only necessary to cover their eyes, and turn them round and round in a circle for a little while, and they are quickly reduced to passive obedience. I have thus accomplished the shoeing of several horses that were the terror of the farriers. Nor is this means less useful when the animal is to be placed in the trevis, or to be cast. Under all circumstances, a veterinary surgeon must retain his presence of mind, prudence, and courage. He must never get between the horse and the wall if the animal is in the least vicious, and must approach him from the side, and not from the front or back. In order to lead a vicious horse that has been bridled out of a stable or the ranks, the

reins should be seized with the left hand, and firmly held in a raised position towards the chin, and the animal turned towards the door, the conductor walking beside him with an extended arm and firm hand. In order to avoid the danger of being compressed against the wall or door-post, he should, if the passage is narrow, pass out first, lowering the horse's head by a pressure on the bit, and, the passage once threaded, immediately resume his position at the left shoulder, as he is safest there from any attempts which the animal may make to kick or bite. In order to avoid a kick, he must draw the animal's head firmly and forcibly towards him, as this compels him to bring his body into an oblique position, and guarantees the safety of the groom.

It is a general rule that all persons who wish to examine and approach a horse should never do so from the right side, whether the animal be standing or in motion; repeated observations having proved that it is from this side he kicks, his motions not being restrained by the hand of his leader.

A horse is less to be feared when fastened to the wall than in the stable or at the post, for there is then a mode of retreat always open to enable us to avoid his attacks.

In the stable or in the ranks the animal will endeavour to press against his conductor, or get him under his feet: in order to avoid this danger, both skill and courage are requisite. The body must be bowed, the head firmly seized and drawn towards the man; and the neck thus bent, and an oblique direction given to the body of the horse, then by a rapid movement the man must disengage himself from his dangerous position. Some persons will seek refuge in the rack or manger; but this is by no means safe, as the animal may, in his fury, attack them with his teeth and hind legs, without their having any means of defence.

A horse is far less dangerous when bridled and saddled or harnessed, for there are then greater facilities of getting hold of him and mastering him. A person holding a horse by the bridle, and standing at his left side, can, if he draws his head towards him, and holds it down, prevent him from biting or doing any mischief: but if the man stands in front of the animal, it can strike at him and disengage itself from his hand, escape, and do an infinity of damage.

In attempting to stop a furious and run-away horse, great precaution must be used. The essential point is to get hold of the bridle. If he has only a halter on, it is more difficult still: the person attempting it should endeavour to lay hold of the ear or the forelock. If he does not take all proper precautions, the animal will again escape, and frequently kick or injure the unfortunate person who impeded his progress. A fiery horse, harnessed to a carriage,

gig, or cart, must be approached with still more precaution, for the obstacles that impede his progress irritate and exasperate him, and increase all the dangers. In these cases presence of mind, skill, and courage, are more than ever necessary to enable us to select those modes of action most likely to prevent still further mischief. I have frequently seen active courageous men stop a furious horse at once, and even throw him down, by suddenly curving the head and pressing it on the neck, either by seizing the bit, or grasping the lower lip with one hand and the ear with the other.

Paris has recently witnessed the influence exercised by a bold vigorous man over a powerful horse. A Russian who wished to castrate an animal seized him by the thighs and hocks, held him firmly in his nervous grasp, and then, by a sudden movement equally rapid and cruel, tore off the testicles with his teeth, which served him at once for bistoury and instrument of torsion. This extraordinary man required no assistants—no apparatus wherewith to fix the horse before he commenced his strange and cruel operation. He practised it repeatedly, and always with success, and stated that such was the mode in which it was uniformly practised in his native country.

Notwithstanding these successful results attendant on energy and courage, we are inclined to believe that gentleness and patience are far preferable qualities for taming most animals. Kind treatment will seldom fail to soften the most stubborn beast, while blows, threats, and violence, only tend to make him more than ever furious and unmanageable.

The cries and shouts of the spectators increase the wildness and terror of a run-away animal, and the clumsy attempts which some make to stop him serve but to increase the danger: every effort should, therefore, be made to silence, and get rid of the noisy and unmanageable throng; and to tempt the animal by shewing him corn or some other food, and thus getting him into a situation where the gates can be closed upon him. If he directs his course towards the high road or populous streets, every means must be used to turn him aside, and compel him to enter some place where he can be secured, and do no further mischief.

It is more difficult to stop the career of a horse without bridle or harness on, since there is then nothing to lay hold of. If his wildness is merely induced by superabundant spirit, and good feeding, and little work, all that is necessary is to let him take his course for awhile, and then coax him with bread, oats, or green meat, and he will stop of his own accord, and suffer himself to be caught. He must not, however, be approached too suddenly, nor any attempt be made to put on a bridle or halter, for then he

will probably be off again. Want of judgment in these cases is often productive of great mischief.

If, however, he is caught, the crowd should be kept at a distance, and the animal caressed and spoken mildly to; then, holding him firmly by the forelock or ear with one hand, the halter or bridle should be slipped over his head, and his attention engaged with a piece of bread or a few oats, until he is properly secured and can be led to the stable.

A furiously vicious horse is much more dangerous than one that is frightened. He must only be approached with the utmost caution, and at the same time with firmness and presence of mind sufficient to act promptly. One man is rarely sufficient to master and subdue a furious horse. As we have before stated, his eyes should be covered with a cloth or barnacles, and a snaffle with two straps, or a strong halter, and to this may be added, if necessary, a cord round the nose, or mourailles on the upper lip or the ears. Two men should lead him; and if he tries to bite, recourse must be had to a nose-band, cradle, &c.

The straps of the snaffle should be kept firmly extended, each man placing himself opposite to the level of the shoulder and drawing his strap tightly. In some cases, a furious horse is fixed to a solid iron ring, or a post, or they harness him to a cart of such weight that his utmost efforts will not enable him to move it. Then, after he has fruitlessly exhausted all his strength, he may be loosened, and, being carefully restrained by a strong halter, trotted up and down until entirely worn out.

Some horses that have learned to know their own powers, from having been committed to the care of timid and inexperienced persons, require, however, great severity of treatment before they can be inspired with a sufficient degree of fear to reduce them to obedience, and render them docile and tractable. I knew a very clever horse-dealer who was in the habit of buying up all horses denounced as untameable, and he could subdue them in a very short period. It was by these means that the stallions Desirè and Reservè, belonging to the stud at Alfort, were tamed. The trainer had a leaden knob at the end of his whip, and with this he struck the animal on the nape of the neck every time it kicked, plunged, or shewed any sign of vice. This came on the creature like an electric shock, and, being struck on a part so sensible, it soon ceased to resist, and stood as if stunned for a moment. The breaker-in then caressed and spoke coaxingly to it, and gradually succeeded in bringing it to do all that he required. It was by thus alternately using severity and kindness that he succeeded, not only in rendering these two stallions docile, but also in subduing a

number of other fiery untameable animals which he purchased almost for nothing.

I have seen vicious and unmanageable horses cured by being ridden rapidly over heavy and ploughed land until their strength was perfectly exhausted.

The great art is to form a correct estimate of the character of the animal, and discover whether his vices arise from mere playfulness, from being badly trained, from actual viciousness, or from pain, or incapability to execute that which is required of him. Without thus carefully weighing every point it is impossible to act with any chance of success. An animal that resisted on account of disease or incapacity might be killed, but could never be rendered obedient.

When the object in view is not always to tame an animal, but merely to render oneself master of him for a certain period—as when he is shod, cleaned, or operated upon—the best and simplest plan is to put him on barnacles, or cover his eyes with a cloth. I prefer the latter, as he is then more effectually deprived of sight, and the barnacles frequently admit of the passage of some few oblique rays of light.

The animal, when thus blinded, will seldom resist much; and if he should, let him be trotted round and round on turf, or in a yard covered with dung, until he begins to be giddy and totter, and that will soon occur. Deprived of sight, and uncertain where he is, he will cease to resist, and allow himself to be shod or operated upon without resistance. He is like a horse suspended in a sling, and fears to move. Hobbles, or the nose-band, are all accessory means of obtaining dominion over a horse.

When a fiery horse, free from all constraint, refuses to let any one approach to or get hold of him, endeavours must be made to direct his course towards some narrow passage from which there is no egress, or a barn, or court, or yard. When he is once housed there, let all gentle means be resorted to for some time, in order to calm him; but if these fail, and he attacks all who approach him, and there is danger of his escaping, recourse must be had to a cord with a running noose, and this be aimed at his neck or legs, so as to catch and entangle him. Then let some strong men rush forward with cords; but not loosen him until he is firmly fastened to a strong ring or tree, blinded, and a snaffle with two long straps put on him If he is inclined to bite, a nose-band or basket-muzzle made of iron, and affixed to the lower part of the head, will prevent any danger on that score. If he strikes out with his fore feet, a hobble will soon quiet him. If he plunges, force the head up as high as possible, and hold it in that position with a vigorous arm. Another very good way of curbing his spirit is to harness him to

a very heavy cart, far beyond his powers to move rapidly. A gallop over ploughed land is also frequently efficacious. A few such lessons as these will reduce the most fiery horse to obedience, if he is only fiery.

If the animal is actually dangerous, he may be enclosed between two strong bars, or fastened to the tail of a large waggon, in order to get him home, and the other methods of mastering him not being omitted.

Castration in the male, and fecundation in the female, put an end to these excitements.

In some countries, and particularly in Germany, they put these furious horses to the plough; they also place them in a frame, and suspend them until their strength is completely exhausted. Other persons endeavour to reduce them to submission by privations, spare diet, bleeding them to faintness, the employ of stupifying drugs; but all these things will, if carried too far, have a prejudicial effect upon the health of the animal, and perhaps tend to injure some important function: besides, their effect is only temporary; it does not at all subdue a vicious animal, but, on the contrary, it endangers the lives of the persons who have the care of them. Mules have been known, after a lapse of two months, to avail themselves of some favourable opportunity of avenging themselves on their keepers for a certain degree of ill-treatment to which they have been subjected. Where animals obstinately resist all endeavours, however gently and gradually made, to tame them, and become more and more vicious, it is our duty to destroy them, as thus alone we can escape the responsibility towards society which we incur. A pistol-shot, or a transversal incision through the bifèmoro-calcaneum (the tendon above the hams), are the most certain means of avoiding accidents.

Wild horses are caught in snares, or with a lasso, and confined in enclosures, where they are spoken gently to, caressed, and fed on whatever seems most to tempt their appetites. By slow degrees they are habituated to closer confinement—a halter is put on, and they are tied to the manger while eating; then by degrees the rest of the harness follows, and they are gradually brought into work. Where this method is patiently pursued, and privations and good treatment alternately applied as seem necessary, their subjugation is gradually effected; and, lastly, when their strength is exhausted by hard labour and low diet, success is almost certain.

The ass is seldom vicious or ferocious; he is obstinate, and by no means tractable: but he rarely attacks or wounds any one, unless he has been previously ill-treated.

The mule is neither so patient nor so manageable. It retains the memory of ill-treatment for a very long time, and requires great

gentleness and patience. Once irritated, he fears not blows, and it is dangerous to exasperate him. The muleteers of Provence punish their mules by taking off their bells and decorations, and tying them to the back of the vehicles as they pass through any town, and the animals appear to be fully sensible of this degradation.

A mule that has been unjustly punished or ill-used will bear malice during a long time, and await a favourable moment for revenging himself; and when this does arrive, his attack is made with a calmness and premeditation which only serves to render it more dangerous.

ASCITES IN A SOW.

By Mr. E. C. Reed, *Buntingford.*

I do not remember to have seen a case of the above recorded by writers, although they may occur in practice. I am sorry I had no opportunity of examining the animal myself, but I can depend upon the account given by the owner.

The sow had been purchased a short time previous, and had, up to her having young ones, appeared in good health. She produced five little ones in the latter part of last week, but with some difficulty a sixth was extracted by force. She afterwards appeared very ill, had a drench given her by a neighbour, and in a short time died. I could not ascertain what symptoms she exhibited previous to death, except restlessness and pain. She was opened by the owner, and, to use his own words, "the place was in a flow." The fluid was almost colourless. The owner did not examine her further. She was in fair condition.

A CASE OF ILLNESS IN A BOAR PIG.

By Mr. J. Broadbent, *Hadfield.*

There not of late having appeared in your valuable periodical, The Veterinarian, any article respecting that neglected and despised animal, the hog, I send you a few scraps from the hills of Derbyshire, which I noted at the time that they occurred, and which, if you think them worthy of your notice, you are at liberty to use as you think proper.

June 7th, 1842.—I was called in to see a hog about ten months old, which had been labouring under disease some considerable period. I was informed by the owner that the animal had been kept with one of the same litter until last Christmas. At this time its mate was taken away by the butcher, and the sick animal was left alone. Shortly after this it began to be ill, and would take very little food. In this state it weathered the winter. I found it lying in the sty, and very reluctant to make the least attempt to move. It appeared to be suffering great pain when it was made to stand. On being forced up, it would rise upon its fore legs, and with a kind of leap was enabled to raise its hind legs; but was usually so weak in the posterior extremities, that it could not walk. The animal was very low in condition, his coat was long and curled, and he was much fatigued on the slightest exertion. The fæces were voided with difficulty, and were hard, knobby, and black as a coal, with a sandy feeling on being pressed between the fingers. When standing, the hind feet were drawn towards the breast with the tarsus on the ground like those of a rabbit, and the abdomen twitched up like that of a greyhound.

I administered a dose of jalap in the form of ball.

8*th*.—State of health the same as before. I gave two ounces of the sulphate of magnesia, and one ounce of castor oil, in gruel. After drenching (though done with the greatest care), the animal was very much exhausted, and lay with his mouth open, and respiration hurried to an extreme degree. I had not any hope of the animal's recovery.

9*th*.—Very little change—the bowels not moved—takes no proper food, but eats earth and ashes frequently. No medicine administered.

10*th*.—No change. I cut the bristles from the lumbar and sacral portions of the spine, and extended the operation to the hams and flanks: applied a rubefacient liniment, lin. ammon. four parts, ol. terebinth. one part, and administered at the same time jalapi ʒj, hyd. chlorid. gr. x, ol. tiglii M vj.

11*th*.—No perceptible difference—the bowels not moved: apply the above liniment, with the addition of one part of the unguent. cantharid. to three parts of the liniment. Gave internally jalap ʒij, hyd. chlorid. gr. xij, ol. tiglii M xvj.

12*th*.—He can walk a little better—the bowels have not been acted upon: apply the liniment as before—do not give any medicine. The owner, however, gave sulph. vivum ℥j at night.

13*th*.—The fæces have passed, but no purging, properly speaking: the loins are a little red, and warmer than the rest of the body.

14*th*.—Improving: he takes a little food.

15*th.*—Much the same as yesterday. Give of sublimed sulphur ʒiij.

16*th.*—Bowels not moved by the sulphur. He walks a little better, and takes some food. Ordered pulv. antimonial. ʒj. One dose daily for a week.

30*th.*—Much better. Ordered infusion of buckthorn and minute doses of sulphuric acid.

After this the animal continued to improve, got well, and was good pork for the butcher in the autumn.

CASES OF INVERSION AND EXCISION OF THE UTERUS IN THE COW AND SHEEP.

By Mr. CHARLES GARDNER, *V.S., County of Cork, Ireland.*

ON reading the July number of THE VETERINARIAN for 1844 I find an article by Mr. Gregory, V.S., at Storrington, headed "A Case of Inversion and Excision of the Uterus in a Sow."

This brings to my memory two similar cases that occurred in my practice in June 1843. The first was a sheep, the property of Mr. S. H., of the county of Cork. This gentleman, finding that he was not able to keep the uterus in its place, requested me to try what I could do with it. I told Mr. H. that, as the sheep was to be fatted, the womb was of no use to her, and we might as well cut it off. This being determined on, I commenced as high up as I could, tying the uterine arteries as I came to them, and stitched the cut edges together in order to prevent an effusion of the intestines. No more care was taken with her than usual, and in ten days' time she was caught for me to look at her, when I found that adhesion had taken place, and she was as well as ever.

It so happened that Mr. J. H., near the same place, had a cow in which the uterus was inverted. The labia pudendi and uterus were here much injured; the latter from rough handling, and the former from pieces of wire having been passed through them. These having sloughed out, I need only to add, that the same operation was followed by the same results, and that, although the cow was rendered useless for breeding purposes, she was not at all lessened in value for fattening.

I do not quote these cases as any thing strange, but merely because I think, when operated upon in this way, the patient suffers much less pain and the recovery is more expeditious than when removed by means of a ligature passed tightly round it, and allowing it to slough off. It also appears to me much more surgeon-like.

CALCULI IN THE INTESTINES.

By C. PERCIVALL, *Esq., Royal Artillery.*

THE horse that was the subject of this paper, prior to admission into the infirmary, had for two or three days, off and on, experienced paroxysms of pain in no very distinguishable form, and spasmodic colic, and for this the usual remedies afforded temporary relief. However, at length, it became too apparent—from the restless state of the animal and concomitant symptoms—that there was something radically wrong within the cavity of the abdomen, and I accordingly had him removed to this place.

There was a small quick pulse, the horse panting and blowing expressive of great pain—frequently looking round to his flank—pawing and stamping with his fore feet, and advancing them forwards—standing on the stretch—frequently lying down and rolling upon his back, and remaining in that position with his feet in the air for several minutes together—with constipation of the bowels.

He was bled, had stimulating embrocations to the surface of the abdomen, took aloes, had aloetic enemas, &c., administered, but without any mitigation of the symptoms, or procuring a passage; and he died on the morning of the 7th instant, in great pain.

Post-mortem examination.—The cæcum and colon were both inflamed, the latter being greatly distended from an accumulation of dry fæces, embedded in which, at the small curvature, was a calculus measuring seventeen inches in circumference, and weighing two pounds and three-quarters. The surface of this was irregular, very similar to the rock melon. In addition to this, there was a considerable quantity of extraneous matter, consisting of a black gravelly substance. The formation of the calculus, there is no doubt, was owing to a depraved appetite, having from time to time swallowed a considerable quantity of earthy matter and gravel, when employed in the arsenal in removing stores, &c., for that which was taken from the colon, when washed, exactly resembled the surface of the ground contiguous to the storehouses, where the horses (in the Queen's works) are employed.

REMOVAL OF WORMS FROM THE STOMACH OF A COW.

By Mr. J. H. SHENTON, *Pendleton, Manchester.*

HAVING for a long time been an admiring reader of your invaluable journal, and often finding very interesting cases contributed to it relating to domestic animals generally—being also in extensive cattle practice—I take the liberty of sending you the following case, which is one of rare occurrence in this neighbourhood. If you think it worthy of insertion in THE VETERINARIAN, it is at your service. On the 3d of July inst. I was called on to attend a valuable and favourite cow (a heavy milker) of a cross breed between the Devonshire and short-horn, belonging to that indefatigable and enterprising firm, the Messrs. Barton, of the New Hall, Pendleton, and who are allowed to have the best selected stock for milkers in this county.

The cow in question had been off her feed for three or four days—she hung down her head and slouched her ears, if you will allow the term—was dull and sleepy, with staring coat rather hide bound—extremities cold—pulse low and weak—rumination partially impeded—diminution of the secretion of milk to a very great extent—and, occasionally, symptoms that are observed in cases of flatulent colic.

From the combined symptoms, I was of opinion that the cow had worms in her intestines that had brought on the above symptoms. I accordingly administered a saline diuretic, and an anthelmintic combined with a vegetable cathartic. I ordered the cow to be covered with a blanket, to be kept in the house, and to have bran mashes and warm water.

In about nine hours after the administration of the medicine she passed a tape-worm of an enormous length; but before it could be got from her she trod on it with her hind feet and crushed it to pieces. However, I measured the length of it, which I have preserved, and found it be ten feet and three inches long, three-quarters of an inch wide, and one-eighth of an inch from joint to joint, and in that short length there are 984 joints.

July 4th.—She is a little better to-day. The medicine has gently acted on her bowels—the fæces very coarse, rough, and spongy—she looks brisker, has taken food sparingly—milk about the same as yesterday, but the pulse more natural. A little oatmeal gruel was prepared, with bran mashes, and at night a saline diuretic was administered, combined with tonics, vegetable and mineral.

5*th.*—She is much better to-day—takes her food better—ruminates freely—the coat is smoother—the skin looser—the pulse natural—the secretion of milk increased—she looks more lively, fæces more natural. Give her an hour's exercise in the field; mix a little bean meal and crushed oats with her bran, and at night repeat the second dose.

6*th.*—Much better in every respect. Continue the same course as on yesterday, except omitting the medicine.

8*th.*—Quite recovered.

SECTION OF THE EIGHTH PAIR OF NERVES.

M. BERNARD has instituted some new experiments upon this interesting physiological question. Having previously established a fistulous opening into the stomach in the subjects of his experiments, he could observe with great advantage all that happened on the division of these nerves.

His conclusions are,—first, that division of the pneumogastric nerves is followed by the extinction of all sensation and motion in the stomach, and, more than this, by a complete arrest of the secretion of gastric juice; secondly, by an entire suspension of the digestive function. Pieces of meat put into the stomachs of dogs whose pneumogastrics have been divided were found twenty-four hours afterwards totally unchanged; thirdly, in the absence of the gastric juice, spontaneous changes take place in the food in the stomach.

Comptes Rendus, Academie des Sciences, 27*th Mai.*

A FLOCK OF SHEEP POISONED BY EATING THE RANUNCULUS REPENS.

A FLOCK of sheep had not been many hours in a field into which they had not been before driven ere the shepherd observed that several of them suddenly fell down as if they had been struck by lightning. Their eyes rolled about in their sockets—their breathing was laborious, and some of them kept turning round and round as if they were dizzy, and died with their heads inclined over their left flanks. He fancied that the seizure was owing to a "coup de sang," and accordingly bled the animals. The loss of blood, however, seemed to do harm rather than good, for eleven of them very speedily died.

A veterinary surgeon who was summoned immediately detected the cause of the mischief in the great admixture of ranunculi with the grass: he, therefore, recommended that the bleedings should be discontinued, and a dose of sulphuric æther be given in milk to all the affected animals. Under this treatment the alarming symptoms quickly subsided, and although for a few days some of the sheep remained very feeble and tottering on their legs, the remainder completely recovered.

Medical and Chirurgical Review.

ON PUERPERAL FEVER IN THE COW.

By Mr. JOHN BARLOW, *V.S., Oak Farm, Wilmslow, Cheshire.*

THERE was a time when the practice of veterinary medicine was confined almost exclusively to persons who considered that an attainment in scientific information was in no way conducive to its successful pursuit, but by whom the possession of a little mechanical tact, and of a few recipes, composed frequently of inert or ineffectual ingredients, were deemed sufficient passports to practice.

This state of things is now rapidly declining, and veterinary surgeons, instead of receiving as unexceptionable the opinions and dogmas of their predecessors, only so far adopt them as consistent with the present state of knowledge on anatomy, physiology, and pathology—sciences the more intimate acquaintance with which will prove our surest guides in any application of surgical or therapeutical remedies. Yet, even still we have occasionally to witness the fact, that ignorance obscures a dawn of brighter days, and operates in a manner highly injurious to the full application of correct principles, when at variance with popularly received opinions in themselves erroneous.

This, when applied to our profession, is most evident in that department which relates to the diseases of horned cattle; and it is not until we are able practically to shew the public our full qualification and superior ability in treating this class of patients, in comparison with the cowleech or farrier, that we shall receive those tokens of confidence of which we may suppose ourselves deserving.

Although some of you may not expect or intend, in your future professional course, to practise much in this department, yet there are others of whose avocations it must necessarily form a large part, and who are fully sensible of its importance; while there can scarcely be any so far exempt from the uncertainty of occasional

attendance on cattle as to justify a systematic neglect of this branch of study during the time afforded for an attainment of veterinary knowledge.

The hope of myself reaping some advantage from the discussion on this essay, and the being willing to join in the noble object contemplated by this society, namely, a diffusion of veterinary knowledge, are motives that have induced me to appear before you, regretting, nevertheless, that no one abler than myself has undertaken the subject, confessedly one of the most abstruse, yet the most interesting, on veterinary record; for there are few or no diseases affecting any class of our patients which, for suddenness of attack, rapidity of termination, or peculiarity of symptoms, can be compared with what is called puerperal fever in the cow.

It is a disease occurring from within a few hours to three days of calving, speedily involving an abolition of motion, sensation, and special sense, and ultimately a cessation of the true spinal and ganglionic functions—all these, nevertheless, denoted by few or no very evident premonitory symptoms.

Previously to entering upon the immediate subject of the essay, I hope to be indulged with a few observations relative to the name of this disease, as I consider it improperly descriptive of those symptoms to which it is usually applied.

What is commonly termed puerperal fever, I, with many others of the profession, consider to be an affection of the nervous system, and not, as in the human subject, consisting primarily of peritoneal inflammation. Still, I am free to acknowledge that peritoneal and uterine inflammation do occur in the cow, and that the appellation, if limited to such only, would be proper; yet why apply it, as is continually done, to inflammation, not only of those parts, but of the brain, the lungs, and the bowels, merely because occurring near the time of calving?

There is also another affection to which cows are liable at this period, bearing in its symptoms considerable similarity of the disease which we are about to consider, yet totally different in pathology: this is almost invariably called "puerperal" fever. It consists merely in inability to rise, or to properly use the hind extremities, depending generally upon weakness of the system. It is accompanied by little fever, and no coma or other symptom of cerebral disorder. These cases mostly recover under good nursing, external and internal stimulants, aperient aromatics, &c.

This indiscriminate classification of many diseases occurring soon after calving under the general term puerperal fever, has given rise to endless discrepancy of statement, both with respect to treatment and *post-mortem* appearance; one stating that there is inflammation of the bowels, uterus, lungs, &c.; another finding

these viscera healthy, but detecting morbid appearances in the brain, or some other part of the nervous system alone. In like manner we find one practitioner combating the disease with stimulants, while another advises powerful depletive measures.

Now, although, as just stated, various diseases, common also to other occasions, may occur after calving, each presenting symptoms characteristic of its nature and seat, yet one of the most frequent is an affection occurring only at this particular juncture, which, although likewise called puerperal fever, I consider to exist in the nervous system. In support of this, I shall endeavour to account for its several symptoms upon recognized physiological and pathological conditions; still, being myself unprepared to substitute any other name, I shall be compelled to adopt it under these qualifications.

As before noticed, the symptoms are suddenly developed and decisive in character, occurring within three days of calving or often within twenty-four hours of that process, as immediately on the establishment of reaction after collapse, which, to a greater or less extent, according to constitutional peculiarities, accompanies ordinary cases of parturition. In some cases of puerperal fever all symptoms, constituting various phases of the disease, have been developed within six hours of their earliest appearance.

The first grounds for apprehension arise from a less quantity of milk being yielded than is natural—an evident impairment of appetite, and a stronger, although not much more accelerated, pulse than usual after calving. The conjunctival and vaginal membranes are injected, and the horns and mouth are hot, with a glistening appearance in the eyes.

Such slight deviation from health can scarcely be called actual disease—in fact, can hardly be detected as a state exceeding in character the usual stage of reaction, and almost invariably eludes the vigilance of those in ordinary attendance upon cattle, whom experience has not qualified with more than usual discrimination, as it merely consists in a febrile state of the system, always short, immediately preceding the establishment of disease, and soon to be manifested by unequivocal symptoms.

. The cow entirely refuses its food, and respires more quickly; the pulse, however, seldom rises above 60, but is full, and sometimes oppressed. There is little milk secreted, and the evacuations are scanty. We may sometimes observe a few impatient tosses of the head—a peculiar expression of distress, something approaching to madness. The symptoms now more directly intimating the forthcoming disease are a remarkable change in the eyes, which have assumed a light leaden hue, and involuntary swerving motion of the body, and constant shifting of the feet to

preserve the proper balance; indeed, the patient will frequently support herself against the stall.

The cowherd, now fancying something wrong, informs his master, who probably subtracts a few pints of blood, and administers some favourite drench. These means, however, seldom produce any other effect than that of delaying the assistance of a practitioner until any remedies he may apply, however judiciously directed, will, by the delay, be rendered completely ineffectual. He, perhaps, having had some distance to travel, finds on his arrival every symptom increased in severity. The cow has fallen, and is comatose, with her head turned upon the side, or prostrate, from inability in the cervical muscles to support it. The rumen is distended, causing deep groans during respiration; the powers of motion and sensation are diminishing; the ears hang pendulous; there is imperfect or total insensibility of light applied to the eye, or of stimulus to the eyelids; the power of deglutition, if not entirely abolished, is much impaired; there are no evacuations; the pulse is intermitting; with cold extremities, stertorous breathing, and unconscious dashing about of the head.

The intensity of these symptoms increases. On raising the head the lower jaw hangs pendulous. Should any liquid be administered, from an absence of sensation and motor power in the pharynx and larynx it passes directly into the trachea, occasioning spasm and sometimes death. The pulse acquires a feeble stroke, but increases in quickness. The breathing, from accumulating mucus, becomes more and more stertorous. The pupil is contracted. The sphincters lose their full power, and, should the head be lower than the body, food will return from the stomach involuntarily, occasioning an intolerable stench. Such state having supervened, I never knew a cow recover.

These symptoms are, as may naturally be supposed, more intense in some cases than others, necessarily influencing their duration. Sometimes, after falling, the cow will struggle violently, endeavouring to rise, and which she will sometimes accomplish. I always regard this as a favourable prognosis. Death, however, may occur in six, eight, or twelve hours. Sometimes the animal lives twenty-four or thirty-six hours, or more.

A notice of causes inducing this disease involves many important considerations, due attention to which I conceive necessary properly to account for the morbid phenomena exhibited. The cow, of all other animals, is destined to afford the largest amount of that wholesome and nutritious beverage, milk. A constant supply of this fluid is a considerable demand upon the constitution in certain states, in some of which only it is yielded largely: these are, in an unimpregnated condition of the uterus, and during the

earlier months of uterine gestation. A cow may, by preserving the former of these conditions, continue to yield milk during several years; but, during the latter months of gestation, its secretion sensibly diminishes, and, for some weeks previous to parturition, it is ordinarily entirely suspended. We all know that a large supply of milk and an advanced state of gestation are incompatible. With reference to the relation existing between the quantity of milk yielded and the period of gestation, it may be stated that, in an average number of cases, before the fifth month of conception, a diminution of one-third of its quantity has taken place—by the sixth month, two-thirds—and, soon after the seventh it is usually entirely suspended. In what other way can we account for this than by supposing that the fœtus exercises, for its development, a demand upon the organic functions equivalent to the quantity of milk that would otherwise have been yielded; requiring, as it does in common with that secretion, a large quantity of circulating fluid for its formation.

Fully to provide for the fœtal growth, there is, in mammalia during gestation, a greatly increased, and, the nearer parturition, a more rapidly increasing development of the vascular system in the parent; but, perhaps, in no animal does this correspond in extent with that of the cow, which may be accounted for by the fact that Providence has destined her, not only amply to provide support for her offspring, but also to contribute largely towards that of mankind. Hence her peculiar liability to various diseases, both in a puerperal and barren state, arising from the existence of a larger quantity of blood in the system than is immediately necessary for growth and nutrition.

In making these remarks my intention is to render it obvious that, shortly previous to, and at the time of, parturition, there is, from the requirement of increased activity both in the animal and its organic functions, an increased stimulus or action required to be exercised by the nervous centres in order effectually to secure their performance.

It has been ascertained by Dr. R. Lee of London, that, during conception, not nerves only, but considerable ganglia, previously not perceived to exist, are apparent in the vicinity of the uterus. Such stimuli, of a nature and duration unknown on any other occasion, must, therefore, be favourable to a development of disease, by rendering the nervous system susceptible of impressions which, under other circumstances, might not have operated thereon.

This extremely vascular state of system is, in ordinary cases, relieved by a plentiful secretion of milk, which nature, as it were, providing against consequences, excites the udder to secrete some time prior to parturition. In other cases it is different; and we

are all perfectly aware of the physiological truth that any organ, ceasing to perform its usual action in the animal frame, cannot suddenly resume them: in fact, we know that, if it be suspended for any undue time, it is incapable of being again re-exercised. Although this may apply less to the udder than any other organ, still it must be confessed at times to fall within the general application of this principle, and not after all cases of parturition to regain its former activity.

Parturition, by separating the fœtus and its membranes from the maternal uterus, involves a sudden and complete check to the current of blood, recently required by it in utero, being now provided with means of sustaining an independent life, dependent, nevertheless, still on its parent for food—namely, milk, and that milk secreted from the circulating fluid, previously imparting nutrition in another form and through another channel. Should, then, any constitutional or other cause interfere, so as to prevent a secretion of milk, in full proportion to the existence of its elements in the system, or this effect be produced by any tardiness of the udder in resuming its functions, we can easily conceive that, under such circumstances, some organ, or class of organs, previously wrought upon by unusual stimuli, would, from the consequent predisposition thereto, assume a diseased function. Thus, I infer, arises one great, if not the greatest, cause of inducing puerperal fever. That the nervous centres are at this time more than any other susceptible of morbid impressions, we have a right to infer; indeed, this is so far admitted, that many practitioners are of opinion that the cow is, during her later period of gestation, in a constant state of excitement or slight sympathetic fever.

It will, then, be evident that cows yielding large quantities of milk, and kept on stimulating food before calving, must be extremely liable to this disease. Of this we have daily evidence in its frequent occurrence among farmers and dairy keepers, whose interest or pride it is to create as much milk as stimulating food will produce; and of its comparatively rare occurrence among others who habitually, either from neglect or poverty, keep their cows lean. It is, indeed, proverbial, in some districts, that fat cows, if good milkers, are pretty certain to be attacked by "milk fever," a name, among professional men, now in disuse, but one, like many others, arising from observation, and certainly more proper than that which is now generally adopted. In no one instance do I remember to have seen it occur in a bad milker, however fat, for in these comparatively non-vascular constitutions there is not a sufficient quantity of blood to throw back upon the constitution and operate injuriously. It is also worthy of remark, as tending still further to confirm this view, that cows of this description have uni-

formly small calves, while those of an opposite constitution, although lean, have generally large ones. A fat state of body is alone, by many, considered to be a cause of this disease; shewing, as it does, the materials and processes of assimilation to counterbalance the expenditure of vital power, a state certainly favourable to disease of various kinds. I have, however, uniformly observed, that here puerperal fever, in the character we are now considering it, seldom makes its appearance unless the vascular, and, consequently, the lacteal, systems are fully developed—a state not always in unison with the former.

The disease never occurs at the first or second calving, should that take place at or before the animal is four years of age—very rarely, indeed, at the third—and not often at the fourth, if these take place before the animal is five years old. It frequently occurs at the fifth, and the liability in predisposing constitutions increases with each successive parturition. The cause of its non-appearance in early life is attributable to the fact that, at this time, the system has not arrived at its full degree of growth and consolidation, which processes being consecutive with gestation, and of considerably more active character in the young than adult animal, there are, of necessity, greater demands or adaptations for an accumulating quantity of blood than at a maturer age, in order to accomplish those indispensable processes of growth and development, thereby preventing the possibility of its injurious determination to one organ or tissue exclusively. The disease never follows abortion, which we can easily account for, on the ground of its non-appearance in bad milkers.

There is a pretty certain preventive in milking the cow some time before calving—in full blood-letting before or immediately after—in purgatives—very limited diet—and in other depletive measures; each and all tending to illustrate the necessity of a vascular state of the system for its development.

Some eminent veterinary surgeons consider that constipation is, more frequently than any other, or indeed exclusively, the cause; and in support of this, urge the apparently well-founded argument that, so soon as purgation can be established, the cow recovers. Although I am willing to admit that constipation may be an occasional cause, and that, at all times, it much aggravates the disease, I shall presently endeavour to prove that it is far oftener the almost infallible effect, depending upon a peculiar state induced by the disease, and devoid of those symptoms which would characterise it if a primary cause. I have, indeed, seen many cases wherein a hardened state of fæces never existed; but torpidity of the bowels or suspension of their usual action is always present. Very rarely does it occur after protracted cases of parturition, these

requiring a considerable expenditure of muscular energy, and, consequently, a large determination of blood to that tissue may thus prove a cause of exemption. It likewise very rarely follows flooding from the uterus.

I may again observe that these several states, considered as possessing immunity from this disease peculiarly, are still liable to various others, to which their idiosyncrasy predisposes, exhibiting symptoms totally different from those we have considered, and presenting *post-mortem* appearances equally varied from those we are about to detail.

The predisposing causes are the existence of a larger quantity of circulating fluid in the system at the time of parturition, produced constitutionally or artificially, than is required for the animal and organic functions;—an excitability of nervous system, induced by gestation and parturition, unknown at any other time;—any thing indirectly preventing a full secretion of milk, or this directly produced by inability, inactivity, or want of tone in the udder itself to resume its functions, thus causing a want of lacteal secretion in proportion to the existence of its elements in the system;—the adult or full state of growth, with considerable development of the vascular system and plethora, or a great development of the vascular system alone. Constipation may be a cause. The exciting cause is parturition. These causes may, however, be considered to possess such a reciprocal influence at the time of parturition as to promote the disease through their conjoined operation.

Morbid *post-mortem* appearances in this disease I have in many minute examinations found to exist in the nervous system only of sufficient extent to cause death, or to occasion, during life, symptoms such as we have recently noticed. Frequently, under these examinations, the manifestations are of such a character as almost to elude detection; which is alone satisfactorily effected by frequent and careful comparative dissections of the nervous centres in this with other diseases, and these again with the healthy state.

Although cows frequently die after calving, denoting during life, and upon examination after death, disease both of the nervous and respiratory, or nervous and digestive, or generative systems, as the case may be, such, being evidently cases of combined affection, claim no place in the present consideration, which is limited to pure puerperal fever alone.

We then proceed; and on examining the abdominal viscera, find in them structurally, except there is occasionally an organic chronic disease, no deviation from what is considered a healthy appearance.

I have repeatedly traced the intestinal canal from the abomasum to the rectum, without finding, externally or internally, a single point of inflammatory or other morbid surface. The large intes-

tines often contain hard excrement. The stomachs present structurally a healthy appearance, but the contents of the third stomach are mostly hard. This hardness of food and fæces is by no means always present, and holds at all times a close relation to the duration of disease.

The uterus is large or small, according to the period elapsed since parturition.

If a day or two have passed, it will be well contracted, provided the placenta is expelled, which is not always the case. Its mucous coat and muscular tissue under the former state exhibit no greater amount of vascularity than usual on those occasions. The bladder is mostly full, provided no evacuation has been effected mechanically, or at death, during the general relaxation of all sphincters. I have on one or two occasions seen an inflammatory blush exist on the mucous surface of the bladder, and also extended slightly to its peritoneal covering; but in these the organ was much distended. The liver is usually congested, and the gall-bladder large. In the thoracic cavity there is also an absence of actual disease. The lungs are in most cases congested, which is caused by the right ventricle of the heart continuing to force blood therein, when, from an impaired state of respiratory action, they are incapable of accomplishing its return into the systemic circulation.

The presence, during life, of symptoms previously detailed, and which I doubt not you have witnessed, together with an absence, under *post-mortem* examinations, of actual abdominal or thoracic disease, induced Mr. Friend, of Walsall, some years ago, to suppose that this affection existed in the nervous system. Since that period his opinion, as to its seat, has obtained support from many practitioners; and I am inclined to suppose the opposition thereto of others has arisen, as before stated, from a too indiscriminate classification of other diseases occurring near parturition, under the common appellation of puerperal fever.

Being, then, well acquainted with the healthy appearances and anatomy of the nervous system on other occasions, we should in these cases proceed carefully, and, immediately after death, to their examination; for, if long delayed, there are various processes taking place sufficient to render our judgment and investigation fallacious, as increase in the sub-arachnoidean fluid, and softening of central substance. The cerebral and spinal centres should be exposed, together with their membranes, and, if possible, without any laceration of either.

We sometimes find considerable injection of the dura mater enveloping both brain and spinal cord; this, however, is not invariable, and is always greatest under considerable pulmonary congestion.

I never saw any morbid appearance in the arachnoid membrane itself. It is somewhat difficult of demonstration in the cow, except on the convexity of each hemisphere. There exists, however, almost uniformly, an evident increase of sub-arachnoid, cerebral, and spinal fluid.

Having detached these, we come to the pia mater, a membrane almost invariably exhibiting either intense congestion or inflammatory action. The minute bloodvessels ramifying over its substance may, on slicing the cerebrum, be perceived to impart at times a diffused blush to the centrum ovale. This appearance is evident also in the spinal marrow, more especially at its lumbar portion.

On opening the cerebral ventricles, we find, if the case has been severe, considerable effusion of serum therein, with intense congestion of the choroid plexus, velum-interpositum, and cerebellar choroid plexus. Sometimes there have been clots of blood discovered in the brain at its under surface, and within the spine also. In both spinal and cerebral substances there are frequently complete structural derangements, consisting in uniform softening of their tissues, some parts assuming an appearance of homogeneous red paste. In a specimen of this disease, presented to the London Veterinary Medical Society, some years ago, by Mr. Robinson, V.S., of Tamworth, there was, in addition to such appearances as we have noticed, ecchymosis of the large nerves, particularly of the sciatic and sympathetic.

There is also another morbid appearance often present, which does not seem to have attracted much notice, namely, swelling of the brain from congestion of its substance, thereby rendering compression within the bony case as equally effectual in destroying nervous power as effusion itself. This is evident; for on removing the investing bone, its cortical substance immediately elevates its enveloping membranes above their previous boundary.

We now propose to make a few observations on the pathology of this disease in connexion with its symptoms and *post-mortem* appearances, for I can say little more by way of evidence to prove its existence in the nervous centres, or that it essentially consists in congestion of that structure, and, in many cases, of speedy effusion into its tissue, causing, by complete disorganization thereof, a consequent inability to perform or preserve its functions in the animal frame.

We have, in vertebrated animals, three kinds of nervous centres, which, according to Dr. Marshall Hall's celebrated investigations, are the cerebral, true spinal, and ganglionic. These, although presiding over distinct functions, bear, nevertheless, such mutual dependence upon each other, and relation to the animal frame, that

perfect action in all is essential to a healthy maintenance of life. Although I doubt not your perfect acquaintance with the physiology of each, I will briefly recapitulate them, as they may explain more clearly the view I take of the disease in question. The cerebral is that division comprising every part of the nervous system relative to sensation, volition, and special sense. Its centre is the cerebrum and cerebellum, to which nerves of sensation proceed from the organs of special sense, external surface, and other sensitive parts, and from which also proceed voluntary nerves, pursuing a similar but retrograde direction, forming in the spinal cord its anterior columns, as those of sensation form its posterior ones. When the cerebrum is irritated, delirium ensues; when it is compressed, coma supervenes; when lacerated, paralysis occurs. Should other symptoms than these exist, in conjunction with encephalic disease, they arise from an extension thereof to the true spinal or ganglionic systems. The true spinal division of Dr. M. Hall, including the respiratory one of Sir C. Bell, is that presiding over ingestion, retention, expulsion, or exclusion from the animal frame, these being functions upon which the immediate preservation of life and perpetuation of the species are dependant. The centre of this system is the medulla oblongata and medulla spinalis. According to the same eminent authority, the ganglionic is that division regulating and presiding over interstitial absorption, reabsorption, and the secretion of atoms and particles whereof the animal frame is composed, and of ingesta and egesta.

We have observed that the first unequivocal symptoms of this disease are coma, and impairment of voluntary motion and sensation, with a peculiar appearance in the eyes, somewhat resembling amaurosis. I need not tell you that coma, impairment of voluntary motion and sensation, presents indubitable evidence of cerebral affection, inasmuch as exemption therefrom, except during sleep, which is repose of the cerebral system only, implies a healthy state of the brain. These symptoms are all occasioned by pressure upon or within the cerebral substance. In the present case by congestion or effusion, but also exemplified, as previously noticed, by experiments to the same effect.

As the disease advances, we have noticed other symptoms—impairment of deglutition and respiration, and inability to move the orbicularis palpebrarum on stimulus being applied. In very severe cases, and near the close of all, we have relaxation of the sphincters and cardiac orifice. These consist in impairment of the true spinal system, by extension of disease to its centres, the medulla oblongata and medulla spinalis. In explanation, I may observe, that volition, or will to perform motion, exercises considerable influence over respiration; this, nevertheless, can, as a true spinal act, be continued

independently thereof, as during sleep, which, as just stated, affects only the cerebrum; but we have in this state, especially during deep sleep, stertorous breathing, a condition in one respect analogous to the affection we are considering; but in this instance cerebral influence is inoperative from disease.

Deglutition is a reflex action, chiefly effected by the pharyngeal and œsophageal branches of the par vagum, which, having its centre of nervous power in the medulla oblongata, will also be impaired from the same causes as respiration. It has been ascertained by experiment that the brain may be carefully removed in some animals, yet, by preserving entire the central and peripheral connexions of the par vagum, respiration and power of deglutition remain. Such respiration, however, is imperfect, and, in the absence of co-operation with other parts of the respiratory system, insufficient for aërating blood requisite to sustain life any great length of time. Anencephalous fœtuses furnish another example of this phenomenon.

We now take a glance at the ganglionic, or that division of nervous system connected with nutrition and secretion, which is also supposed to regulate the action of internal muscular organs, as the heart, arteries, intestines, &c.—a function certainly different from any exercised by the others, yet intimately connected with both, anatomically and physiologically.

Causes which we daily see in the human being applied to either the cerebral or true spinal systems, affect the ganglionic: witness the mental emotions on digestion, biliary or lacteal secretion, &c. Why should not the powerful excitement of parturition in some similar way affect the cow, producing, among the other derangements, arrestment of lacteal secretion?—an event, by whatever means effected, directly or indirectly, sadly mischievous. If, then, the centres with which this system is so intimately connected, and upon which it is in some measure dependent, is incapacitated from performing their functions, what can be anticipated but, first, a perverted action, and, ultimately, an entire cessation of its own? Hence, I conceive, arises that torpidity of bowels and stomachs, and cessation of secretion and excretion, constituting the obstinate constipation complained of by practitioners; a removal whereof, it may be said truly, is the first step towards recovery, indicating, as that removal does, a return of function to the diseased centres, or, so far as the ganglionic system is concerned, a renewal of mutual relation existing between the organs and materials for secretion. If constipation were the sole cause of this disease, why should its symptoms be so totally different now from those ordinarily accompanying it? Inflammation of the lungs or bowels, for instance, exhibits no peculiar variation in symptoms, whether occurring at parturition

or other times, and why should constipation? Constipation, as such, will not kill a beast in six, eight, or twelve hours, as this disease frequently does; nor is it accompanied by coma, loss of sight, sensation, and volition, or impairment of respiration and deglutition, but exhibits symptoms of its own with which you are all conversant. This constipation I am persuaded is not exclusively a cause, but almost invariably an effect, depending upon the withdrawal or annihilation of nervous power, from causes already stated whereon healthy organic actions depend. Hardness of fæces and food in the stomachs is occasioned by an operation of physical and chemical changes ever attendant upon the cessation of those of vitality.

That the disease consists in an oppression of nervous tissue is, I conceive, abundantly evident from the *post-mortem* appearances and experiments, fulfilling the same purpose or effect, in which they consist. That this oppressing substance consists in blood, or some of its constituent parts, is also evident upon examination, and is farther confirmed by the fact that powerful depletion before calving, or immediately after, prevents the disease. From the fact, also, that it never occurs before calving, and almost invariably within three days afterwards, we may suppose that parturition is the exciting and essential cause of its occurrence. Our prognosis depends upon the symptoms and stage of attendance. If the animal has only lately fallen, and the coma is slight, volition little impaired, the bowels moderately open, with power of deglutition remaining, we may indulge the hope of a favourable termination. Should our patient, as is too rarely the case, be standing, every probability of success is greater. But if coma is complete, vision entirely gone, respiration and deglutition impaired, sensation and motion destroyed, our prospects can be no other than the reverse. Danger is, indeed, proportionate to the extent in which the cerebral, true spinal, and ganglionic functions are affected, all being accurately denoted by symptoms for which the practitioner should, by his physiological knowledge, be able to account.

The terminations are, recovery, paralysis of some part or parts, and death. Recovery is often astonishingly rapid, and results from a restoration of the parts affected to their normal state. Death is occasioned, not only by the breach or oppression of nervous structure, but also by the circulation of blood containing ingredients destructive to life or insufficient to support it—ordinarily separated therefrom by various glands of the body, and now incapacitated by a withdrawal of their nervous powers upon which their healthy functions materially depend. In some districts this disease is comparatively unknown. Here the cows are small, their food unstimulating, and the quantity of milk they yield limited. But in

dairy districts, and large towns and their vicinities, where the reverse of these things exist, cows at the adult period of life are extremely liable to it.

Although I undertake a consideration of the treatment with some reluctance, it arises not from a conviction that that treatment is inefficacious in itself, but because we are almost invariably called in to witness its failure; for the malady, from its treacherous character and suddenness of attack, is frequently too far advanced, previous to our attendance, to admit of any remedial means being beneficially employed.

In what the treatment consists depends upon circumstances and the period of our attendance, so that it is perfectly futile in one practitioner to say that he always bleeds, or in another to say he uniformly dispenses therewith; for this, like other remedies, must be applied to the state of each individual case so far only as symptoms warrant.

Believing that the disease consists, primarily and essentially, in congestion of the nervous centres, speedily terminating in effusion into the tissue—a tissue the integrity whereof is more than any other immediately essential to life, and yet one more than any other, from the nature of its texture, offering every facility to injury likely to result from this kind of disease—it behoves us instantly and energetically to apply our remedies.

And what remedies are there possessing greater potency than blood-letting and purgatives towards an early stage, before effusion has taken place, effecting the indications desired, namely, unloading the vascular system, preventing morbid deposit, and the change of structure incident thereon?

If, then, we see our patient early, before she falls, or even when recently down, with coma and other cerebral, the most obvious symptoms, the true spinal functions little impaired, in other words cerebral congestion alone existing, our first care should be to bleed instantly.

In undertaking this operation, my wish is, by removing the source of irritation, diminishing arterial action, and thereby preventing their ultimate effects if continued, to make a powerful impression upon the system. In blood-letting, therefore, the abstraction should be rapid, and the quantity withdrawn sufficient to effect these intentions. I would, therefore, continue the evacuation in a full stream until the warnings, which in time supervene, told me to desist. In few or no other conditions of the system is there a greater tolerance of blood-letting; yet, let but a few more hours elapse, and directly the reverse occurs. Having accomplished this, our next care is to administer purgatives, from a knowledge that they fulfil partly the same indications as blood-letting in weaken-

ing arterial action, removing accumulations, and causing derivation. Here, however, in addition to the usual difficulty of exciting purgation in cattle under disease, we have a peculiar unsusceptibility of stomach and bowels unknown at any other time; consequently the ordinary purgatives, and in usual quantities, are totally inefficacious. We must trust only to the most powerful. A combination, also, of several ingredients is preferable to the administration of a single one, even should it be proportionate in strength to such combination.

The formula I would advise is this:—ol. lini. Ojss, pulv. sem. croton ℈j, hydrarg. sub. ʒj, pulv. aloe. Bbd. ℥ij, pulv. zingib. rad. ℥ij. The aloes should be powdered, dissolved in boiling water, to which the other ingredients are to be added, and carefully administered. In order to facilitate the operation of medicine, clysters should be frequently employed, and, if administered with the patent syringe, one end of the tube may be introduced with an arm in the rectum for a considerable distance, and a greater probability will thus be afforded of softening any hardened fæces. Clysters may be composed of soap or salt and water, with, now and then, an ounce of aloes in solution, and half a pint of oil of turpentine.

All our endeavours, after plentiful blood-letting, should be directed towards unloading the bowels, as being inferior to no other means in acting upon the nervous system; therefore, so long as power of deglutition remains, and torpidity of the bowels continues, one-third of the above formula should be given at intervals of four to six hours; combined, as the disease advances, with ounce-doses of nitrous ether, increasing also the proportion of ginger, bearing in mind that all may fall into the paunch, where it will lie comparatively inert. In the cow we have little fear of exciting superpurgation—at least we seldom see such permanently injurious effects from that cause, as too often occur in the horse under disease.

Diuretic medicines are frequently advised by many practitioners, a judicious use of which is proper, more especially when the disease advances, as tending, by other means, to effect the ends contemplated by blood-letting and purgatives, viz. promoting a separation of ingredients from an already vitiated circulating fluid; retention whereof, though highly injurious, the kidneys, from an imperfect performance of their functions, cease effectually to secrete.

An external application of stimulants, in order to be of full service, should precede departure of sensation, under which circumstances they are of great utility. I consider the application of a powerful blister immediately behind the ears, extending well back and beneath them, to be a situation whereon counter-irritation can be applied perhaps as near the seat of disease, or, at all events, the

nervous substance, as elsewhere. This may, as advised by some, be continued along the spine.

The beast should lie upon her belly, slightly turned on one side, raised before, and the head supported with straw. Her position must be frequently changed, the teats frequently drawn, and fomentations applied to the udder. The body should be kept moderately warm. If possible, the veterinary surgeon should remain with his patient some time, watching carefully the symptoms, pulse, &c. If reaction after blood-letting occurs to any extent, he will then be able to decide, timely, the propriety of its repetition. In despite of all exertions, should the symptoms progressively appear more unfavourable, we must consider whether an administration of stimulants may not be justifiable to rouse or sustain the sinking nervous powers while our other curative means take effect. When, however, as is too often the case, we are called in after congestion has passed and is supervened by effusion, denoted by the latter train of symptoms previously mentioned, our chance of success is, indeed, small; this effusion almost invariably causing, by pressure or laceration of nervous tissue, a cessation, sooner or later, of the functions dependent thereupon.

If the power of deglutition is entirely destroyed, from a consequent liability of fluids to enter the trachea, we are not, without the stomach syringe, justified in administering any thing whatsoever; and even with this excellent auxiliary, the unfavourable aspect of collateral symptoms will forbid the attempt if left to our own discretion. Blood-letting, if resorted to now, would only hasten death. Indeed, the utmost caution is essential with respect to the propriety of blood-letting in every case where the cow has been some hours down. The system is here suffering and failing under the effects rather than the disease itself, and its sinking energies require all the support which the circulating fluid can impart. Bleeding has no effect in causing absorption of the effusion, which, being placed beyond constitutional influences, is not amenable to impressions made upon the circulation. The only remote prospect of benefit here is to inject, by means of the stomach syringe, some alcoholic stimulant to induce a condition which may justify a trial of other remedies; and cases of this kind have occurred, wherein ultimate success has resulted from such mode of practice. Half a pint of brandy or whisky and gruel may be given, at two-hour intervals, until three doses have been taken, when, should no reaction supervene, all other means are useless. After the first stage has passed and sensation is departed, the bladder, insensible to its accumulating contents, fails to act upon and expel them, until relaxation of its neck, in common with that of other sphincters, takes place, either from death or extension of disease to the true

spinal system. This must always be attended to, and early evacuated by the catheter, for an accumulation of urea in the system is alone sufficient to cause cerebral disease.

Any farther treatment—which can only consist in modifications of that already stated—will depend entirely upon circumstances. If we once succeed in rousing the almost defunct powers of nature, and producing action of the bowels, the disease is arrested, the ganglionic functions are resumed, milk is secreted, and recovery takes place with astonishing rapidity.

A gradual return of cerebral functions, and true spinal ones also —should they have been impaired—quickly follows action of the bowels. The eyes become sensible to light—breathing is more regular and less noisy—the pulse acquires a firmer and more regular beat—the head is elevated voluntarily, and the power of deglutition is restored. In no disease does the transition from a state of utter helplessness to one of comparative recovery so soon occur, all, sometimes, taking place under twelve hours.

Although amendment may progress favourably, food should not be offered until the animal, by keenly looking out, betrays a want to partake. Gruel may then be given if she will drink; otherwise it is better withheld.

Recovery sometimes takes place, with the exception of paralysis remaining in one or more extremities, or it may be confined to beneath the knees or hocks. Our treatment here, when the constitution permits, must consist of external stimulants to the limbs, or that part of the spinal cord whence its nerves arise, or to both. An internal administration of such medicines as are likely to cause absorption of the irritating substance, as iodine, mercury, cordial aperients, is the best way to treat such cases. The constitution should be well supported with liberal allowances of good food, and, if apparently resulting from debility, strychnia may be tried.

In concluding these remarks, my apologies for their length and imperfection, with the infringement upon your valuable time thereby occasioned, are such as I trust will gain your indulgence, being simply these,—the importance of my subject, the conflicting statements respecting the disease, and an almost entire silence of recorded veterinary opinion.

I cannot agree with those who suppose the disease primarily one of debility. That the symptoms ultimately assume such a character depends upon causes which I trust to have explained, together with the reasons why I would administer stimulants in an affection apparently forbidding them. Cattle even under inflammatory diseases are, with little harm, or occasionally with none, treated with stimulating or aromatic purgatives. The beneficial action of stimulants on cattle is known to every practitioner. And

in what does their utility consist? I conceive that cattle are disposed to take on diseases of a low typhoid character from their great vascularity of system. Disease of all kinds places the system less under the influence of vital and more under those of chemical action. In proportion to the vascularity of a part is its liability to decomposition or chemical action, which, unless counterbalanced by stimulus from the vital one, often preponderates, and death results.

Differences of opinion in matters of detail are, nevertheless, inevitable; a mutual and friendly statement whereof, with due respect to the sentiments of others, and without too much preconceived bias, is one of the most effectual means of arriving at truth.

THE VETERINARY ART IN INDIA.

By J. GRELLIER, *Esq., M.R.C.S.*

[Continued from page 454.]

DISEASES OF THE PHARYNX, STOMACH, AND INTESTINES.

THE mouth and pharynx, or upper orifice of the passage leading to the stomach, are frequently inflamed, and this is first discovered by the horse's masticating his food, and dropping it out, the parts being too sore to admit his swallowing. On examining his mouth, the posterior parts, towards the root of the tongue, will appear inflamed, and frequently covered with small white spots or ulcers: in other points the animal will be scarcely affected.

The parts may be washed with the following three or four times a-day:—

Take of Tincture of myrrh, four parts,
Brown sugar, two parts,
Vinegar, six parts. Mix, &c.

A feather dipped in this gargle may be introduced into the mouth, or be injected from a syringe.

If the animal is in condition, three or four quarts of blood may be taken away, and a dose of physic administered as recommended in the last chapter. His clothes should be rather increased, and his situation such as not to admit any current of air, as it is frequently the effect of cold.

The insensible coat lining the upper part of the stomach has generally a number of small worms, called bots, attached to it. Mr. Coleman thinks, as they are so universally found in healthy sub-

jects, that they are not prejudicial, but, perhaps, assist the insensible membrane to reduce the contents of the stomach to a pulp, in the same manner as the gizzard of fowls. When, however, they are too numerous, they produce loss of appetite and general atrophy and decay. A particular case of this kind occurred at the Veterinary College.

A horse had been a long time falling off, and every effort to relieve him proved useless. The animal at length died and was opened. In his stomach an immense number of these worms were found: some had made their way through the coats into the cavity of the abdomen, while others had inserted themselves so deep as to be scarcely perceptible. There could, of course, be no doubt as to the cause of his death.

The mode by which these worms inhabit the stomach is accounted for in an ingenious manner. In the summer the horse-fly deposits its eggs on the hairs of the animal's coat, which he bites, and they mix with his saliva, and pass into his stomach, where the heat brings them forth. Their conversion again into flies has also been observed. They have two small sharp angular claws towards the posterior part of their body, by which they adhere very tightly to the insensible membrane.

They cannot be detached by any form of medicine, even when the subject is dead. I am, therefore, fearful we can recommend nothing in cases of their being troublesome. Many severe stimulants have been used without affecting them; and what renders their expulsion or destruction the more difficult is their being confined to the insensible membrane only, which, lining the upper part of the stomach, cannot be much influenced by any medical application. When, however, they are voided, a dose of physic will accelerate their expulsion, for I believe there is a season when they drop off and others accumulate.

Note.—There is a peculiarity in the horse's bowels which exists in few other quadrupeds. The whole abdominal viscera in most animals is covered by the omentum or caul, which is first observed when the abdomen is opened: this membrane scarcely exists in the horse.

Diseases of the Intestines.

Inflammation is frequently the effect of too violent purgatives. Sometimes it proceeds from an acrid accumulation in the intestines, particularly in the contracted part of the colon; it also arises from other natural causes.

Great caution is required in order to distinguish this disease from the spasm or gripes, which in their symptoms very much

resemble it, though they are complaints of a very opposite nature, and require different modes of treatment.

When the intestines are inflamed, the animal throws himself down and rolls on his back, strikes at his belly with his legs and gets up and lies down repeatedly, seeking various postures for relief. The extremities are cold, and his pulse will beat very hard and quick, sometimes nearly doubling its healthy and natural state. As it is of much consequence to ascertain the positive existence of this disease from spasm, I would strongly recommend the most minute attention to the two following points: first, in the spasm the animal, when he rolls on his back, will endeavour to retain that position; whereas, in inflammation, he barely rolls on his back, continually shifting, without the least effort to retain himself there. The next existing difference is the strong quick pulse when the intestines are inflamed; while in the spasm it is scarcely affected, unless the spasm continues so long as to produce inflammation, in which case the pulse must rise; but I should imagine that an inflammation arising from spasm must be attended with inevitable destruction to the animal.

I have frequently observed that great pains are taken to prevent the animal from lying or rolling about in these diseases, a precaution I think perfectly useless, unless when we wish to administer the remedies.

The inflammation being ascertained, six or seven quarts of blood should be immediately taken from a large orifice. All hard food should be avoided, nothing but congee or gruel being given to him: ligatures may be made round his legs to detain the blood in the extremities, and frictions with stimulants should also be employed; rowels may be opened under his chest, abdomen, and the inside of his thighs; and the whole surface of the belly may be blistered. Three or four gallons of warm water should be injected, which will foment the parts, and evacuate the, perhaps, acrid fæces. All other evacuants should be particularly avoided, and his clothing should be increased.

All these remedies should be employed as soon as the disease is discovered, as it generally proves very rapidly fatal; and if the pain and inflammation do not abate in eight or ten hours, five or six quarts of blood may be again taken away, repeating all the above remedies. If a warm bath could possibly be procured, it would, perhaps, afford a very ample mode of relief. This should be kept at every receptacle for sick horses, as its use may be much extended. It might also be occasionally a cold bath, and its construction such as to be neither expensive nor troublesome to use.

If an inflammation proceeds from the use of too violent purgatives (which may be known by most of the above symptoms im-

mediately succeeding the medicine), starch clysters would be preferable to warm water; and if he is violently purged, a drachm of opium may be dissolved in each clyster, and fifteen or twenty grains of opium may be given him in his congee every three or four hours, as the bowels are so irritable that a common dose of opium would be attended with danger. It should be, therefore, administered in small doses, with short intervals, by which mode the superabundant irritability will be worn away or allayed. If the physic has not operated, the opium should not be used, but the animal may be gently walked about.

If, however, the inflammation should not abate in thirty or forty hours, the pain will, perhaps, cease, and he will appear somewhat relieved. This opinion may be fallacious, as the inflammation will probably be passing to a state of gangrene and mortification, which is soon observed by the flanks heaving short and quick, and the pulse sinking. These symptoms are the forerunners of death.

There is another kind of inflammation which I have seen in England, and which very frequently occurs in this country.

Cavalry horses encamped in England, in some measure, resemble horses at their picquets. In England, when in this situation, they have been known to eat large quantities of earth. Mr. Coleman mentions his seeing a cart-horse discharge upwards of twenty pounds of sand. It will sometimes accumulate in the bowels, and form a large stone, which, from its bulk, will produce inflammation. It will be obvious that inflammation arising from this cause must be very opposite to the last, as the intestines are there contracted, and warm emollient injections are employed to soften the acrimony. In the present case, the cause must also be removed, which will require strong purgatives; a very opposite treatment to that recommended in the former case. This disease very frequently occurs in this country, from the animals eating their grass unwashed. Whenever this is suspected, or sand or gravel observed in his fæces, a purge should be given.

[To be continued.]

EFFECTS OF MEDICINE ON HORSES.

By Mr. WM. PERCIVALL.

PURE OR CAUSTIC BARYTES—OXYDE OF BARIUM.

[Continued from page 277.]

CASE VII.—The apparent success attending its administration in Cases III and V, inspired me with a great desire to exhibit barytes in a form unmodified by any combination; and from that circumstance more likely—as I imagined—to turn out more efficacious. I at first procured what was called *the pure barytes* from the chemist, enclosed in air-tight bottles: finding it, however, expensive (3s. 6d. per ounce), and, from some differences observable in its operation, doubting in some instances its purity, I at length essayed to prepare it for myself, and ultimately succeeded completely to my mind.

About this time, 1818, Col. Quist, then in great celebrity as superintendent of the riding department of the Ordnance, at Woolwich, possessed an old* white horse, a great favourite in his school, that had for some two or three weeks been ailing, and had been treated for his complaints by the Colonel himself. Finding, however, that affairs grew worse instead of better, he at length consulted my father concerning the old horse.

July 18*th.*—An albuminous, purulent, gluey discharge, having an offensive odour, issues from the near nostril; purulent matter is also visible upon the *septum nasi*, with such appearances altogether as to lead to the belief that—although no ulcers are apparent—some exist in situations higher up, where they cannot be seen. The submaxillary gland of the same side is swollen, and hard to the feel; the opposite side of the head free from discharge; no farcy; the animal's appetite and spirits are good; and his condition to all appearance healthy. Let him take half a scruple of the pure barytes the moment after it is made into a ball.

19*th.*—Let his dose be doubled.

23*d.*—The scruple dose has been administered daily without any discoverable effect. Let him commence to-day taking it morning and evening, his appetite continuing very good. In the course of the day there has come on suddenly a profuse discharge of purulent matter, mingled in part with blood, from the diseased side of the nose, attended with a great deal of stench.

31*st.*—There has been some occasional slight failures of the appetite, but not sufficient to induce me to suspend the medicine.

* Said to have seen twenty-five summers.

There has also been for the last day or two some appearances of discharge issuing from the other nostril; and this morning the flux is as abundant from one side as the other, and its offensiveness continues.

August 4th.—Has failed in his appetite, and in the evening threw out blood again from his nose.

5th.—This morning, early, I was called to him for being "griped." I found him expressing a great deal of anxiety and pain, pawing occasionally, and from time to time casting woful looks at his flank. I ordered him a sedative (laudanum) draught; and had it repeated at intervals of two hours. It relieved him temporarily. At half past eleven o'clock, A.M., however, he died.

Post-mortem.—More marked signs of inflammation in the mucous linings of the intestines than in that of the stomach. Lungs in a state of tuberculous disease throughout their substance. The near proved the only side of the head affected with the disease, which, from the first, was evidently glanders. The near frontal sinus exhibited a great deal of ulceration, and contained a fœtid purulent matter of the same character as what had run from the nose. Within the maxillary sinus was found a considerable effusion of lymph floating in the contained purulent matter. From such an inveterate case as this I could not have expected any good result, even had not the medicine proved fatal; and, therefore, I still entertained the same desire to give the barytes in its pure form a fair trial.

CASE VIII.—In order that the experiment might be of a kind the least subject to objection, a horse, healthy in every respect save lameness from navicular disease, and but seven years old, was made the subject of it. He was accordingly inoculated for glanders with matter which I had taken great pains myself to procure from Cow Cross, taking it from a horse standing for slaughter in the yard, whose disease—glanders—appeared of the most acute and malignant description. The inoculation was performed inside the near nostril on the 11th of September 1818. On the 14th there was some oozing from the nostril, and the submaxillary gland upon the same side was swollen. On the 15th, ulceration appeared upon the near side of the *septum nasi*, and there was more discharge.

16th.—There now exist two large unhealthy-looking ulcerations upon the inferior portion of the septum nasi, accompanied with a flux confined to that (the near) side of muco-purulent matter, adhering in places about the external *nares*. The gland has increased in magnitude since yesterday; and there has risen up a cord of swollen lymphatics, about as large as one's wrist, running from the gland along the submaxillary space. Let him commence taking

a scruple of the pure barytes, daily. Neither his spirits nor his appetite have undergone any visible impairment.

18*th.*—No perceptible alteration. Give the ball twice a-day.

19*th.*—Baryt. pur. ʒiss, morning and evening: the ulcerations growing very deep and unhealthy. This augmented dose was given about 10 o'clock, A.M. At 1 o'clock, P.M. symptoms evincing pain in the bowels made their appearance. The animal frequently lay down and rolled, and threw himself about, and then broke out into a profuse perspiration; the commotion having come on immediately after drinking about a quart of cold water. A draught of a pint and a half of common vinegar, to which some laudanum was added, gave immediate relief.

21*st.*—My patient being to appearances quite recovered of his bowel attack, this morning he resumed his medicine in the dose of a scruple.

22*d.*—Farcy has attacked the near side of the face. It has proceeded from the cord of tumefied lymphatics which was observed and recorded on the 16th. This progress of disease induces me to venture on the exhibition of the ball thrice a-day.

25*th.*—Dose augmented to gr. xxv, thrice a-day.

27*th and* 28*th.*—Gr. xxx, thrice a-day.

Conceiving that the barytes—although administered as soon as made with meal and treacle into ball—must have its medicinal virtues more or less diminished, I had it inclosed in paper tubes, and thus inserted into the middle of the balls, without any chance, prior to administration, of its coming into contact with moisture.

Oct. 11*th.*—The balls, containing the paper tubes filled with the thirty grains of barytes, have been regularly administered since last report, and the result to-day is, that great amendment is visible. The farcical and corded submaxillary tumefactions have disappeared; and there is evident healing action going on in the ulcerations upon the septum.

18*th.*—Ulcerations no longer exist in the nose: they are all healed, the *cicatrices* indicating the places they occupied alone remaining. A farcy bud which had broken upon the side of the face has likewise healed up, without having had any dressing whatever. For the last three days the ball has been given but once daily.

26*th.*—Since the 19th ult., our stock of pure barytes having on that day been exhausted, the horse has been taking the chloride of barytes in a state of solution, mixed with his water. He is now—has been, in fact, since last report—perfectly recovered.

CASE IX.—Too much flattered by the result of the experiment made in Case VIII, and some other fortunate terminations, I commissioned a person to make a purchase for me of the first glandered horse he saw in Smithfield market likely to afford me a fair chance

of recovery. Accordingly, on the 11th of June, 1819, I had a mare sent me from London, standing sixteen hands high, about eight or nine years old, and in very tolerable condition, at a cost of £4..10*s*. Her general aspect is that of healthy working condition; her coat lies smooth upon her, and her spirits and appetite both appear unimpaired. A plentiful flux of straw-coloured seropurulent matter is issuing from her off nostril, and within the corresponding chamber upon the septum are discoverable three foul ragged ulcerations. The submaxillary gland of the same side of the head has become considerably enlarged, and it is so tender to pressure that the mare flinches when it is merely felt with the fingers. The enlargement is not fixed to the side of the jaw-bone, but to the fingers, imparts the sensation of consisting of lobules, and depends a little below the margin of the jaw. Her near hind leg is also swollen from the hock down to the hoof. The swelling has a hard feel, and when it is compressed with the fingers she catches the limb up as if the pressure, though but slight, occasioned pain. I examined the groin, but could detect no swelling there, and yet she seems to dislike—perhaps from natural ticklishness—to have it handled. There is certainly some appearance like a corded lymphatic just above the hock, upon the inner side, and this circumstance would induce me to look upon the tumefaction altegether as farcy: still there is in my mind a doubt.

June 13*th*.—Let her commence with a scruple of barytes morning and evening.

16*th*.—She has regularly taken her ball twice a-day, and has been exercised daily. For we found that while standing in her box her hind leg increased in size, and the swelling ran upwards more. To-day the ball is to be administered thrice.

21*st*.—At times we feel inclined to think she has experienced some amendment: the following day, however, serves, commonly, to dissipate all such too fond imaginations. Since her appetite continues very good, and she manifests no evidence of the medicine taking any effect upon her, let her now take a dose of a scruple and a half, but only *twice* a-day.

24*th*.—Let her take her augmented dose thrice a-day.

30*th*.—Since the last report the nasal discharge has been diminishing, and the ulcerations have put on a less unwholesome aspect. The limb, also, has been decreasing in size: to-day, however, there is evident remission of the symptoms, and, therefore, I augment the dose to a drachm, and give it thrice a-day.

July 7*th*.—Our barytes obtained from the druggist's is thought to have lost its virtues. The remainder of our stock is consequently returned to be exchanged for another—fresher—preparation. In the mean time I prescribe the chloride, to be mixed with her water.

10*th.*—Having received a fresh supply of the caustic barytes, half-a-drachm is prescribed to be given morning and evening.

19*th.*—Since the 12th, the drachm dose has been repeated in the evening. To-day the doses are doubled. The ulcerations one day appear cleaner, another almost as foul as ever—the limb is remaining much *in statu quo.*

23*d.*—The dose this morning consisted of the last four drachms of our stock of barytes. No sensible effect has been taken by the medicine; nor has it proved anywise beneficial as concerns the disease. Here, therefore, our experiment with the pure barytes may be said to end.

Not knowing what to do with the mare, confirmedly glandered as she is—not liking to send her away for slaughter—I determined on destroying her, if possible, with some carbonate of barytes I still had in my pharmacy.

24*th.*—Accordingly, I commenced giving her two drachms of the carbonate this day, repeating the dose in the evening.

26*th.*—Three drachms morning and evening.

27*th.*—Four drachms morning and evening—Disease spreading within the nose.

28*th.*—Five drachms, morning and evening.

29*th*, 30*th*—Six drachms, morning and evening.

31*st.*—One ounce of the carbonate twice a-day: her appetite continues good.

Aug. 1*st.*—Nine drachms, morning and evening.

2*d.*—Ten drachms, morning and evening. She falls away, I think, in her condition; yet she feeds and looks well.

8*th.*—A drachm has been added daily to every dose of her medicine. She has seemed all along unaffected by it. Being forced to go to London, and not returning until the 10th of the month, I found she had died quite suddenly the day before.

Post-mortem.—The disease proved the genuine chronic form of glanders: the membrane lining the sinuses of the head and nasal chambers exhibited the true miliary ulceration. There also existed ulceration of the cartilages of the larynx. The lungs contained tubercles.

THE VETERINARIAN, AUGUST 1, 1844.

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

A List of Pupils who have obtained their Diplomas.

May 29*th.*

— Fisher	C. Barker
J. K. Lord	T. Sharman
W. Garrard	A. Howarth.
W. S. Harris	

June 5*th.*

A. R. Swaine	W. H. Cauldwell
E. F. Wilkinson	W. Edmundson
G. Collier	T. Philips.
T. Williamson	

June 12*th.*

W. R. Gough	G. E. Donaldson.
J. W. Rowell	

June 19*th.*

L. Till	J. Slack
G. Tegg	H. Wheeler.
S. Goddard	

June 26*th.*

G. W. Fagg	F. W. Moss.
T. Simcocks	

THE CHARTER.

We feel called on, as public journalists, to devote our leading article to the consideration of certain proceedings which have taken place with reference to this highly valued boon of our gracious Sovereign—proceedings of the character of which we will not at present venture to trust ourselves to speak, and on which we would fain have held our peace, did we not consider it our duty to make so much communication of them to our readers, away from any chance of hearing of them, as is, at the moment we are writing, no longer a secret among the metropolitan veterinarians.

On the 12th ultimo, our excellent President, Mr. Thos. Turner, received a letter, with two enclosures, from the Secretary of State, announcing that petitions had just reached him from the Governors, Subscribers, and Trustees of the Institution, known by the name of the Royal Veterinary College, containing allegations directed against the Charter recently granted by the Queen to the veterinary profession, to which he was desirous of drawing the attention of the President, and from him desired to learn upon what foundation the said allegations rested. So strange and unexpected an announcement caused the President without loss of time to summon the Council; the members whereof, up to the time we are writing, have held two meetings, at the latter of which a reply was agreed upon, *nem. con.*, and directed to be forthwith forwarded to the Secretary of State.

Who or what could have wrought such hostile feelings in the minds of the Governors of our *Alma Mater*, we do not ourselves profess, in the present stage of the affair, for certain to know; and, therefore, our readers must, until August be passed, excuse our silence on this topic. We are ready to confess rumours have reached our ears in explanation of the origin of the dissatisfaction, and we incline to the opinion, from their general concurrence, that such rumours are well founded; notwithstanding this, however, so long as any doubt of their truth exists, we had rather—and it may be policy so to do—defer the publication of them for another month.

In respect to the allegations contained in the petition of the College Governors, which is signed by Professor Sewell on their behalf, they are founded upon alleged alterations of the draft of the Charter, tending to the prejudice and disparagement of the Veterinary College, to have been made after it had been shewn and approved by Mr. France, the solicitor to the said College, and in this affair the *agent* and representative of the Professors and Governors thereof. To this grave charge the reply of the Council contains a complete refutation; proving, by a plain and honest statement of every circumstance and transaction connected with the case, that *but one alteration*, and that a trivial and unimportant one, was suggested by Mr. France, and that that was, in fact, *the only one* that was made after his perusal and approval of the Charter: it further adds, that this statement, if required, will be attested by oath.

REVIEW.

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

On Calculous Concretions in the Horse, Ox, Sheep and Dog. By Professor W. J. T. Morton, *Lecturer on Medical Chemistry and Veterinary Materia Medica at the London Veterinary College.*

We have great pleasure in directing the attention of our readers to this new proof of the zeal and talent of our friend, Professor Morton. The subject of calculous concretions is an important one, as involving the interests of our patients, our employers, and ourselves. The field is a perfectly novel one, and admirably treated. We shall again and again have recourse to it.

We particularly direct the attention of our readers to the following history of calculi in sheep, by Mr. W. C. Crabbe :—

Four years ago, says he, when living at Plumstead, in Norfolk, several instances of vesical calculi in sheep fell under my notice.

They occurred in a flock of about twenty-three score sheep, and of these animals I had the charge. In the winter of 1839, the flock was divided into what in Norfolk are called heads and tails, or such as were fit to fatten, and such as yet needed time and keep to bring them into fattening condition. The poorer sort, constituting about eleven score, were sent to grass, and to these nothing deserving of notice happened. Such as were kept at home to fatten were fed in folds on mangel-wurzel and hay, oil cake, brank meal, or buck-wheat and white peas, being allowed no water. On this food they became nearly fit for the butcher by the spring, when a few of them were observed to be ailing.

The symptoms exhibited were restlessness—frequently getting up and lying down again—repeated and strained efforts to urinate, when but a small quantity of fluid was voided—impaired appetite—disinclination to defend themselves, rather putting up with an injury than attempting to repel it; and a solitary disposition evinced by their lying apart from the remainder of the flock. I could perceive no decided symptoms of any known disease, neither could the shepherd recognize any usual complaint.

He bled them from the facial vein; but on a more careful examination we remarked that the abdomen was considerably enlarged. All the symptoms above related were observed to be

most violent during the night-time, and, one of them being worse than usual on a particular night, I had him slaughtered on the following morning, it being our custom never to subject to medical treatment an animal that was fit for the knife. On opening the carcass we found a serous fluid effused between the skin and the fasciæ of the abdominal muscles—the abdominal cavity was not dropsical; but the bladder was highly inflamed, and distended almost to bursting.

When the bladder was examined, it was found to contain several—I should suppose eight or ten—soft calcareous masses, which, on being pressed between the fingers, yielded readily. These concretions varied in size from a pin's head to a pea; and, on laying open the urethra, the lining membrane was seen to be inflamed, and the channel—in places—stopped by more than one of these concretions, that had evidently escaped from the bladder. Unfortunately no examination was made of the kidneys, as the carcass was intended for the market.

After this others were similarly affected, and, the symptoms becoming urgent, they were also destroyed. The bodies exhibited the like appearances, and in all of them it was remarked that the distress was most perceptible during the night, while in the day-time they were only distinguished from the remainder of the flock by being dull and restless.

During this time no change was made in the manner of feeding, and I was compelled to have ten or twelve destroyed before my employer called in Mr. Wells, of Norwich. Mr. Crosse, surgeon, at Norwich, was also present, and assisted Mr. Wells in the examination. By their advice, the remainder of the flock was exercised, and placed on a more limited diet. The first object was readily accomplished by driving them to a pond of clear water, and the second by withholding the brank meal and white peas from them. It was their opinion that the sheep were so highly fed, that they had become lethargic, and too lazy to void their urine, which, by accumulating in the bladder, favoured the deposition of much calcareous matter. After the above change was made in the diet and exercise, only two sheep were slaughtered, and the rest remained unaffected.

Mr. Morton, who is always eager to ascertain the real bearing of every point, communicated with Mr. Crosse on the subject that colicky pains were present, accompanied by irritative fever, great difficulty in voiding the urine, and loss of appetite. A post-mortem examination shewed extensive disease of the mucous coat of the bladder, and, that coat containing a considerable number of calcareous bodies, varying from the size of a millet seed to that of a large pea. They were sparkling in their appearance, but unat-

tached either to the coats of the bladder or each other. Mr. Crosse favours the idea of their being formed in the kidneys and not in the bladder, an opinion with which Mr. Morton was disposed to coincide.

Veterinary Jurisprudence.

MALICIOUSLY WOUNDING A HORSE.

GEORGE JEANS was indicted for maliciously wounding and maiming a horse.

Mr. Bevan conducted the case for the prosecution, and Mr. Edwards defended the prisoner.

It was given in evidence that the prisoner, on the 26th of March, had gone to Sherborne with a waggon and four horses belonging to his master, the prosecutor. The horses were all sound when the prisoner left. In consequence of what the prosecutor heard on the following day, he examined one of these horses, and found part of its tongue gone. The prisoner came to him that afternoon, and said he hoped his master did not think that he had tried to injure the horse, and he ultimately went down on his knees, and said he hoped his master would forgive him and not proceed against him. The prosecutor replied he did not know, but he thought he should be obliged to prosecute.

Another witness, a boy, stated that he was on the road, near Sherborne, that afternoon, and saw the prisoner riding a black horse; that the horse was very restive, and threw the prisoner, and dragged him along the road, his feet becoming entangled in the harness. When the prisoner recovered his legs, he jumped up and caught hold of the horse by the tongue, and pulled it out and flung it in the horse's face. The horse then ran away, and the prisoner went on with the waggon. The boy went to the spot where this had occurred and picked up the tongue, which was still warm.

The veterinary surgeon stated that he had examined the horse, and found four or five inches of the tongue gone. He admitted it was impossible any one could pull the tongue off; but that he thought it had been cut off by its being drawn across a tooth which he found excessively sharp in the horse's mouth. The horse had now completely recovered; he was not aware that the animal was any the worse; or the only thing would be, that he could not eat corn quite so rapidly as his companions.

Mr. Edwards contended that it was not a case to go to the jury. The evidence shewed no wounding under the count for wounding, inasmuch as the prisoner had used no instrument, and that it had

been held that an injury was not a wounding unless inflicted by some instrument, so that where a party bit off the finger of another, the judges decided that that was not a wounding under the statute, and the man was acquitted. He also contended that it was no maiming under the statute, for two reasons—first, in order to maim a horse it was necessary that an injury should be done to some member that was necessary for the horse's defence—that the tongue was not such a member, and therefore it was no maiming; and, secondly, it was proved that the horse was none the worse for the injury, and it had been decided that, in order to constitute a maiming, the injury must be a permanent one.

Mr. Bevan gave up the count for the wounding, but contended that it was a good count under the maiming; and he cited a case where it had been decided that pouring vitriol into a horse's eyes was a maiming under the statute.

Mr. Justice Whiteman, having consulted Mr. Justice Patteson, decided that the objection with regard to maiming was not good; but the second objection was fatal, there being no permanent injury.

The prisoner was therefore acquitted.

Times, Monday, July 22*d.*

We confess that we do not at all understand this strange special pleading.—Y.

THE DISTEMPER IN CATTLE.

By the Right Honourable the EARL OF ESSEX.

I CANNOT resist giving a receipt for the treatment of beasts that may take the prevalent distemper. It shewed itself last winter in one of my yard stock, by its discharging abundant saliva from the mouth, with sore and inflamed tongue and gums—very dull—no appetite—confined bowels—and very hot horns. I desired the bailiff to give him one half-pint of the spirit of turpentine with one pint of linseed oil, repeating the oil in twenty-four hours, and again repeating it according to the state of the evacuations. At the end of twenty-four hours more, the bowels not having been well moved, I repeated both the turpentine and oil.

In two days the beast shewed symptoms of amendment, and in three or four took to his food again, and did perfectly well. All the yard beasts and two of the fattening beasts have had it. Five others I had sent to London before the disease appeared, and all have been treated in the same manner with perfect success. Half-a-pint of turpentine is the smallest and one pint the largest dose during three or four days. Little food beside oatmeal gruel was given.

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GLANDERS.

By WILLIAM PERCIVALL, *M.R.C.S., Veterinary Surgeon First Life Guards.*

Definition.—GLANDERS consists in a discharge, from one or both nostrils, of matter which by transfer or inoculation will produce the disease in another animal (of the equine or human species), and which discharge is, sooner or later, accompanied by vascular injection and chancrous ulceration of the Schneiderian membrane, by tumefaction of the submaxillary lymphatic glands, and by farcy.

SYMPTOMS OF GLANDERS.

Discharge from the nose, enlargement of the submaxillary lymphatic glands, vascular injection or inflammation of the membrane lining the nose and different sinuses of the head, thickening, ulceration of it, mortification, exfoliation of the septal cartilage and turbinated bones, constitute the local and characteristic symptoms of glanders: they may be, and occasionally are, all present; commonly but two of them make their appearance in the incipient stages of the sub-acute and chronic forms of the disease, which two, or even one without the other, may be sufficient to constitute a case of glanders.

CONSTITUTIONAL DISORDER, either to a degree to attract the notice of those who look after the animal, or so slight as to be detectible by the professional attendant alone, invariably attends or ushers in an attack of glanders. There may or may not be palpable depression of spirits, and disinclination or indifference for food; there will be, more or less, discoverable indications of fever, such as increase of pulse, heat and dryness of mouth, heavy and watery appearance of the eyes, roughness and opacity of the coat. The horse may not be thought or called "amiss" by the groom, and yet the veterinary surgeon finds in

him evident signs of indisposition. A great many years ago, an old and much-respected professional friend of mine, Mr. Berrington, formerly veterinary surgeon to the staff corps of cavalry, and late of the cavalry depôt at Maidstone, drew my attention to this premonitory or accompanying disorder of the first stage of glanders; and subsequent observation not only confirmed in my mind the truth of his practical remark, that few or no cases commenced without it, but likewise convinced me that even those cases of sub-acute disease which appeared completely to regain their health and spirits, were not, on closer examination, left altogether free from this febrile state of system. In general, after the first stage is passed, as soon as the discharges from the nose have become established, the animal rallies from any indisposition he may have shewn, recovers his spirits and appetite, and, to the common observer, appears as well as ever. This manifestation of recovery has led unprofessional persons to suppose that, were it not for "the running at the nose," and "the kernels," there would be little or nothing the matter with the horse: in all other respects he is regarded as being in sound and good health, and to such persons as have not seen him during the attack of the glanders, or whose observation has not been sufficient to enable them to detect any difference in him at that time, he has never appeared otherwise than in his usual state of health: hence the prevalence of the common notion, that glandered horses can do work the same as others; and, indeed, such is for a time the trifling constitutional derangement occasioned by the disease that they, in reality, are capable of work—though, still, not of the severest kind—so long as the disease in the head continues in the sub-acute or chronic form, and the lungs hold their integrity. The preservation of their condition, and the good looks glandered horses for a time maintain, it is also that, when artful means are taken to conceal the nasal discharge and the tumours under the throat, enable sharpers to dispose of them as sound horses. In fine, one of the characteristic symptoms of the disease, in certain stages, is the unaffected good spirits and condition, and feelings of health, the animal manifestly enjoys.

LEBLANC confirms the foregoing observations. "I have uniformly observed," says he, "that horses exposed to causes considered as productive of glanders have exhibited some symptoms of general functional disorder prior to the manifestation of the malady;" adding, that "horses that become glandered and farcied *without* this premonitory disorder, *derive the disease from contagion.*" Should this latter remark prove well founded, it might turn out one of some value to us: I fear, however, it is one unconfirmed by experience.

DISCHARGE FROM THE NOSE, though the symptom which commonly first attracts notice, is not the first in the order of appearance of the local symptoms, it being often, I believe generally, preceded by the tumefaction of the glands underneath the throat. At its commencement, the discharge is scanty and limpid, amounting to nothing beyond a little aqueous or serous fluid, trickling or dropping, commonly from one nostril only, but without intermission. The next day, or the day after, this watery discharge mostly appears streaked or intermingled with ropes of mucus; and in a day or two after it will probably have become altogether mucous in its nature, and now glairy in its aspect, after which it gradually assumes a tinge of yellow, from the admixture with the mucus of albuminous matters, the aqueous discharge now diminishing, but not altogether ceasing. From this, which may be regarded as the *incipient* or *first stage of glanders*, the ordinary course of the disease is into

THE SECOND OR ULCERATIVE STAGE. From being aqueous or aqueo-mucous, with little or no show of purulent matter, the discharge by degrees acquires consistence, turns of a straw colour, exhibits true purulent characters, and soon flows in abundance, there remaining, however, still more or less aqueous stream mingled along with it. In time, this augmented flux, shewing less of the aqueous admixture, becomes thicker, less disposed to run off, acquires tenacity, and begins to cling about the hairs fringing the nostrils. At length, it becomes converted into a truly viscous flux, possessing glutinous properties of that remarkable kind that, like birdlime or glue, it sticks, firmly adheres to the hair of the nostril, collecting and concreting within the *cornu* or fold of the *ala nasi*, and clogging, and more or less obstructing, the aperture, and in this manner occasioning impediment to the breathing, generating a noise in the passage of the air very similar to that called the mucous or bronchial *râle*, and which to the ear of the experienced practitioner is a sound so peculiarly characteristic of the state the patient is in, that, the moment he hears it, he too well knows the nature of the case he is about to inspect. Indeed, with this glutinous flux in any considerable quantity, such is the foul state outwardly and the obstructed condition inwardly of the nasal passages, in consequence of the adhesion and retention of the discharges, that when even but one nostril is affected the inconvenience caused to respiration is much felt; when both, however, are in the same foul and obstructed condition, there exists, at the times that the accumulation of matter becomes great, danger even of suffocation. Also now, or before this, according to the source and nature of the discharges, will be observed, what was not perceptible in the first stage nor perhaps in the beginning of the

second, *fetor;* and that of so peculiarly an offensive nature that often it, of itself, is sufficient to enable the veterinarian to pronounce on the case. Yellow, purulent, viscous, or glutinous discharges betoken either the acute or sub-acute form of glanders: in cases in which the disease, losing activity, degenerates into a chronic stage, the flux may continue from the first of a glairy or aqueo-mucous character, or it may turn like that of a nasal gleet, looking like so much whitening and water, and in that condition is not infrequently seen grumous. On the other hand, when the disease runs its regular course in a longer or shorter space of time, according to varieties in it which I shall hereafter point out, the nasal fluxes—changing with the havoc the ulceration is making, first, in the membrane, and secondly on the bones and cartilages—become of a most disgustingly offensive nature, and, in their hue, change from yellow to green, or to dirty brown or leaden colour; or exhibit streaks of blood; or bring away with them, every time the horse essays by blowing to clear his nose, masses of scab or exfoliated cartilage or bone; thus denoting that the disease has reached its final stage, and that partial suffocation and consequent constitutional irritation must shortly put an end to the distressed animal's sufferings. From this, which is the common succession of the discharges in acute and sub-acute cases, varieties in their appearance and quantity will occur, depending on the degree of the vascular or inflammatory action going on within the chambers of the nose—on the presence, extent, and depth of ulceration—on the medicinal treatment the patient may be subjected to, the regimen he is placed under, the atmosphere he is breathing, the exercise he is taking, &c. Bloody discharges, or rather blood tingeing the discharges, will, in the latter stages in particular, every now and then become apparent: when present, they augur either deep or extensive ulceration, or a disposition to ecchymosis, either from laxity of fibre, or some change in the condition of the blood; and their appearance is always inauspicious, though I never, myself, saw blood lost to any but trifling amount.

An Analysis of the Nasal Discharges has been made by Lassaigne. He finds them to consist of *albumen, mucus, sub-carbonate of soda, chloruret of sodium, calcareous phosphate* (trifling in quantity), and *water;* the water making the largest proportion. In the normal state, the secretion of the Schneiderian membrane contains the same matters, with the exception of the albumen, whose presence, in large proportion, keeps pretty nearly pace with the quantity of purulent matter. From this it would appear that the *gluey* or *glutinous discharges* owe their adhesive properties to the predominance of *albumen* in their composition: they may, the same as purulent matter, issue out of the

follicles of the membrane; though, in any considerable quantity, I believe they may invariably be regarded as the product of ulceration.

VASCULAR INJECTION or INFLAMMATION is observable in all acute and in certain stages of sub-acute cases, upon the surface of the Schneiderian membrane; though it is uncommon to see any intense degree of inflammation. This membrane, which in health and under repose of body is of a pale flesh-colour, under exercise of a vermilion hue, in a state of disease often displays patchy blushes upon its septal surface, having a peculiar shiny aspect, produced by the slimy or glairy secretion coating the surface; and we can generally perceive red vessels in places traversing its substance. Now and then, from the discharges adhering to it, the surface will present a patchiness of yellow intermingled with the shiny red. Should all signs of vascular action pass away, the disease, from an acute or a sub-acute running into a chronic form, the surface of the membrane will become pallid or acquire a leaden hue; the ulcers, should there be any, at the same time undergoing the same process of deflorescence.

The late Professor Coleman characterized the inflammation of glanders as *specific*. As regards its products, it certainly is so; at the same time there is nothing in its aspect, abstractedly as inflammation, which can lead one to pronounce it affected with *the inflammation of glanders*. Were it not for the discharges, and, more than them, for the ulceration, we should probably discover no difference between glanderous and common inflammation.

THICKENING is a change the inflamed membrane, from infiltration, quickly undergoes, and one that often continues advancing, even after all appearances of inflammation have vanished, so that in the end the membrane not only becomes greatly augmented in substance, but much altered in texture. These changes, hardly discoverable to the eye, from the small portion of membrane visible to us in the living animal, are exposed when we come to examine the head after death: we are then often astonished to find what a degree of thickness the membrane—in the nasal chambers, or in the sinuses, or in both—has attained through interstitial deposit or actual growth, something resembling the hypertrophic changes exhibited by the uterus and its membranes during the process of pregnancy. In some cases—in the sinuses especially, perhaps solely—such is the exuberance of the nutrient vessels of the membrane, that it sprouts or *granulates* upon the surface in some such manner as the conjunctive membrane of the eye—of man—is known to do in that peculiar human disease called *granular conjunctiva*. In cases in which the inflammatory

action has confined its attack to or expended its force principally on the sinuses of the head, we not infrequently find effusions of lymph upon the membrane lining them; and these often tend, as they lie upon the floors of the cavities, more or less to obstruct their outlets, and in this manner put a temporary or permanent arrest to the nasal discharges: hence one reason why a glandered horse ejects from his nose a great deal more matter at one time than at another.

ULCERATION is the symptom upon which we place the greatest reliance as denoting the presence of glanders. The simple circumstance of its appearance is enough to arouse the strongest suspicions; while that of its appearing in the form of *chancre* is conclusive. Scratch the Schneiderian membrane with a pin or a nail—or wound it in any ordinary way—and the result will be a sore of a common nature; bleeding at first, but, subsequently, without the generation of much pus, granulating, and so in the usual mode healing; but, introduce into this scratch *virus* taken from a glandered or farcied animal, and the result will be that, losing all disposition to heal, the sore will inflame and secrete an ichorous matter, and become converted into a transparent pustule, surrounded by an *areola* or circular blush upon the membrane. The next day the pustule has broken, and we perceive in the place of it, a pale, foul, superficial ulceration, which in the course of another day acquires the genuine characters of the glanderous chancre—an elevated, circular, pinkish border, including a base of dingy or faint yellow albuminous matter, which on being wiped or irritated commences bleeding, and, on being by force removed, exposes, when the ulcer is deep, the bare cartilage beneath; when superficial, a pale red, rugged, foul, bleeding bottom. From its tendency to spread, the ulcer speedily loses its circular figure, exchanging that for one too irregular and variable in shape to admit of any further characterization: it has, in fact, now become a foul spreading ulceration, extending on every side, coalescing with similar ulcerations in its vicinity, having for its base the cartilage of the *septum nasi*, which alone, from its comparative insusceptibility of the ulcerative action, puts a temporary arrest to its devouring activity. It is when the ulcers have eaten down to the substance of the cartilage, or when others that are situated high up in the *meatus* of the nose, out of sight, have laid bare the turbinated bones, and that the substance of the cartilage and bone becomes attacked by the disease, that mortification and sloughing or exfoliation of these parts takes place, they being too lowly vitalized to carry on the ulcerative process: at this time it is likewise that discharges, foul to a degree and fetid past bearing, of a dirty green, or brown, or blackish nature, are running in great profusion, bringing with them

sloughs of bone and cartilage, and clogging and obstructing the nasal passages to that degree, that the distressed animal, in the last and worst stage of glanders, may hourly expect to end his life of torment by an act of suffocation. I do not remember to have seen holes made *through* the septum nasi by ulceration*; but in such virulent forms of the disease as I have just described, it is not very uncommon to find the turbinated bones ulcerated through into the nasal sinus; and I have seen heads of glandered horses that have been next to destitute, on one or both sides, of any turbinated bones, they having been consumed through the ravages of the ulcerative and exfoliating processes.

MILIARY ULCERATION:—So is called an ulceration of the same membrane, differing altogether in its aspect and tendency from the true chancrous ulceration we have just been considering. With the miliary ulceration upon it, the surface of the membrane has the appearance—as nearly as I can describe it—of worm-eaten wood, every part of it appearing as though full of pin-holes. This ulceration is not seen in acute glanders, at least I never saw it; nor is it often found in the sub-acute disease; but is peculiar, I may I think say, to chronic glanders.

DUPUY, who has well described this species of glanders, characterizes these "little ulcerations" as the result of the "degeneration" of miliary tubercles; and represents them, truly, as having "thin edges, unevenly excavated, like pin-holes; with this difference, however, that the hole made by a pin would be deep and pointed, whereas these ulcerations are shallow and have thin edges. They are commonly regarded as erosions, sometimes mistaken for the dilated orifices of mucous follicles; though, if they be examined after the mucus in which they are sheathed has been removed, and the membrane has been cleansed with water, they will be found to be so many little ulcerations. The membrane of the septum is frequently covered with these exulcerations, with its surface, in places, elevated. They are, however, superficial, penetrating merely through some thin layers of the cellular tissue of the membrane, thereby rendering its surface irregular, uneven, and scabrous. They follow the course of the large veins upon the septum. They are found also grouped within the fold of the *ala nasi*, particularly on the left side, and upon the turbinated prominences and their appendices."

ENLARGEMENT OF THE SUBMAXILLARY LYMPHATIC GLANDS—*kernels* as they are called by grooms—*buboes*, as they might with strict pathological propriety be denominated, were they seated in the groin instead of underneath the jaw—

* This may arise from a process of deposition upon the opposite side.

is in general the earliest external indication we have of the approach of glanders. In cases of inoculation, swollen glands are perceptible on the third day, ulceration appearing on the fourth. These swellings owe their origin to the irritation created within the nose, the same as buboes are occasioned by irritation set up in the organs of generation; and in horses as well as in man the lymphatic glands may become tumefied from common as well as from specific irritation: a tight shoe may occasion a buboe in a man; and I have known common injuries, wounds about the nose or mouth, or in the limbs, occasion the same thing in horses, though in the latter the case is comparatively rare. At first, the submaxillary swelling in glanders is commonly small and round, isolated and moveable; or it may be that more glands than one are enlarged, and then the swelling will have a sort of lobulous as well as loose feel; now and then the tumefaction will be so great at first that we may suppose it to be an attack of strangles. I have known the swelling altogether to be of that magnitude that it has projected beneath the lower border of the under jaw: indeed, their magnitude may be said to vary, taking the extreme cases, from a horse-bean to a goose-egg. D'Arboval has well observed, in regard to these swellings, that "their smallness is never to be received as a proof that no glanders is present;" and he adds, "while their multiplicity, especially their successive development one after another, is ever a symptom for alarm." On their first development these swellings are in general painful to pressure, and particularly when their development has been quick, when they have in a short time grown to large size, evincing thereby activity in the disease: in cases, however, in which they have never acquired much magnitude, but remained single and stunted, or disinclined to enlarge, becoming firmer in substance and fixed in their situation, they possess but little feeling; indeed often in the course of time, the disease having become sub-acute or chronic, they acquire a scirrhous hardness, and almost total insensibility. When first found, as I said before, the tumour is often loose and moveable; as it acquires firmness, however, it acquires fixity, getting by degrees adherent to the side of the jaw, the tumefaction being confined to whichever side of the head the disease occupies. A swollen gland or mass of glands forming a tumour of this description is, perhaps, the most usual kind of submaxillary tumefaction in glanders: it is known by its isolated character, by its distinctly being the only tumour present, the skin being drawn tensely over it, and the surrounding space being perfectly clear from any tumefaction; lastly, by its close and immoveable adherence to the side of the jaw against which it lies. Should there be disease in both chambers of the nose, we shall have tumefied glands on both sides,

though it will rarely happen that both sets of glands will swell at one and the same time. While recent or susceptible of pain from compression, these tumours are apt to fluctuate in magnitude, being at one time large, at another comparatively small. In general, blisters and sometimes common stimulants will reduce them, though I have known the opposite effect produced. I do not remember seeing suppurative action produced in them; commonly, as I have before observed, they become hard, void of sensibility, and scirrhous in their nature, and so continue to the end. In reference to their variable character,

DUPUY makes the following observations on these glands:—"when the mucous membrane of the chambers of the nose is affected, the sublingual (submaxillary) glands become tumefied, and undergo some very variable changes. In succession, they grow in the same subject, swollen, firm, painful, and moveable. In a short time after this they become insensible, diminished in volume, and appear to resume their natural condition; then again, all on a sudden, they recommence swelling, and in the course of a few days grow larger than ever they have been."

TUMEFACTION OF THE ALA NASI is a frequent, not a constant symptom of glanders: when present, it is always highly characteristic of the acute disease. It is seen in virulent and malignant attacks, and especially when the disease has set in suddenly: it is seldom an accompaniment of the sub-acute forms of glanders, so long as they remain sub-acute, and is never seen in the chronic varieties. Should the tumefaction not accompany the onset of acute glanders, it is almost certain to come on during the latter stages, prior to dissolution. The swelling of the nostrils may arise from the intensity and spread of the inflammation in the interior of the nose: very often, however, it is obviously the result of an attack of farcy of the integuments clothing the nostrils, including frequently the upper lip as well; and in that case there will be tumefied or corded lymphatics perceptible upon the swollen parts, and very frequently traceable from them along the cheek to the border of the jaw, proceeding into the submaxillary glands. Pustules or farcy-buds will also appear, and break and become ulcers, seated occasionally within the fold of the *ala nasi*, the same as in other parts of the body. The tumefaction of the nostrils when combined—which it commonly is—with a profusion of gummy discharge, adds greatly to the embarrassment in the breathing. The partial closure of one nostril produces a good deal of inconvenience and annoyance: when this happens with both, the suffering and distress it occasions will be likely, as I before observed, to end in suffocation, unless relief in some way or other be afforded.

A CASE OF TRACHEOTOMY IN A BAY MARE.

By Mr. W. G. TAYLOR, *Nottingham.*

I BEG leave to transmit a case of tracheotomy for insertion in your veterinary journal. The subject of it is a bay mare, four years old, the property of a farmer residing ten miles from Nottingham, that was sent over for my inspection on the 3d of July 1844, and was then evidently labouring under a severe catarrh, attended with sore throat, &c.

My usual treatment in such cases is to insert a seton under the throat, and blister, &c.; but, as the owner was not present, I did not feel warranted in so doing without his approbation; I therefore prescribed a stimulating liniment to be applied to the throat twice a-day, and a ball composed of aloe Barbadensis, potassio antim. tart., potass. nitratis, &c. to be given once a-day; a regimen of green meat and linseed mashes; and, if not going on well, to let me know.

I heard nothing of my patient for a week or ten days, when, accidentally meeting with the owner, Mr. Baily, of Haywood Oaks, he reported her as not going on so well as he wished, and requested me to see her, which I accordingly did on the following day. On my arrival, I found her very much reduced in flesh—considerable discharge from both nostrils—bad cough—and an enlargement of the submaxillary glands, which I prognosticated would form matter before she was relieved. Regarding it as a common case of strangles, with the view of hastening the formation of matter, I blistered the throat. After the effect of the blister was gone off, I ordered my people to foment her with warm water, and to apply a poultice. Her appetite was not much affected, except by the difficulty she had in swallowing.

I simply prescribed a little common febrifuge medicine, promising to see her in three or four days, thinking that the abscess would form and break, and she would quickly recover.

I saw her again on the 16th; the owner was just sending off for me, as her breathing had become distressing. The abscess had broken and discharged a considerable quantity of matter, but there was still extensive tumefaction all around. Her nostrils were expanded to their utmost—her eyes staring—her countenance exceedingly anxious, shewing every symptom of suffocation—and roaring dreadfully. I enlarged the orifice considerably, but could not detect any fluctuation, though I suspected matter deeper seated. Not daring to leave her in this state until the following day, I at

once proposed tracheotomy, to which the owner immediately assented.

Having no instruments with me except a lancet, I was obliged to operate with a sharp penknife, which I accordingly did, cutting through the common integument, carefully dissecting between the sterno-maxillaris and sterno-thyroideus muscles, thus exposing the trachea; having done which, I waited until what little bleeding there was had subsided, and then opened the trachea, dividing three of the cartilaginous rings. She experienced instant relief, and all distressing symptoms vanished. My next consideration was, how to keep the orifice open. Many practitioners cut a small portion from two of the rings, so as to avoid destroying the elasticity of the air tube as little as possible: I, however, found my plan answer very well. I passed a suture through the integument on each side, and tied it at the back of the neck; I then passed two others through each end of one of the rings, which I tied in a like manner, thus effecting my purpose very well. I may offer a slight remark,—*experientia docet*,—that, in tying the suture in the trachea, I would do it so as to leave a loop of about half an inch in length, that might be easily cut with a pair of scissors when it was wished to remove them. As I did not do so, in consequence of the swelling which took place, I experienced a little difficulty in their removal.

In this state I left her until the following morning. She appeared in better spirits—the enlargement still increases in size, and eats no better. Support her with enemas of gruel, and let her have the same to drink.

17*th*.—In the course of the night an immense quantity of matter had been discharged, continually running out from the poultice, and she is decidedly in all respects better.

18*th*.—Breathes with no difficulty: when, therefore, we close the artificial opening, remove the sutures and dress the abscess underneath the jaw with common digestive ointment.

22*d*.—A slight degree of respiration takes place through the opening in the trachea—no difficulty in swallowing—appetite daily improving—very much inclined to rub her neck upon the edge of the manger, therefore have her head tied up.

August 7*th*.—The artificial opening perfectly healed, leaving a very slight cicatrix. Had daily walking exercise for the last week. Discharged from the sick list.

AN ACCOUNT OF A SINGULAR MORTALITY AMONG CATTLE.

By Mr. J. HOWELL, *V.S., Wickwar, near Wotton-under-Edge.*

I HAVE ventured to send to you the particulars of, to me, a new disease that has lately appeared amongst some cattle in this neighbourhood: and, as the mortality has hitherto been very great of those that have been attacked, I should be very much obliged to you if you would give me your opinion respecting the same, or in any way throw a light upon the nature and cause of it. I have also written to ask Mr. Simonds's opinion, but as yet have not received any answer.

Six weeks this day, I was requested to visit a farm-house six miles distant, for the purpose of examining a dead cow with two neighbouring practitioners, one of whom had been in attendance. The cow was supposed to have died from poison, two others having died the week previous, and five more being then ill.

The symptoms observable in those that were then ill, were a peculiar dulness—dimness of the eye—arched back—coat a little staring, and a disinclination to move: still they ruminated—the muzzle was moist—the dung soft. These were all the symptoms observable for perhaps eight or twelve hours, when there was a trembling of the muscles of the neck and shoulders, with a difficulty of breathing and slight enlargement of the throat—frequent lying down—placing of the nose on the left side, when they would stretch out and die without a struggle, perhaps within two hours after the trembling fit. Those that recovered did not appear to be seized so severely, neither was the trembling observed so strong in them.

The post-mortem appearances.—We observed, upon laying open the cavity of the abdomen, a slight redness of the peritoneum and omentum. Upon removing the intestines a quantity of bloody fluid was perceived in the cavity of the belly of a very dark colour. The stomachs were perfectly healthy, as also the liver. The only abnormal appearance was an enlargement of the spleen, which was four times its natural size, softened, and containing a quantity of very thick and dark-coloured blood, some of which was escaping from small ruptures on its concave surface. The heart and lungs were healthy, except that the lungs presented almost a white appearance; the brain was also normal, excepting a slight congestion of the plexus choroides. As the cows were supposed to be suffering from vegetable poison, I made a very careful examination of the

contents of the stomachs, but failed in detecting any thing of an injurious character.

The treatment that had been adopted consisted of bleeding, purging with Epsom salts, and, afterwards, half-pint doses of brandy in water. Three out of eight that were attacked died; also three pigs, supposed to have died from eating the blood.

This last week I have been called in to the adjoining farm to see the cows there, some of whom have died in a similar way, with this difference, that there appears to be more difficulty of breathing just before death, and the disease is more fatal, eight out of fourteen having already died. In some of them the disease cut them off in two hours after they were seen to be ill. I have examined most of them, and find them nearly all alike. I weighed the spleen of one. Its weight was 12¾ ℔s. The treatment I have adopted has been purging—a bleeding when the case has lingered a little, giving nit. antim. tart., &c. and, in two cases, I fancied with benefit, ℥j of the sp. ammon. com. every two hours. As a preventive, I have bled every head of cattle on the farm, giving to each Epsom salts ℔ss, sulph. sub. ℥iv, nitre ʒiv, zingiberis ʒij, &c. Two have been attacked since, but one of them recovered.

They are all milking cows, except one nineteen months old heifer. They have not been in good keep, for, owing to the shortness of keep this summer, cattle generally do not look so well as usual. They have not been changed from one part of the farm to another. Both farms are a poor clay soil, and no running stream on either; still the water has been pretty plentiful this summer, more so than on some farms.

The opinion I have given is, that the disease of the spleen is the cause of death: that it is brought on by the long-continued hot and dry summer, the blood having become vitiated in quality—congestion of the spleen following, and rupture, and death. I forgot to mention that the blood taken from a sick animal is very slow in coagulating, perhaps six or eight hours. If one is examined twelve hours after death, there is no coagulated blood found in the cavities of the heart, but of a semifluid and dark colour.

P.S.—Should you think that the importance of these cases demands an immediate insertion in THE VETERINARIAN, as a subscriber to that periodical, I will embody the whole for its appearance next month.

AN ACCOUNT OF THE TREATMENT OF SOME VALUABLE CATTLE.

By Mr. J. BARLOW, *Oak, near Manchester.*

IN writing on the present occasion, beside having the object in view of keeping alive a sincere feeling of respect for the uniform kindness I, with the other pupils, always received, there is a little matter or two whereupon I am desirous of some advice, and one case which I will shortly communicate, as serving to shew that my studies have not been quite in vain.

It is this:—On the 11th of May 1842, I was sent for by John Holland, Esq., of Mobberley, to see a valuable cow which had for three weeks previously been under the care of a noted cow-leech, who gave her up as incurable, on account of what my informant called cancer in the throat. From his statement of the case, I immediately recognised the affection to be what is called clyers in Scotland, though before attending in Edinburgh I never saw a case.

On seeing the animal she indeed presented a hopeless appearance. She was down, with the nose extended so as to breathe as freely as possible, which effort was accompanied by an exceedingly loud snore at each inspiration and expiration. The rumen was also much distended; but for a week the beast had only taken gruel, which was forced upon her. She rose with great difficulty, and the "cancer" was indeed an enormous one, presenting, on the near side, an enlargement equal in size to a child's head, and causing considerable protuberance on the contrary side. From the pressure on the larynx, the pomum adami seemed ready to cut through what now felt only a thin fold of tense skin, where it is usually slack and soft.

I told the owner that no chance of good was to be obtained, except in an attempt to remove the substance, which he agreed to; and detecting a point or two of fluctuation, which I opened, I left the animal, intending to remove it on the following day, as it was now dark.

About 10 A.M. on the 12th, I saw her again, somewhat relieved by the discharge in breathing. The rumen was still much distended, and, not liking to cast her in that state, I punctured it, leaving during the operation a canula in the opening secured by tapes round the body.

Having cast and secured her, I was afraid of suffocation; but the owner said, "Never mind; she might as well die here as any where else:" so I at once commenced with an incision at the root of the ear, and carried it down to the inferior part of the parotid

gland. Then, making another incision of about six inches long, and at right angles with its inferior extremity somewhat below the submaxillary branch of the jugular vein, I dissected back the two angles which this made, exposing the tumour pretty fully, and which appeared quite to occupy the parotid gland. Then again commencing superiorly, I endeavoured to dissect down to its base; but, the bleeding being rather profuse from the small parotideal arteries, superficial, auricular, and other veins, some of which had to be secured, I was delayed much, having no very efficient assistant: I however kept on securing vessels which required it, these being rather numerous, until the stylo maxillaris muscle was exposed, together with the membrane of the guttural cavity, from which I managed to detach the gland without piercing a large branch of the jugular. The temporal had to be tied, as also several arteries; but so disorganized were these parts, that I could scarcely recognise the usual vessels.

Continuing the dissection, and tying various bleeding trunks, venous and arterial, I shortly exposed the sterno maxillaris tendon and part of the submaxillary gland, which was not implicated in the disease. I had now detached the superior and posterior extremity, having only the inferior anterior part to remove, in doing which the submaxillary jugular branch was divided. A little portion of the gland covered by the jaw was not removed; a small strip also, extending from it superiorly, was left, as it appeared healthy: indeed, very little of the gland remained in any part, except just where the duct emerges, there being a determination on my part to kill or cure, the owner caring little which, though hardly expecting the latter.

We now let the beast up: she breathed much better, and walked pretty stoutly. During the operation she struggled much, and on several occasions roared out as well as she was able. She continued to bleed several hours, but not very rapidly; on seeing which, I left her for the present. On going to her on the following day, there was a large lump of jellied blood formed in the wound. Not liking to remove it, I merely ordered warm water to be squeezed out of a sponge upon the part: in two more days I removed the clot, and washed the parts gently; some bleeding followed, but it did not last long.

On the 16th she seemed much livelier. Her paunch during the preceding twenty-four hours had not swelled, and her breathing was tolerably free. I observed that the jugular vein would not again be pervious, and that a few small knots of gland might prove troublesome, as the salivary secretion appeared going on in them; I, however, determined to destroy them, and applied the actual cautery in the person of a red-hot poker. Still, however, I did

not meddle with the portion covered by the angle of the jaw, being in hope that the duct would be left entire, which I think must have been the case, as no inconvenience results from it to the present time.

The beast began to eat a little on the 18th, when suppuration first appeared. She has all along taken tonic medicine, sulph. ferri ʒss, gentian. rad. ʒj, which have been of great use.

There was now and then, from the time of operation until the 20th, some bleeding, but not to much extent; and, although suppuration was very tardy, the wound has since that time continued to mend.

The cow now appeared quite healthy, and no way the worse for being minus a jugular, and great part, if not all, of a parotid gland. There is, certainly, a little spare room where it used to be; but the owner says, if any one does not like that side, they must look at the other. I should have said that the substance removed was one ounce and a half short of four pounds. There is still a small wound at the angles of the incision, but it is fast growing up. The dressing has been a digestive liniment of turpentine and oil, with, now and then, a lotion of chloride of lime in solution, and occasionally a little nitric acid.

The beast was originally a very valuable one, both on account of her milk and breed, but just at the time of operation was a perfect skeleton. Her tucked-up belly and staring ribs, haunch bones, &c. formed a striking contrast with the other stock. This difference is now fast vanishing, as condition and flesh are rendering her almost as good-looking as ever, and her milk, ten quarts daily, amply repays all the trouble. This, together with the satisfaction resulting both to the owner and myself, renders it a case of no ordinary interest.

About three weeks ago, this same gentleman requested me to look at another beast, which he thought to be commencing a similar affection. The case, however, proves differently. These were, and indeed are now, the symptoms:—great and diffused enlargement about the head, principally referrible to the neighbourhood of venous trunks, as about the parotid gland, under and between the jaws, the face, &c.—total obstruction of both jugulars, the blood in them feeling congealed, and when pressure is made on any part of their course, as if for bleeding, there is no more turgescence than previously above the pressure, nor does the blood recede from below the seat of pressure towards the heart. The veins also of the breast, leg, foot, &c. on both sides are similarly circumstanced; but their course is clear and defined, not exhibiting any cellular infiltration as is present about those of the head: in fact, all the venous trunks which appear to communicate with the anterior

vena cava seemed affected. After a long day's pasture, the beast is much worse. There is difficulty of breathing, and suffused eyes and symptoms of cerebral disturbance mostly supervene. There is, when these symptoms are most intense, no pulse to be felt about the head or breast: except at the heart itself it is imperceptible at the humeral artery. Her milk is uniformly bloody, the urine occasionally so, and she habitually purges.

I have done little in the way of treatment. Once, at the owner's request, bleeding was attempted; but, although the jugular was cut down upon and opened with a scalpel, nothing but a half-coagulated brownish substance escaped. I may, however, mention, that the beast, subsequently to this attempt at blood-letting, was kept up some time, and in about six hours, the wound not being pinned, some ounces of semi-fluid blood escaped. She has been taking mercury with diuretics, which seem to have no other good effect than to render her milk less bloody.

There appears to me some obstruction in the anterior cava, but what I cannot divine. Lately there are several flabby unhealthy tumours formed in various parts of the head and neck, which, however, neither discharge nor heal, but, more than any thing, appear inclined to turn gangrenous. The owner seems to be getting tired of the beast, and, though I endeavour to persuade him otherwise, promising attendance, &c. gratis, I think he seems determined to sell her: still, it being a rare case, I thought I would mention it, as I should be glad of another opinion if mine does not appear the proper diagnosis.

I have also under care a mare which was hurt in consequence of the off hind leg doubling under her, the stifle and metatarsal bone coming in contact. The other leg was also bent, but not under the body, as was the case with this. The accident happened during copulation.

May 15*th*.—The mare walked home, a distance of eight miles, slightly lame for the first four miles, but excessively so during the latter part of her journey.

On the following day I was requested to see her. There was considerable enlargement at the point of the os calcis, extending several inches along the gastrocnemii tendons each way: the limb was almost straightened to relax them. When endeavouring to walk, the foot and limb generally were brought forward tolerably well; but when the foot was set down and made a fixed point, any farther efforts to flex the fetlock and pastern, or extend the hock, were powerless; yet if the attempt was, for instance, made more determinedly than usual, a kind of lateral jerk in the tendon gastrocnemius internus was manifest, accompanied sometimes with a sharp noise, yet scarcely heard. This led me to query whether the

attachments of the tendon to the os calcis were not ruptured, thus permitting a species of dislocation. There was also some appearance of what is termed curb.

My treatment consisted in well bathing the part for several days, almost constantly, with camphorated spt., solution of muriate of ammonia and water, and, also, various futile attempts to bandage.

The lameness did not mitigate during the first week, although absolute rest was observed. The lotion continued twice daily, and a dose or two of physic were given, yet the tenderness was somewhat less; the curb had a good deal subsided, also the swelling generally. The white liniment used at the College was now adopted for a length of time—perhaps a fortnight—with the addition of an ounce and a half of tinct. of cantharides to six of the liniment; and she has now the second blister on, but the lameness is still great. Would it be advisable to continue the blisters, or apply the iron in addition? I am not aware of any other treatment likely to be of service.

I must now conclude, having, I think, inflicted a fair exercise of patience in the reading of this; but knowing the interest felt for the welfare of us all by the gentleman I address, no apology has been made on my part.

I am, with sincere respect, &c.

Reply to this Communication by PROFESSOR DICK.

I GIVE you great credit for the bold and successful operation you have performed on the cow you mention. In performing it, you would find the advantage of your knowledge of anatomy, upon a minute acquaintance with which, I have often said, must depend, in a great degree, the future reputation either of a surgeon or veterinary surgeon.

The other case of the cow is a very rare and curious one: I think it is one of phlebitis, affecting all or most of the branches connected with the anterior vena cava, very probably, as you suggest, depending upon some decided irritation about that vessel; not unlikely the action of some foreign body, such as wire or needle, or some of those bodies which so frequently make their way to injure the heart, and destroy life. A disease of the same kind sometimes attacks women who are much employed in a standing position, washer-women for example, and in whom tumours form, and ulcers break out about the joints, somewhat of the character you describe, as shewing themselves about the cow's head. Although the veins are inflamed and their coats thickened,

and probably a layer of lymph lining their arterial coats, I do not think they are completely obstructed, but that the canal only is diminished; and although you were unable to draw blood even with a scalpel, I would still hold to this opinion, because there is a strong tendency in the blood of cattle to coagulate. In many instances I have no doubt you have found a difficulty in abstracting blood, especially from cows, even when, on first opening the vein, the blood has flowed with considerable freedom; and this difficulty you must have found arising from that tendency to coagulation: and, for the same reason, the blood of cattle, especially cows, does not shew the buffy coat so readily as that of horses.

As to the mare's case, I have no doubt the ligamentous attachment of the gastrocnemius internus to the point of the os calcis has been ruptured; and you will find, when the inflammation and swelling have sufficiently subsided, that the tendon now passes down obliquely on the outside of the os calcis: it will there form a kind of groove for itself, and attachments will take place, so as to keep all right, and the mare in that way will become sound. I have seen several cases of that kind, and in one instance a black mare had this tendon in both hocks displaced, and with such slight alteration of structure in the surrounding parts, that I was inclined to think, in her case, it must have been a congenital malformation. It is surprising to see how completely the thickening produced by the inflammation subsides after the inflammation has been subdued. I shall be able to shew you a case of the kind in a mare belonging to Mr. Miller, near Portobello, when you return. Blisters with rest will effect a cure, but firing will be fully as efficacious.

Your's truly,

WILLIAM DICK.

CASE OF SCARLATINA OR PURPURA HÆMORRHAGICA, ACCOMPANIED BY GENERAL TUMEFACTION.

By Mr. J. WOODGER.

HAVING, during the last spring and early part of this summer, been called upon to treat numerous cases of the above kind, I take the opportunity of forwarding the present one for insertion in your valuable journal.

June 16*th.*—6 o'clock P.M., I was called to attend a fine bay horse, five years old, belonging to the Hammersmith Conveyance Company.

Symptoms.—Pulse 70 : respiration hurried, ears and extremities warm, Schneiderian and conjunctival membranes injected, accompanied with rigors and loss of appetite.

Treatment.—I drew blood to the amount of 7lbs, administered a laxative draught, had him placed in a well ventilated box, and left him for the night.

17*th.*—Pulse 65 : respiration less hurried, appetite bad ; enormous swellings of the thighs, so that their insides were in contact with each other : they were of a serous character, pitting on pressure. It was with extreme difficulty that he was made to move in his box. I inserted a rowel in each thigh, which was followed by the escape of a large quantity of serum ; administered fever medicine, and ordered him bran-mashes and green meat.

18*th.*—Pulse 60 : respiration nearly tranquil, bowels relaxed, and moves better in his box ; appetite returning ; ordered him to have a little walking exercise.

19*th.*—Symptoms nearly the same as yesterday : repeat fever medicine, and continue his exercise : appetite improving.

20*th.*—Swelling in the thighs much reduced ; but it had moved to the under part of the belly, which was considerably swollen. Scarified the belly, and applied warm fomentations; gave him a little aperient and diuretic medicine combined. Continue exercise.

21*st.*—Swelling in the thighs and abdomen less; but it had now attacked the lips and nostrils to that extent, that it greatly impeded respiration. Small red spots observable on the nasal membrane ; appetite bad. Scarified his lips and nostrils, and had his head confined in a nose-bag of warm bran. Gave him tonics with diuretics.

22*d.*—Swellings much less, patient improving. I ordered him to be turned into a little paddock close by, by day, and brought to his box by night. Repeat medicine as yesterday ; appetite improving. I ordered him a little corn night and morning, as there was much debility present.

23*d.*—Patient improving, swellings subsiding, red spots on the nasal membranes less observable. Repeat medicine and corn as yesterday.

24*th.*—Patient still improving, swellings less, and appetite good. Repeat medicine.

25*th.*—New swellings appearing on different parts of the sides about the size of a man's hand ; appetite not so good : scarify the swellings, and apply warm fomentations. Gave a little aperient medicine.

26*th.*—Bowels slightly relaxed, swelling less, appetite better than yesterday : red spots upon the nasal membrane less observable. Give tonics with diuretics.

27*th*.—An evident improvement, swellings gradually subsiding, appetite good: repeat medicine and corn, with a little green meat.

28*th*.—Appetite good and gradually improving—swellings subsiding: gradually improving up to July 1st, when I considered my patient to be convalescent; but there was still much debility present. I have seen him several times since, and he appears to be doing well, and gaining his former strength.

Being a constant reader of your journal, I find that similar cases to the above have engaged the attention of other practitioners; and, there being a difference in opinion as to the true nature of the disease, I am induced to trespass upon the kindness of some of your friends for an opinion on the subject.

VETERINARY SCIENCE.

The following Statement was presented by PROFESSOR SEWELL, *at a late Meeting of the Royal Agricultural Society.*

1. *New Epidemic.*—PROFESSOR SEWELL reported to the Council upon a letter referred to him at a former meeting, received from Mr. James Dixon, of White Moss-farm, Cheshire. In that communication Mr. Dixon stated, that until he had adopted the treatment of bleeding his cows immediately on their being attacked with the prevailing disease (termed the "New Epidemic"), he lost several; but none had died since he had put that measure into operation. He urges at the same time, in the most strenuous manner, that particular care and caution are required to keep a continual watch over the animals, and apply the remedy at the very instant that the symptoms of the disorder make their appearance, as on this promptness depends all the value of the measure. As soon as the symptoms are perceived, he recommends bleeding without delay. Professor Sewell informed the Council that this was the practice he had himself been in the habit of recommending; and he believed that the losses which had been sustained by the owners of animals from this complaint had arisen more from want of close attention to their condition, and to the first changes in them from health to disease, than from any other cause; and he accordingly took that opportunity of earnestly recommending Mr. Dixon's watchful care over his stock to all other farmers in general. The first principal step of bleeding having been taken in due time, Professor Sewell would recommend the

administration of the usual laxative medicines, and the application of external stimulants, to be left to the judgment of the nearest practitioner.

2. *Diseases of Domestic Animals.*—Professor Sewell then reported, that, the examination at the Royal Veterinary College being concluded for the session, ninety-three pupils had received diplomas; several of whom had also obtained certificates as having attended the lectures and practice on cattle, sheep, and other domestic animals; in which branch of their profession he thought their services to the farmer would be better secured by Agricultural Associations and Farmers' Clubs in the country engaging them, at fixed moderate salaries, to settle in localities where they are most likely to be required. This plan had been adopted with great success on the continent, but it was there effected as a government measure, and had become a long-established law.

3. *Rabid Animals.*—Professor Sewell informed the Council, that, keeping in view the object of the Society's connexion with the Veterinary College, he had decided on devoting the period of his professional recess during the present autumn to a practical inquiry into the most successful means by which the virus of rabid animals may be counteracted, and the fearful results of hydrophobia obviated. He accordingly requested the co-operation of the members in carrying out this inquiry, and would himself willingly pay every expense connected with the sending up to the College, from any part of the country, of such sheep, lambs, or calves, as may unfortunately have been bitten by rabid dogs during the late hot weather, or should become liable to a similar infliction at any future time. He mentioned small ruminating animals only, as being more easily managed when labouring under the worst or most violent symptoms of the disease, than horses, cows, or bullocks, which under such circumstances are not only almost unmanageable, but highly dangerous; and when such were intended to be sent to him, he would feel favoured by a previous notice by letter. The animals thus requested might be conveyed in the ordinary railway trucks or cars, or sent by canal boats. By the latter mode, Professor Sewell had received a heifer from Worcester a few years ago: sheep and lambs have been sent in covered carts; but the most rapid conveyance is preferable. A sheep or two might be put into crates used for earthenware, and the expense of engaging an entire car be thus obviated, while the animals would be less annoying to the railway agents. Should the disease commence on the journey, the animals should be tied by the legs, and be well littered with straw. Net muzzles might be worn, or sent along with the animals in order to be in readiness. Professor Sewell has however, never had any fear of rabies being produced by the bite

of any animals but those of a carnivorous kind, including swine as such. Of all the numerous cases of canine madness he had seen in horses and other animals, he had not observed a single instance in which they were unable or unwilling to drink water freely. He had always found the disease commence (with a single exception) from the third to the sixth week after the bite had been inflicted. If, therefore, it should not manifest itself in the stock sent to him by that time, he would return the animals to their respective owners free of expense. In conclusion, the Professor submitted to the inspection of the Council a series of highly interesting coloured drawings, exhibiting the morbid results on the brain, nerves, and other anatomical structures of the animals which had died from the ravages of hydrophobia; and he trusted that his request might not be considered an irregular one, as he was anxious to effect an immediate communication with the members, and to lose as little time as possible in obtaining objects for his intended research.

THE VETERINARIAN, SEPTEMBER 1, 1844.

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

The trial concerning the age of a horse that ran at Ascot races in June last, under the name of Bloodstone, and came in first for the New Stakes,—an abstract of which, taken from the report of it in the daily papers, will be found transferred into our Number for the present month,—cannot be regarded either by the sporting or veterinary worlds in any less point of view than as saving the one from a farther downfal than it has already sustained, to which it appeared inevitably doomed had fraud and falsehood prevailed over truth and justice; the other from having its reputation for possessing any knowledge of age blasted, had cunning or ignorance prevailed over science and experience. The 6th of August, 1844, must, indeed, be chronicled in our annals as a day of triumph—ay! indeed, should be celebrated as a day of signal triumph by every man interested in maintaining the integrity of the turf, the

validity of the veterinary art. Had not the attestation of facts, together with the production of a record of them made at the time of their occurrence, and by parties whose credit in matters of that kind stood high, have convinced the jury of the unrighteousness of the cause of the plaintiff, the whole weight of the case must have descended upon the shoulders of the veterinary gentlemen engaged on the side of the defence; but whether, arrayed in their professional coats of mail, carefully woven as those coats have been by the hands of science, and worked doubly strong by the hands of experience, these gentlemen would, to an un-equestrian jury, have been able to exhibit the face of Nature in its true light,—to demonstrate to them that the vital operations, although not carried on precisely alike in any two individuals, are, for all that, unerring in their results, and on no occasions so deviating as to lead us astray in our calculations of age by *a whole year*,—I repeat, unless all this could have been satisfactorily proved to the minds of twelve persons, perhaps not one among them a *horse*-man, lower the reputation of the British turf must have sunk, as nothing could have been regarded as the opinions about horses' ages of veterinary surgeons. We will not say the phalanx of veterinary talent the defendant secured on the occasion out of the metropolis could not have sustained this heavy *onus probandi*,—we well know they would have manfully fought under the pressure of it; we will, however, congratulate both them and ourselves, that there was no need of putting their backs to the trial. The fate of the day was turned by the evidence and Book of Entry of the Messrs. Gibson; and, to crown all, at the very nick of time up came Messrs. Field and Parry* with their reserve of professional aid, and thus was victory surely and gloriously achieved.

The cases of Running Rein and Bloodstone were substantially—nay, circumstantially and strikingly—similar: in both, the horses

* Of the six veterinary surgeons subpœnaed by the defendant, viz. Messrs. Field, Parry, Percivall, Siddall, Spooner, and Turner, only the first two were called to give evidence, they having seen the colt at Ascot the day after he won his race, and pronounced him *then* three years old. Had there been need, however, of any further professional evidence, the other four gentlemen were quite ready unhesitatingly to declare that the colt possessed a fully formed three-year-old mouth.

were represented to be older by a year than they in truth were : in both, the signs afforded by the teeth—to say nothing about any other —belied those representations. Had either cause been lost, the defeat must have cast a murky shadow over professional opinions concerning age, which, in the present generation at least, would hardly have been dispelled by any remonstrances, however cogent, on our part. We, as veterinary surgeons professing to tell the ages of horses, must have "hid our diminished heads," and have shrunk from the obloquy of not being able to distinguish a two-year from a three-year-old colt, or a three from a four-year old. Each time age became a question, we should have had tauntingly cast in our teeth the remembrances of the cases Bloodstone and Running Rein.

The mouth of the so-called Bloodstone presented four permanent incisor teeth, all fully developed, and even exhibiting upon their faces marks of attrition ; likewise prominences over the lateral (temporary) teeth, shewing that the lateral permanent ones were nearly at hand ; and, moreover, had tushes in the upper jaw prominent underneath the buccal membrane, with tushes perceptible enough to the feeling (likewise, of course, sub-membranous) in the nether jaw ; added to which, he was known and acknowledged to have been foaled on the 26th of April ; and yet, forsooth, on the 6th of August, presenting a mouth such as we have described, the colt was pronounced—*sworn—not to have attained his third year !* Even had additional proofs been wanting, Nature, true to her purpose, had still provided them. The first and second molar teeth were become permanent; and it was manifest to every one at all conversant with horses, that the form and furnishing of the body were altogether that of a *three* not of a two-year-old.

In the face of all this natural development, furnishing indications that have on no previous occasion been known to deceive us to the extent of a whole year, and with a knowledge before the parties of the month in which the foal was dropped—both the feigned and the real Bloodstone having been foaled in the month of April—it has given us pain to read such contradiction in the professional evidence. How a colt dropped in April can in the month of August be pronounced to be "thirty months old," is reasoning we cannot understand ; and as for his being but *two* years old, no person ever yet saw a two-year-old with such a mouth as the so-called Blood-

stone possessed. Fie, fie on its professors! for attempting to sap the foundations of veterinary science after this manner. No fear, however:—the groundwork is Nature's laying; and the structure thereon erected is far too firm and substantial to be shaken by side puffs of wind such as these. P.

THE BLOODSTONE CASE.

Herbert *v.* Day.

Mr. Platt, before the jury had been sworn, stated that the horse which was the subject of this action was in the town; and as it might save time, he would suggest that the jury should go and see it before the trial was commenced.

Mr. Baron Parke thought it would be well that such a course should be adopted. It was a very reasonable proposition.

The jury were then sworn, and went to the stable where the colt was.

Mr. Platt having previously submitted that it might be advisable that they should examine Old England, the colt to which the stakes were given, which was also in the town,

Mr. Baron Parke.—Certainly; and they ought to take two (veterinary?) surgeons also with them.

Mr. Sergeant Channell, Mr. Petersdorff, and Mr. Lush, conducted the case for the plaintiff; and Mr. Platt, Mr. Sergeant Shea, and Mr. Willes, appeared for the defendant.

The jury having returned,

Mr. Lush opened the pleadings, and stated that this was an issue directed under the Interpleader Act by the Court of Queen's Bench, to try whether a certain colt that had come in the first at the last Ascot races had been foaled in 1842, and was a foal by Bubastes out of Romaike.

Mr. Sergeant Channell, in stating the facts of the case to the jury, said that the plaintiff was a solicitor at Northleach, near Cheltenham, and the defendant was a trainer of horses. The plaintiff was the owner of a colt called Bloodstone, and the defendant claimed to be the owner of another colt named Old England. These two colts had both run for the "New Stakes" at the last Ascot races, on the 6th of June. Bloodstone came in first, and, in

the ordinary course of matters, was entitled to the stakes; but the defendant, as the owner of the second horse, raised an objection as to its age. * * * * * * After the race, the stakes were claimed by the defendant as well as by the plaintiff, and therefore the stakeholder, with a view to his own protection, had applied to the Court of Queen's Bench, under a power given him by the act of parliament; and the Court under that act—the Interpleader Act—directed that the parties claiming should be made the litigant persons, and that the issues to be tried should be, whether the colt Bloodstone was born in 1842, and had been got by Bubastes out of Romaike. The jury, consequently, would have three points to determine—first, whether this colt was born in 1842; secondly, whether its sire was Bubastes; and, thirdly, whether its dam had been the mare Romaike. These were the three questions they would have to determine, and it was upon those points that it would become his duty to satisfy them, and, if he did so, then he should be fully entitled to their verdict. * * * * * * He, in fact, undertook to prove that the case as he had detailed its circumstances was correct, and that the colt Bloodstone was not over age, but was fully entitled to the stakes of this particular race. If he did this, he must again express a hope that the jury would not allow any *theoretical* (query *professional?*) opinions which might be brought forward on behalf of the defendant to operate upon their minds as against positive proof of facts. Sufficient, then, was it for him to say, that he was in a position to prove the case as he had detailed it, and, having done so, then he could entertain no fear for the result;—the verdict would be for the plaintiff.

The following comprises the professional evidence adduced:—

Mr. Coleman.—I am a veterinary surgeon, and have been in business for twenty years: I carry on my business at Cheam, in Surrey. In my judgment the appearance of the mouth of a two or three-year-old is not an infallible rule to ascertain the age; but I think you can generally tell the age. It is difficult to decide between an early two-year-old and a late three-year-old colt. If

an early three-year-old was taken care of, and fed with cows' milk and corn, as well as being suckled by his dam, it would make considerable difference in its growth and general appearance. There was an appearance of laceration in the gums, where the tushes would be expected. The training and the manner in which a horse was bitted would make a great difference in the appearance of the colt's mouth, and keeping the bit in the mouth would be likely to remove the temporary teeth much earlier. In my opinion the horse now at Guildford is thirty months old, and, if I had been called upon to examine him professionally, I should have given a certificate to that effect.

Cross-examined.—I was at the last Epsom races when Running Rein won the Derby. I do not know whether I gelded a colt by the Saddler out of Mal, but possibly I might. I am not aware that Running Rein was described as a colt by Saddler out of Mal. He was so described, but I knew nothing about it; but I know that the horse that did run was an entire horse. I did not give any information to the stewards, because I knew nothing of the matter. I castrated a bay colt for Mr. Goodman, or Mr. Levi Goodman.

Cross-examination continued.—I did not know of a horse called Gladiator, but I may have seen him at Epsom. If I had to give a certificate of the age of Bloodstone, I should say he was about thirty months old.

Mr. Brown, a veterinary surgeon at Warwick, confirmed the evidence given by the last witness, relative to the effect the bitting a young horse would be likely to have upon the teeth. He said that he examined the horse Bloodstone at Rockley, and he considered he was a two-year-old; and, according to racing rules, he would be considered a two-year-old in January last. I have examined the mouth of Old England, the second horse, and, although his teeth are not so forward as those of Bloodstone, I have no doubt they were both two years old. Old England is certainly a two-year-old.

Cross-examined.—I do not think there is any certain rule to tell the age of such young horses. If a horse is entered to run as a two-year-old, I consider he is a two-year-old, especially if he belongs to a respectable person. That is not the reason why I

say that Bloodstone is a two-year-old. Bloodstone has got four permanent teeth; but I do not think that is a proof that he is a three-year-old horse.

Mr. Bradshaw deposed that he was a veterinary surgeon, and carried on business at Stratford-upon-Avon. He saw Bloodstone run the race at Ascot, and he examined him on the 21st and 22d of June. He did not consider the mouth of a horse a certain criterion of his age; but, in his opinion, the horse was a two-year-old. The mouth of a race-horse develops itself much sooner than that of another horse, on account of the mode of feeding and treating him. He had examined Bloodstone and Old England at Guildford, and was satisfied they were both two-year-olds; but Bloodstone was six months forwarder than Old England.

Cross-examined.—Bloodstone has not got any of his molar teeth. If a horse is foaled in April or May, his racing age is calculated from the January preceding, so that he should consider Bloodstone to be now two years old, and a little more; and he would be considered a two-year-old until January 1845.

Baron Parke.—The issue is, whether he was foaled in 1842: any part of the year will do.

Mr. Platt.—Exactly so, my lord.

Mr. W. Brian, another veterinary surgeon, deposed that he examined Bloodstone yesterday at Guildford, and, according to the best of his judgment, he was two years old. He did not consider the appearance of the mouth a certain proof of the age of a horse; and witness had been mistaken on some occasions with regard to the ages of horses that he had examined.

Cross-examined.—He was of opinion that a horse being well fed would make his teeth grow faster.

Henry Bell rode Bloodstone at Ascot. Before the race I saw Mr. J. Newman, and he told me to ride him a quarter of a mile and then pull him up, for he would not have him win on no account. I told this before the race to Captain Rous and Colonel Wyndham's training-grooms, and consulted them what to do; and they told me to win [*a laugh*]. I did win [*renewed laughter*]. I had no difficulty to win. I won in a canter [*laughter*].

Cross-examined.—I believe the horse had fell lame on the day before. I was riding him a gallop at the time. A mare named

Carissing ran with me, but I don't know whether she hurt herself.

Mr. Platt.—Did she gallop with you the day before?

Witness.—Yes.

Mr Platt.—Did she beat you in your gallop the day before?

Witness.—Yes, by sufferance [*roars of laughter*].

Mr. Platt.—Were many persons present when she beat you?

Witness.—Not many.

Mr. Platt.—Enough, I suppose, to take the news home?

Witness.—Yes [*laughter*].

Lord Stradbroke.—I am one of the stewards of Ascot races, and was present when Bloodstone beat Old England. A complaint was made that Bloodstone was more than two years old, and the stewards sent for Mr. Field, veterinary surgeon, from London, and another gentleman named Parry from Reading. When Mr. Field examined the horse, he immediately pronounced him to be three years old, and gave a certificate to that effect. Mr. Parry gave a similar certificate.

Mr. John Field.—I am a veterinary surgeon, and have been in practice twenty-four years. I examined Bloodstone at Ascot. He was a three-year-old horse. I have no doubt of the fact. I have seen the horse since, and there is nothing to alter my opinion.

The jury here intimated that they were quite satisfied.

Mr. Sergeant Channell intimated his desire to reply.

Mr. Platt.—We have plenty of more evidence.

Another veterinary surgeon was then examined, and he likewise expressed a positive opinion that Bloodstone was a three-year-old horse.

The jury then said they were perfectly agreed upon finding for the defendant.

Mr. Baron Parke.—I have seen, gentlemen, that you were of that opinion long ago, and I think that you could come to no other conclusion.

Mr. Sergeant Channell then said, that after the opinion expressed by his Lordship, and what had fallen from the jury, he should not feel himself justified in proceeding farther with the case, but he claimed the privilege of making a few observations in justification of the plaintiff. He should have made some remarks with reference to

the identity of the animal sent to Mr. Gibson's with the mare Romaike, because he must confess he was not quite so well satisfied with that evidence as the jury appeared to be; and if that identity was not proved, the defendant's case had completely failed. After the strong opinion expressed by the jury, however, he would refrain from making any observations upon the evidence that had been adduced; and he would only observe, in justification of the conduct of Mr. Herbert, that there was nothing whatever to shew that he had not fairly and honestly bought the horse with all his engagements, believing him to be a two-year-old, and that there was no imputation whatever upon Mr. Herbert's character. He was quite sure that he never would have been a party to the present proceeding, if he had not believed that those who had given him the information upon which he relied were persons of integrity.

The foreman of the jury said they were of opinion that Mr. Herbert might have been deceived.

Mr. Platt.—We believe that to be the case. It is very probable that he knew nothing of the fraud alleged against the other parties.

Mr. Baron Parke expressed his opinion that the jury could come to no other conclusion than the one they had determined upon. The history of the case probably was, that it was the small miserable colt which died, and the other was put in its place.

The jury then returned a verdict for the defendant.

LONGEVITY OF THE HORSE.

THERE is at present in the possession of a worthy farmer in the Upper Ward of Lanarkshire a horse which has completed his 30th year. We understand that he is a cross between a Clydesdale stallion and a small highland pony; yet, notwithstanding the diminutive size of his dam, he has attained the height of upwards of sixteen hands. He was foaled in the possession, and has ever remained the property of, the present owner, and numerous are the incidents of stirring interest in the life of "Donald," as he is called, in commemoration of his Highland ancestry. When first put into yoke he was a downright "blastie," with strength far beyond his years, with almost unequalled action, and, gifted as he was with seeing sights and visions by the wayside, the greatest precaution

being ever necessary on the part of his driver. He was also headstrong and stiffnecked to an overpowering degree, so that curbs and bits were of little avail when the Highland blood was once fairly roused in his veins. Fortunately, however, with his indomitable spirit, he was free from all vice; and although he generally exhibited a dislike to the meddling of strangers, yet his temper, upon the whole, was gentle and quiet. In the prime of life he was truly a noble and valuable animal. His high curved neck, his glaring eye, and gaping nostrils, shewed the fire of his nature, while his strong and willing shoulder never yielded to the load, however heavy. His strength was never fully ascertained, because the heavier the load, the easier he appeared to drag it, and he never seemed more oppressed than when drawing an empty cart. His speed in the yoke, too, was altogether unequalled in that locality. He had one or two rivals, but never met with an equal; and on all occasions where large assemblies of horses and carts took place, he, as if conscious of his own superiority, found his way to the lead; and, when once there, few ever attempted and none ever managed to pass him. Time meanwhile stole on with silent steps, and long after age had whitened his once dappled sides and tamed his fiery spirit, and transformed him into the sober, steady, milk-white steed, he was still in family conversation called "the grey colt." All the fatigues of his long life never affected him so much as did his removal to a neighbouring farm, the one where he was bred and had remained for a period of twenty years. Although surrounded with familiar faces and well-known objects, still he could not be at rest in his new abode; it seemed to him not his home, and many an anxious look he cast towards his former residence. Even now, after a lapse of ten years, he has not forgotten the roads which led to his old, though he is now in a measure reconciled to his new, dwelling. Notwithstanding all his adventures during a period of thirty years, he is still sound in wind and limb, and free from every ailment; and although the frailties of age have undoubtedly crept upon him, he is still able for a fair day's work; and, give him the lead of twenty horses, few, if any, will pass him. What he has lost in speed he has gained in cunning, and, should they over-match him in the former, he will over-reach them in the latter, by slily shouldering them into the ditch. "Donald's" meritorious labours have gained for him a liberal allowance during life. He is now spending his days in comparative ease; his tether reaches more than half way across the "hained rig," and, when his yoke-fellows get a full cog, his is always heaped. He has seen many sad changes in his master's family, but we believe nothing but death will ever separate him and them. Many happy scenes, like green spots on memory's wastes, are recalled when we think on "Donald's" young days.—*Glasgow Chronicle.*

HYDROPHOBIA AND ITS PREVENTION.

Mr. SNOW read a paper on hydrophobia, from a gentleman in the country, in whose neighbourhood several persons had been bitten by a rabid dog, and three of them had become affected with hydrophobia, at the respective periods of four, six, and eight weeks after they were bitten. Only one of the cases was detailed. The chief symptom was great susceptibility to the impression of cold air, which excited violent spasms. The patient, a woman, was able to swallow warm drinks, but nothing cold; and she died on the fifth day of the disease. The author of the paper proposed the use of a strong solution of corrosive sublimate, as a prophylatic for the bitten part. He recommended its constant application to the wound for a considerable period, and thought that it would neutralise the poison, either in the wound or afterwards, by being absorbed along with it. Mr. Snow then gave some account of a German work on hydrophobia, by Dr. Santer, who used a solution of caustic potash, of the strength of half a drachm to two ounces of water, to wash the wound, and he said he had not found it fail as a preventive. He considered hydrophobia to be a kind of remittent fever, with a tertian type. The first attack, if not interfered with by violent remedies, ended in perspiration, and the patient was considerably better on the second day; but another attack followed forty-eight hours after the commencement of the first, and was more severe. The patient generally died in the third paroxysm, but sometimes in the second. Dr. Santer administered the root of belladonna, and said that two patients had recovered under this treatment; he gave eight grains in one dose, in the first paroxysm, ten grains in the second, and fourteen grains in the third It operated by increasing the perspiration, in which he supposed the morbific matter was cast off. He had tried belladonna as a prophylatic, but found that it failed to prevent the disease. Mr. Snow declined to give any decided opinion concerning this disease, as he had not seen a case of it.

Mr. ACTON inquired the number of cases on which Dr. Santer had formed his opinion. Hydrophobia was so rarely met with, that the German physician seemed to have had unusual opportunities of observing it. During the six years that he (Mr. ACTON) was at St. Bartholomew's, only four cases of the disease had occurred.

Dr. A. T. THOMSON had been in practice for forty-four years, and had only seen five cases of hydrophobia. He had, however, himself been bitten three times by rabid dogs. From all that he

had seen and read on the subject, he was fully of opinion that the seat of the disease was chiefly referrible to the sentient track of the spinal cord, and that remedial agents should be directed to that region. The pathology of the disease, however, was still quite obscure, and until this was made clearer he had no hope of benefit from the treatment of the disease on general principles. He took to himself the credit of first directing attention to the spinal cord in this affection, for, previously to the publication of his cases in the "Medico-Chirurgical Transactions," the attention of medical men had been exclusively directed to the state of the trachea and the bronchial tubes. Respecting the prevention of hydrophobia after the infliction of a bite by a rabid animal, he believed that the poison remained latent in the wound until some constitutional irritation brought on inflammation or irritation in the cicatrix, and then immediately followed the terrible constitutional symptoms of the disease. He could not see in what other manner the various periods of time in which the disease developed itself could be satisfactorily explained. If his view of the subject was correct, it would follow that extirpation of the wound, or its cicatrix, would be of avail at any time before the inflammation or irritation alluded to should come on. He knew that Mr. Youatt had laid great stress on the employment of lunar caustic for this purpose, but he (Dr. Thomson) would not trust to that alone; he would, in every case, pursue the treatment which in his own person had been adopted, that of excision and the after-application of the caustic. Even when the disease had fairly affected the system, he could conceive it possible that it might cease spontaneously from inherent power in the constitution; but no treatment that he was acquainted with had been of any avail. He briefly related the case of a boy, nine years of age, who became affected with hydrophobia in consequence of being bitten by a rabid cat. In this case there was no intermission whatever of the symptoms; neither did he think that in this disease, generally, there was any real intermission. The violence of the symptoms might be somewhat abated, but there was no intermission. In this case the sensibility of the skin was so great that the slightest motion of the air produced convulsions. Hydrocyanic acid, in large doses, was given to him, without benefit. Four or five hours before death, the convulsions all ceased, and hopes of his recovery were entertained. They suddenly, however, returned, and he died in an hour. He had said, that he considered the spinal cord chiefly at fault in this disease, and he was the more convinced of this from the similarity of the symptoms of hydrophobia to those produced by poisoning with strychnia, in which that extreme sensibility of the surface, so characteristic of hydrophobia, obtained to a remarkable extent. Thus the mere touching

of the whisker of a cat poisoned by strychnia, or merely blowing upon her hair, would produce violent convulsions. The mere breathing on a snake, into whose tail some strychnia had been introduced, was followed by similar effects. No remedy was of avail, and even the most powerful ones that had been employed, such as large doses of opium, in the cases recorded by Babington and Graves, were of no service.

A Member referred to a case published a few months ago, in *The Lancet*, in which the application of ice to the spine seemed to have a marked effect on the convulsions. The case occurred in the practice of Dr. Todd, at King's College Hospital.

Mr. Chance stated that Mr. Mayo had recommended the employment of tracheotomy in cases of hydrophobia; for, should the disease not be cured by the previous proceeding, time would be allowed for the action of remedies.

Mr. Snow suggested the employment of aconite, as that was known to be the best antidote to strychnia.

Dr. Chowne entered at some length into the subject. He dwelt on the advantages possible to result from the employment of remedies in this disease, on merely experimental principles. It was useless to go over the ground which had been trodden before. The most common morbid appearances in cases of hydrophobia were the loading of the pulmonary tubes with froth, and an emphysematous state of the lungs. In two cases in which he had examined the spine, no morbid appearances were observable in that region. He had seen extreme hysteria simulate, in some respects, even hydrophobia.

[This interesting discussion took place at the Westminster Medical Society, on Saturday, April 13, 1844.]

HYDROPHOBIA TREATED BY THE POISON OF THE VIPER.

Prince Louis Bonaparte, it appears, has been able to separate the active principle of the poison of the viper, which he has named *echidnine*. He has made the result of his labours known in a memoir, which he read before the chemical section of the congress. In this memoir he proposes echidnine as a remedy for hydrophobia, and gives an account of an experiment that was made, at his request, at the hospital of Santa Maria Nuova, at Florence.

Six vipers were made to bite a patient labouring under hydro-

phobia. Death took place, however, with all the symptoms of hydrophobia, without any of those which follow the bite of a viper having occurred. Prince Louis, however, thinks that the active principle of the poison, freed from all other circumstances, might prove more efficacious if injected into the veins of a person labouring under hydrophobia. The preparation of this substance (echidnine) is somewhat difficult.

The remedy (?) proposed by Prince Louis is not new. It has been tried by Bellingiera at Turin, and the patient died with the symptoms of the viper-bite well-marked, superadded to the hydrophobia which previously existed. Prince Louis states that no such symptoms occurred in his case; but Dr. Griffa maintained that the history of it, given by Prince Louis himself, proves the reverse. For our part, we think the trial of such a substance, as a remedial agent on man, is perfectly unjustifiable, even in so hopeless a disease as hydrophobia.

We know not on what ground it could rationally be supposed capable of curing hydrophobia; but we should say, if it must be tried, let its efficacy first be tested on rabid animals, of which, unfortunately, there is no lack.

THE BRUTAL TREATMENT OF HORSES.

THE SOCIETY FOR THE PREVENTION OF CRUELTY TO ANIMALS has been more than usually on the alert in the discharge of their duty. It is a Society that well deserves that increasing support which, on every succeeding year, it is obtaining. As a fair sample of what it is effecting, we take the Holyhead and Carnarvon mail. No one would have thought that such a succession of atrocities could have been possible.

Abergele, North Wales.—On Monday se'nnight, one of the drivers of the Carnarvon day mail appeared before the Rev. J. F. Roberts and J. W. Wynne, charged by Mr. Thomas with having, on the 27th of November last, wantonly and cruelly beaten and ill-treated his horses.

Mr. Thomas stated, that, in consequence of complaints made to the Society of the wretched condition of the horses employed in the mails, particularly between St. Asaph and Abergele, he had been sent down to adopt the necessary measures to prevent the continuance of the cruelty complained of. The Society did not seek to obtain penalties against the drivers, but to compel the contractors to provide horses able to do their work. In the present

case he should call before them a highly respectable gentleman residing near Bangor, who, on the day named in the information, travelled by the mail and witnessed the cruel treatment of the wretched animals harnessed to it at Abergele. This gentleman had, at considerable expense and trouble, attended here to-day to substantiate the complaint, and he would state the circumstances as they occurred on the road. Mr. Thomas begged also to state that, whatever penalty might be imposed, no portion of it would be received by the Society, as he was instructed to request the magistrates to hand the complainant's moiety to some one of the local charities.

Mr. Thomas called

John Davenport, Esq., of Vaynol, Carnarvonshire, who stated that, on the 27th ultimo, he was a passenger by the Carnarvon mail to Chester. On arriving at Abergele four horses were put to, all of them very dreadfully galled, and quite unfit for work. The defendant was the driver, and he was obliged to flog the poor creatures most cruelly to get them to touch the collars. He succeeded in starting them, and continued to flog the wheel horse most brutally, using two whips; and it was with great difficulty that they succeeded in reaching St. Asaph. When witness spoke to the defendant, he admitted that it was too bad, but urged that he was obliged to keep his time, and that he could not do so without violently flogging his horses. It was a shame to give him such to drive; they were not fit for work. The horses, he understood, belonged to a person residing in St. Asaph, who, it appeared, did not half feed them, and so long as they did the work was quite regardless of their sufferings. Some of the wounds were as large as the palm of a man's hand, and very deep. The collars were not eased; and, what with the wounds and the dreadful flogging, the torture endured by the wretched animals must have been great in the extreme. Witness considered it to be his duty to interfere, and he reported the circumstances to the Society, who readily took the matter up, a very strong case for their interference having been made out.

The defendant admitted the truth of Mr. Davenport's statement, and urged in mitigation, that it was entirely the fault of the contractor, who did not provide proper horses. As much as twenty minutes had been lost over that ground on a journey, the horses not being able to perform their work, although flogged most cruelly.

The magistrates said they would defer their decision until after the other cases had been heard.

Mr. Thomas then proceeded with his complaint against *Thomas Charlton*, also a driver of the Carnarvon day mail. The information

charged the defendant with having, on the 9th instant, wantonly and cruelly beaten a mare at Abergele and St. George's.

This complaint was also proved by Mr. Davenport, who described the miserable condition of the poor animal, and the flogging it received from the defendant. The defendant admitted the charge, and said that the horses were only fit to draw the empty mails; and if he had three or four passengers with luggage he was compelled to flog the horses in order to get them on at all. He had often been obliged to flog until he was tired. He was constantly "losing time" through the inability of the animals to do the work. He was very sorry to state this, but he could not help it

Mr. Thomas then said that he would proceed with the next information.

The driver of the Holyhead mail, also horsed by the same person between Traveller's Inn and Abergele, appeared to an information which charged him with having wantonly and cruelly beaten and ill-treated two horses.

Mr. Thomas said, that, on the night of the 7th instant, he was a passenger by the Holyhead mail, and, two miles on the Abergele side of St. Asaph the defendant flogged the wheel horses most violently with his double thong, while a man stood behind him with a thick whip, called a "tommy," beating the wheelers most unmercifully. The poor creatures, smarting under this infliction, started into a gallop, and so long as the flogging was continued they kept galloping. Witness remonstrated with the defendant, who stated that he was compelled to flog them; and that they were quite unfit for work. He had often flogged until he was tired, and he should be very glad to have better horses.

The defendant pleaded guilty, and made the same excuse as the former defendants.

The magistrates having consulted together,

The Rev. Mr. Roberts, addressing the defendants, said that he regretted exceedingly that they should be brought before him on such a charge. He believed they were respectable persons in their station, and through the avarice of another individual were placed in this unpleasant situation. It was really shameful that such wanton and deliberate cruelty should have so long existed. The public were much indebted to Mr. Davenport and the society for taking the matter up, and the magistrates hoped that the result of their proceedings would prevent the continuance of such disgraceful conduct. They were compelled to convict each of them, and certainly no reason appeared for mitigation of the penalty. They must, therefore, pay a fine of 40s. and the costs 10s. or be imprisoned fourteen days.

Mr. Wynne said that he quite concurred in the remarks of his brother magistrate, and he must add, that the conduct of the Contractor, who permitted such miserable animals to be employed, was most disgraceful, and deserving of severe censure. He much regretted that the law did not enable the society to punish him.

The Contractor expressed his regret that such serious cause of complaint should have existed; and said he would pay the penalties and costs, and take care to guard against complaint in future.

He paid the sum of £7..10s.

Mr. Thomas requested the magistrates to name some charity to pay the moiety of the penalties to, who, having conferred with Mr. Thomas, directed £3 to be paid to the Abergele National School, and the remainder, as directed by the Act of Parliament, to the overseers of the poor of the parish in which the offence was committed.

THE HOG.

GREEDY as the hog appears to be, he is by no means destitute of natural intelligence. Mr. Wilson says that the German huntsmen in approaching the wild boar will endeavour to keep to the leeward, lest he should scent their approach, and be too easily alarmed. His sense of sight, if not obtuse, is rather limited in its range, but his hearing is accurate and extensive. When he is intentionally trained, he will often acquire accomplishments far superior to his usual habits, and, according to circumstances, become either, like the "learned pig," an adept in alphabetical lore, or, like "the sporting pig," a perfect Nimrod in the more active amusements of the field.

Toomer, the gamekeeper of Sir H. P. St. John Mildmay, broke in a black sow to find game, back, and stand to her point nearly as steadily as a well-bred dog. This sow was a thin long-legged animal, one of the ugliest of the new forest breed, and when very young, manifested a great partiality to some pointer puppies, then under the care of the keeper at Broomy Lodge. It often played and fed with them, and it occurred one day to Toomer, that, as he had broken in many an obstinate dog, he might succeed in breaking in a pig. The little animal willingly cantered along with him to a considerable distance from home, and he enticed her still farther by means of a kind of pudding of barley-meal, which he carried in one of his pockets. His other pocket was filled with stones to throw at the pig whenever she misbehaved, as she was too frolicsome to allow herself to be caught and corrected like the dogs.

She proved, however, on the whole, to be tolerably tractable, and he soon taught her what he wished by this system of reward and punishment. She quartered her ground as regularly as any pointer —stood stock still when she came upon game, and backed other dogs with great steadiness. When she came on the cold scent of game she slackened her trot, and gradually dropped her ears and tail till she was certain, and then fell down on her knees. So staunch was she that she would frequently remain five minutes and more on her point. As soon as the game rose she always returned to Toomer, grunting very loudly for her reward of pudding, if it was not immediately given to her.

When Toomer died, his widow sent the pig to Sir Henry Mildmay, who kept it for three years, but never used it except for the purpose of occasionally amusing his friends. In doing this a fowl was put into a cabbage-net, and hidden among the fern in some part of the park, and the extraordinary animal never failed to point it out. Sir Henry, however, was at length compelled to part with this sow, from a circumstance as singular as the other occurrences of her life. A great number of lambs had been lost nearly as soon as they were dropped, and a person being set to watch the flock, she was detected in the very act of devouring a lamb. This carnivorous propensity was ascribed to her having been accustomed to feed with the dogs, and to eat the flesh on which they were fed. Of course there was no alternative—she was destroyed.

Bingley's British Quadrupeds, p. 453.

ON THE CHARBONNEUX TYPHOID DISEASE OF PIGS.

By M. Roche-Lubin.

The *charbonneuse typhus* of pigs does not always assume the same character. It oftenest attacks the male pigs, and, generally, the most vigorous and the best looking—without any distinction of age, and with a force and promptitude absolutely astonishing, for in the space of twelve hours I have sometimes seen a whole piggery succumb. At other times its progress is much slower—the symptoms are less intense and less alarming, and the veterinary surgeon, employed at the commencement of the attack, may promise himself some success. It will be advisable to divide the whole into different classes.

First Class.

Symptoms.—The pigs that are ranged in this class often die without there being the slightest precursory symptoms. I have only been able to collect the following symptoms: sudden loss of appetite—general prostration of strength—small and frequent pulse—the ears drooping, of a dark colour, and tender to the touch—the eyes projecting and haggard—the conjunctiva of a deep red—the mouth half open, red, and charged with foam—a leaden tint stealing over the part—frequent and laborious respiration—anxiety—plaintive cries—frequent convulsions—the appearance of red spots, and becoming more and more deep at the ears, the belly, and the inner surface of the thighs—palsy of the hind limbs—involuntary and fœtid discharge. In less than an hour this animal died.

Post-mortem appearances.—The carcass, which was opened almost immediately, offered externally, the belly projecting—the mouth large, and of a violet colour—the tongue thickened, black, and hanging from the mouth—black spots varying in size from one inch almost to four, most numerous under the belly, the groin, and on different parts of the body; these sometimes unite to form large patches; these spots, which can be only the result of the agglomeration and decomposition of blood in the cellular-adipose tissue of the animal, and also a yellow and brown seriosity, pervading every part.

The lungs are large, brown, filled with blood, and the ventricles of the heart gorged with coagulated blood. Its envelope presents various large ecchymoses—the pleuræ present the same appearance. The bronchi and trachea are filled with a yellow humour. The meninges are thickened, and covered with black and coagulated blood. The cerebral substance presents inflamed points deprived of their serosity—the rachidian sheath was, also, exceedingly thickened. I have often stated the ramollissement of the whole of the spinal cord, but still oftener that of the lumbar region. At the same time, I have witnessed decided paralysis of the hind limbs.

The abdominal viscera have exhibited numerous disorders in the various openings which they have presented. The liver and the spleen have been exceedingly voluminous and gorged with blood. The biliary vesicle has been much contracted, containing a thick, black, and fœtid bile. The epiploon, the mucous membrane of the stomach and intestinal canal, are spotted with black points. These same thickened membranes, of a deep red hue, infiltered with blood or serosity—disorganized or decomposed—the mesentery,

the ganglions of the groin and of the arm-pits, have some portions infiltered, blackened, and pestilential.

The bladder was always of a red hue, thickened, and containing an oily and red urine. Four times I found the kidneys softened, and a general flaccidity in all the tissues, and particularly in the glandular organs. I never found any effusion either in the chest or abdomen, but I have often seen them in the central ventricules.

Second Class.

Symptoms.—In this class I range the pigs in which charbonneuse typhus follows a somewhat rapid march, and offers some sufficiently distinct periods. The symptoms that are the least alarming, and the malady the least rebellious, are the following:—The animal is dispirited—continually lying down, and not getting up without evident pain—the ear is hot and painful—the pulse quick, but regular—the conjunctiva red—the eye fixed—the respiration a little agitated—the flank distended and painful—the tail hanging down—the animal drinking with difficulty, and eating without appetite even the most delicious food—he is likewise constipated.

This state sometimes remains two days without any sensible change; but on the third or fourth day, if the medicine that we have employed is without effect, the symptoms redouble their intensity: the pig grinds his teeth, trembles, and is convulsed in every part—the pulse becomes intermittent, and, by degrees, is almost perfectly lost—the pupil is dilated—the red spots become more and more deep in colour, and death is near at hand.

The pathological lesions are nearly the same as those already described, except those of the tissues. I have sometimes found the nasal and buccal membranes quite decomposed, and the interior of the mouth presenting numerous black and charbonneuse spots.

One remark should be regarded—the sows with young ones always resist the attack of the disease; but as soon as the little ones are produced, the malady does not spare either the one or the other.

The causes of the disease are, in the majority of cases, the bad sties in which the pigs are lodged, and the noisome food which they often contain.

The food which the pigs meet with and devour are the remains of mouldy bread and fruit—especially those of peas and lentils—the fermentation and decomposition to which farinaceous substances are subjected, and especially the bran which is too frequently given to them, and the prolonged action of which determine the

most serious disorders in the whole economy. In addition to this is the constant lying on the dung-heap, whence is exhaled a vast quantity of deleterious gas. Also, where they remain far too long, on the muddy or arid ground, or are too long exposed to the rigour of the season. Such are the causes which impress a functional derangement, that cannot fail of being dangerous or fatal, especially when brought back to the farm. The pigs are then exposed to a dangerous degree of humidity,—they lay themselves down in an acrid and disgusting dung-heap, that cannot fail of being strangely destructive. I could also cite many villages and farms which, two months in the year, have the residence of their pigs destitute of almost every thing that is comfortable and useful.

Although during the whole course of the year this typhoid disease never suspends its ravages, yet there are certain times in which it rages with great intensity in the course of the summer and the commencement of autumn. There are farms and communes where it is enzootic. It is a highly contagious disease. I could cite many facts confirmatory of this. I need only to speak of the inoculation in different parts of the body, and the ichorous matter which is contained in the spots that infest every part, and the consequence of the pigs at first brought home, apparently sound, but, when a little time has passed away, the disease spreading through the whole of the piggery.

As to the transmission of the malady by ordinary means to different kinds of animals, I am unable to give any opinion. The flesh of infected pork has been given to dogs. Nothing has resulted from this experiment, and the inoculation of blood and of ichorous matter have not occasioned any morbid affection with regard to the last of these animals; but it was not the same with regard to some sheep that were submitted to the same experiment. They died two days after the operation, presenting all the symptoms and pathological lesions of charbonneuse fever.

Preservative Treatment.—The experience of every day proves that it is more easy to prevent a malady than to cure or combat it. Of consequence I have always said to the farmers, who suffer the sad accumulation of typhoïde maladies, that they will never banish from their piggeries the system of carelessness and ignorance touching the cultivation of the pig, and a neglected branch of their revenues. I have always said to them that, in despite of their singular remedies, the scourge under which they labour will not disappear until they place the animals in proper situations—not humid, but well aired, and where the litter is often renewed—until, also, they procure a sound nourishment, properly regulated and of sufficient quantity—a pure and limpid water to quench their thirst—and

bathe them whenever the temperature is much increased, while they are weltering in the mire. It is also necessary that the pigs should remain in their sties in cold and rainy weather. In the course of the summer it is always necessary to give them, from time to time, some nitrated and salted and acidulous fluid. The Roque-fort cheese is a useful stimulant for those that are weak and feeble. The administration of any bitter decoction will often be productive of benefit. During the principal ravages of the epizootic I have derived benefit from small quantities of camphor and nitre mixed with a decoction of sorrel. To this some have added, and with considerable benefit, a small quantity of mercury. The nasal membrane then secretes more abundantly; the urine is clearer and more frequent, and the evacuation of fæcal matter is more easy and copious. This mode of treatment may be continued eight days. If a pig is evidently ill, it should be separated from its companions, and even their abode should be changed, and fumigation should be practised every third day.

As soon as a pig is attacked with disease he should be separated from the others, placed in a warm situation, some stimulating ointment be applied to the chest, and a decoction of sorrel administered. Frictions of vinegar should be applied to the dorsal and lumbar region. The drinks should be emollient, lightly imbued with nitre and vinegar, and with aromatic fumigation about the belly. If the fever now appears to be losing ground, which may be ascertained by the regularity of the pulse—by the absence of the plaintive cries that were before heard—by a respiration less laborious —by the absence of convulsions—and by the non-appearance of blotches on the skin, there is a fair chance of recovery. We may then be content to administer, every second hour, the drinks and the lavements already prescribed, and to give the patient his proper allowance of white water, with ground barley and rye. When, however, instead of these fortunate results, the symptoms are redoubling in intensity, it will be best to destroy the animal; for it is rare that, after a certain period, there is much or any chance of recovery. Bleeding, practised at the ear or the tail, is seldom of much avail, but occasionally produces considerable loss of vital power, and augments the putrid diathesis.

GANGRENOUS CORYZA IN THE OX.

By M. LUBIN.

GANGRENOUS coryza is one of the most fatal diseases that in the whole of my practice in the south of France I ever met with. It is considered as incurable in the districts in which I have seen it. It is curiously called the *casque*, doubtless because the head is the seat of the disease, and the animal seems to have this part, in a manner of speaking, borne down by the weight of a casque. Very seldom are the animals cured, and, out of the number which I have treated during the last twenty years of my practice, I have been able to save but very few.

From the commencement of the disease the animal is dull, totters as he walks—the thirst is very great—the appetite diminished—the rumination seldom—the hair rough—the anterior part of the dorsal vertebra and the under part of the breast painful—the skin dry and adhering to the sides, and the pulse full and quick. To these symptoms, which are common in many diseases, are joined an abundant weeping, tumefaction of the eyelids and of the end of the nose, and dryness of the nasal membrane. This latter membrane and the conjunctiva are red—the pituitary membrane tumefied—the tongue very hot—the muzzle dry—the skin, and particularly about the ears and horns, absolutely burning—the respiration slightly laborious, and the flanks tucked up.

About ten or twelve hours after the appearance of these symptoms, which increase in intensity every hour, the appetite disappears, and the rumination entirely ceases. The animal falls into a complete state of stupor—he moves his head from side to side as if to get rid of something which annoys him; but he seems to announce by the slowness and precaution with which he moves, an intense affection of the head. He is seized with shiverings, accompanied by convulsive movements of the muscles of the chest and face; the pulse becomes hard and frequent; and a thick viscous greenish matter runs from the nostrils. This running is not, as in other animals affected by coryza, preceded by a more or less abundant running of serosity; it is thick from the first, and a very few hours are sufficient to render it so abundant as to oppose the free passage of the air. There is slight pain in the aqueous humours—the breathing more laborious—the excrements black and hard—the urine thick and rare and the animal indifferently standing or lying.

Ere four-and-twenty hours are elapsed, all these symptoms are

aggravated. Sometimes from the commencement of the disease, but usually on the second day, there is complete blindness, caused by the pain of the aqueous humour, which becomes of a milky hue. Sometimes the lucid cornea becomes opaque; but this is very rare, and I have never seen it more than three times. The secretion of the nasal mucus is augmented—bloody streaks are mingled with the mucus—and erosions appear on the nasal membrane and on the muzzle. This latter is dry, hard, insensible, and burning. Some of the outer parts detach themselves—the pulse is small, hard, and frequent—the extremities approach each other—almost all the dorsal column is painful—the shiverings and convulsive motions of the face and chest are more frequent, and the stupor is increased. The patient grinds his teeth. If he takes any food, it usually remains in his mouth, which is full of a fœtid and viscid saliva. The ears and horns become alternately hot and cold.

From the fourth to the eighth day all the symptoms become more alarming. The nasal mucus, which continues to augment in quantity, acquires a corrosive property—the weeping is more considerable—the stupor into which the animal has fallen is only broken by violent shocks of the whole body, which, nevertheless, diminish in proportion as death advances. The pulse is scarcely discoverable. The animal lies down for hours together, then suddenly rises, and remains for a longer or shorter period in a state of complete insensibility. The skin of the muzzle becomes detached at its edges and deprived of life, and occasionally falls off altogether and only leaves a large wound. The edges of the lips, particularly anteriorly, are ulcerated. These ulcers, which are also found on the tongue, appear to be occasioned by the matter which runs from the nostrils, and which the animals usually lick. The nasal membrane offers one large unhealthy wound, strewed with black livid patches; the ears, the horns, and the extremities become cold. All the strength seems to be perfectly annihilated—the pulse is no longer perceptible—the rattling in the throat begins, and the animal, if he is up, falls, and dies after lowing and struggling for some minutes. Such is the usual course of this disease. The animal seldom dies before the fourth day, and rarely lives to the twelfth ; and when I have seen oxen reach that period, I was convinced that the prolongation of their existence was entirely owing to the treatment, which seemed in these cases to abate the progress of the disease.

The post-mortem examination shewed me but very little disorder of either of the abdominal or thoracial cavities. The intestines sometimes offered traces of slight inflammation—the liver and the spleen did not appear to be quite so firm as they ought to be: indeed their

softness was general. The bladder was a little inflamed—the kidneys and other intestines of the abdomen were almost in their natural state. There was nothing particular about the heart—the lungs were a little inflamed, and were gorged with black blood—the mucous membrane of the tracheal artery was inflamed, and more intensely so towards the superior part of that organ; but the principal disease was found in the head.

The edges of the tongue were ulcerated,—a more intense inflammation, accompanied by gangrenous patches, was perceptible in the back of the mouth,—the mucous membrane had, in a manner, changed its nature, it was twice, and often three times, as thick as when in its natural state; the whole extent of it was ulcerated, and was of a livid hue, with here and there black patches of different sizes. These ulcers yielded a bloody ichorous matter mingled with the mucus, and which the membrane could no longer secrete. This membrane was no longer rudimented in the sinus; it had begun to develope its cavities, and even in them we could perceive traces of gangrene.

We frequently met with effusions, of a gelatinous form and colour, in the maxillary sinus. The whole extent of the pituitary was torn with the greatest ease, as were the leaves of the ethmoid bone. They partook of the general decomposition. The lachrymal duct was inflamed, and ulcerated all over,—the nasal partition was softened and decomposed, almost as badly as it is in the worst stages of glanders,—the brain was thoroughly soft, all its membranes were much inflamed, and had here and there black patches; the dura-mater, however, was sometimes exempt; the inferior parts of the brain were most frequently black, and the ventricles were full of a brown liquid.

I once found in an animal which died after four days' illness, and which I opened eight hours after death, almost the whole of the brain black; the peduncles and the cylindrical protuberance of the brain alone seemed to be whole; all the rest was black and surrounded by a purulent fluid, and with so little consistency, that when it was shaken in the cranium it resembled a black and clotted pap.

The whole length of the spinal marrow is, when compared to the brain, but very little disordered. I have found it a little softened, and the membrane which envelops it much inflamed. The rachidian prolongation is likewise less consistent than in its natural state; the optic nerves are usually healthy. Once only I saw them softened and of a deep grey colour. The retina, in this case was torn with greater facility than usual; the eyes alone presented a very great thickness of the aqueous humour, which

had, in some cases, the consistence of a clear yellow pus. Thus, as I have before said, the lucid cornea had completely lost its transparency.

The causes of this cruel malady cannot be precisely determined. It makes its appearance both on high and low ground. Coryza, in other animals, usually appears during the autumn or winter. In horned cattle it shews itself in all seasons, and, if it is more frequent at one time than another it is in the summer, a season at which it is seldom found to attack horses, sheep, or even men. It now attacks animals of all ages without distinction. Nevertheless, I have seen it oftener in young than in old animals. Are they more subject to inflammatory diseases? or may not this be occasioned by there being more young animals than old ones exposed to it? This appears to me to be most probable; for it is not unusual to see in one stable twice as many animals under five years old as there are over. I have always observed that strong and vigorous animals are much more exposed to it than those that are weakly and ailing. I have discovered one predisposing cause, which is the formation of the head,—it is then fat, covered by a thick and ragged skin, and then the eyes are habitually moist or inflamed, the muzzle thick, and the nostrils close, allowing only a straight passage to the air, and, consequently, rendering the respiration difficult and impeded.

Every cause which determinates inflammatory disorders may cause coryza, which quickly acquires a gangrenous character. In this number ought to be reckoned sudden changes from a hot to a told temperature, and the showers in which animals are frequently caught while at work or at pasture; but I believe the most frequent of these causes is the ammoniacal gas which these animals breathe, more particularly during the summer, and in badly arranged stables. This air irritates the nasal membrane for some time, and ends by determining a phlegmasy, which leads on to gangrene, like many other diseases of oxen. In horned cattle we can cite many facts in confirmation of these circumstances. The gangrenous termination of inflammation is much more frequent in them than in any other animals. It is not, then, surprising that, in the case of which we are speaking, coryza, which is terminated by resolution in other animals, becomes gangrenous in the ox.

In support of what I have said on the effects of ammoniacal gas, I must add, that I have remarked that the disease is not so frequent in clean and well-ventilated farms and stables as it is in those which are dirty, and where there is no free current of air.

Lastly, exposure to the sun appears to be one of the causes of gangrenous nasal catarrh. I have seen animals whose owners had

been imprudent enough to work them, or leave them at pasture during the hottest part of the day, brought in at night with the first symptoms of the disease.

All treatment is, as I have before said, useless. Astonished in the beginning of my practice at the fatal march of nasal catarrh in the ox, and never having heard of it during my veterinary studies, I thought it prudent punctually to follow the course usually pointed out in similar cases, which consisted in making one or more holes in the base of the horn, and so procuring a slight bleeding, or amputating the horn about four inches up, which produced a copious bleeding. In either of these cases bleeding was not so much the object, as the getting rid of some humour or bad blood. Irritating fumigation, composed either of withered stalks of garlic, or juniper berries, or pieces of old leather, are also made use of. It is supposed that a humour is gathered in the head, and that it is necessary, by every possible means, to try to get rid of it. Thus, when the holes in the horns, or the wound of the amputated horn, gives passage to a usually very inconsiderable quantity of pus, and the secretion of nasal mucus is augmented, it is believed that the humour, having found an issue, will soon be entirely evacuated. The animal, however, does not get well, and they console themselves by throwing their want of success on the disease, which they pronounce incurable.

If it happens that the matter that escapes from the wounds in the horns is very abundant, it cannot always be said that the secretion of it existed before the operation; on the contrary, it may be the result of the operation. I have seen, when the horns were grown in a wrong direction, so much so as to make it difficult to put the animals under the yoke, and the horn which turned in was obliged to be amputated;—I have seen, I say, a very great quantity of matter formed by the amputated wound in one day, although the animal was in perfect health before the operation.

Not having been successful in the three or four animals submitted to the ordinary mode of treatment, I thought it best to change it for one diametrically opposite; therefore I began by taking away eight pounds of blood from the jugular vein twice every day. This I did for two or three successive days, according to the intensity of the disease and the age and strength of the animal. I did not cease until I was convinced that the bad symptoms were abated. Immediately after the first bleeding I passed two setons through the lateral and superior part of the chest, and one through the dewlap. To each of these setons was attached a piece of black hellebore root, which I considered as the most prompt of all the exciting derivatives I could make use of. I also made

two or three scarifications on each side of the back, each of which was about an inch and a half long, and three inches apart.

After having separated the skin from the cellular tissue, I introduced into the wound a piece of black hellebore root, and prescribed warm and emollient fumigations and injections of a decoction of mallows into the nostrils. I also ordered that as thick a layer as possible of decoction of mallows and linseed meal should be spread over the head, and kept wet with warm water of mallows, and that the muzzle, the edges of the nostrils, and the eyes should be bathed several times a-day with mallow water. I also administered drinks composed of a decoction of barley sweetened with honey. Emollient clysters were applied several times a-day, with white water and spare diet. The animal was separated from the others, less from fear of contagion than to remove him from the action of the ammoniacal emanations, which are always particularly abundant in the summer. Care was taken to put him in a place where he could breathe pure air.

It is a necessary precaution to withdraw the hellebore root, the setons, and the interior of the scarifications within four-and-twenty hours of their being first applied; otherwise swelling may arise, the consequences of which are often bad.

Usually, about the fourth day, the animal, if not cured, is at least out of danger. All the wounds are, from the first dressing to the sixth day, covered with blister ointment. It is necessary to keep up the inflammation in order to avoid the metastases, which are always mortal. A little food may be given, and that should, if possible, be green. If the blindness continues, and is owing to the thickness of the aqueous humour, it must not be disturbed. It will insensibly regain its transparency. I never had but one exception to this rule. This animal remained blind, and was sold to the butcher within three months after it was cured.

If, in spite of this treatment, the disease continues unchanged, and the third day arrives without its progress being stayed, the animal may be considered as lost. Also, when the pulse, inspection of the nasal membrane, total prostration of strength, &c. announce a fully characterized gangrene, all treatment is fruitless. Tonics, camphor, purgatives, have all failed. Other animals, on whom I have continued to employ the antiphlogistic treatment, have also died.

It is right to observe that, if I have cured some animals, I owe the success entirely to the employance of the antiphlogistic treatment from the beginning of the disease, and also to some particular disposition of the animal, and to its not being very dangerously attacked. How very many have I seen perish, though they seemed

for awhile to be every way likely to be cured! I, perhaps, ought to remark, that I might, probably, have saved more animals if they had been properly attended to. It is always bad when a disease is considered as incurable, for it is then with great difficulty that the country people can be induced to pay any attention to, or take any care of animals which they consider to be lost. It is indispensable to encourage them, and to engage them to attend to the animals the moment they are attacked by the disease.

Journ. de Med. Vet., 1830.

THE MECHANISM OF THE ACT OF VOMITING.

By Dr. MARSHALL HALL.

TWO opinions have divided physiologists respecting the mechanism of the act of vomiting. It was originally and long thought that this act consisted simply in a sudden and forcible contraction of the stomach itself. Afterwards Bayle and Chirac, and, more recently, M. Magendie, considered that the stomach is inactive, and evacuated by being subjected to pressure by simultaneous contraction of the diaphragm and abdominal muscles. It appears to me that neither of these opinions is correct. M. Magendie distinctly proves, by actual observation, and by the substitution of a bladder in the place of the stomach, that the contraction of this organ is not usually subservient or necessary to the act of vomiting. I refer to the interesting paper (Paris, 1813) of that eminent physiologist for the more full elucidation of this first question. I proceed to state such observations as appear to me to controvert the second, and to establish that view of this subject which I have myself been led to adopt. It is obvious that, if vomiting were effected by a contraction of the diaphragm, it must be attended by inspiration. If this were the case, the fluids ejected from the stomach would be drawn into the larynx and induce great irritation, events which have not been observed. These events are, indeed, effectually prevented by an accurate closure of the larynx, a fact observed in an actual experiment by M. Magendie, who makes the following observation:—"Dans le vomissement, au moment au les matièrs vomies traversent le pharynx, la glotte se ferme très-exactement." It is astonishing that this observation did not lead its acute author to see that, under such circumstances, a contraction of the diaphragm, unless the thorax followed precisely *pari passu*, was impossible. Complete vomiting has been observed, too, in cases in which the

stomach had entirely passed through a wound of the diaphragm into the thorax, and in which it could not, consequently, be subjected to the action of that muscle. In some experiments, vomiting was observed also to take place, although the diaphragm had been paralysed by a division of the phrenic nerves, or its influence subtracted by a division of its anterior attachments.

This view of the subject is still farther confirmed by facts I now proceed to state, which prove that the act of vomiting is an effort, not of inspiration, but of expiration. This is obvious enough on a mere observation of the states of the thorax and abdomen during vomiting. The larynx is evidently abruptly and forcibly closed, the thorax drawn downwards, and the abdomen inwards.

Such, indeed, appears to me to be the precise nature of the act of vomiting, in ordinary circumstances. The contents of the thorax and abdomen are subjected to the sudden and almost spasmodic contraction of all the muscles of expiration, the larynx being closed so that no air can escape from the chest, and the two cavities being made one by the floating or inert condition of the diaphragm.

The mere mechanism of the act of vomiting differs little, therefore, from that of coughing, by which, indeed, the contents of the stomach are frequently expelled: the larynx in the former is, however, permanently, in the latter only momentarily closed; and there is, doubtlessly, a different condition of the cardiac orifice and of the œsophagus.

It appeared to me from these views of the subject, that if an opening were made into the trachea, or through the parietes of the thorax, the effort of expiration constituting the act of vomiting would issue in expelling the air through these orifices respectively, and the evacuation of the stomach would be prevented. Therefore, determined to submit the fact to the test of experiment, I took a little dog, made an ample opening into the windpipe, and gave a few grains of the sub-sulphate of mercury. The animal soon became sick. The first efforts to vomit induced a forcible expulsion of air through the orifice in the trachea. These efforts soon became very violent, however, and the stomach at length yielded part of its contents. It was perfectly evident that the violent contractions of the abdominal muscles pressed upon the viscera of the abdomen, so as to carry the diaphragm upwards to its fullest extent, and at this moment vomiting was effected. The act of expiration was so forcible that a lighted candle placed near the tracheal orifice was several times extinguished. In a second experiment a free opening was made into the thorax between the sixth and seventh ribs of the right side: the lungs collapsed partially only. During the first efforts to vomit, air was forcibly expelled through this orifice, the lung was brought almost into contact with

it; the stomach was not evacuated, but as the efforts to vomit became extreme, a portion of lung was driven through the thoracic opening with violence and a sort of explosion, and, at the same instant the stomach yielded its contents.

These experiments appear to admit only of one explanation, of one conclusion,—that the act of vomiting is a forcible expiratory effort, the larynx being firmly closed, and the diaphragm perfectly inert. It must be regarded as singular that M. Bourdon, by whom the action of the expiratory muscles, in their various "efforts," has been so well investigated, should have adopted other views of the act of vomiting.

It is not intended to state, that the act of vomiting is simply such as I have described. There are many facts which appear to shew that the œsophagus is not without its share of influence in this act, and it is plain that the cardiac orifice must be freely opened, for mere pressure upon the viscera of the abdomen will not, in ordinary circumstances, evacuate the contents of the stomach. To effect this open state of the cardiac orifice it is probably necessary that the diaphragm should, indeed, be in a relaxed rather than in a contracted state.

SWALLOWING SPONGE.

Dr. Chowne, in the Medical Society of London, detailed the particulars of a case in which an infant, three months and a half old, had swallowed a small piece of sponge that had been placed in the nipple of a sucking bottle. A dose of castor oil was given, and the sponge was passed per anum, fourteen hours after it had been swallowed. The case was unaccompanied by any unpleasant symptoms.

He afterwards entered at some length into the question, on the influence of sponge on the system, and detailed two cases of horses, each of which had swallowed a piece of sponge. In one, the sponge was voided per anum at the end of nine days. In the other, it was supposed to be digested, as it was never to be traced in the fæcal evacuations. In the first case the sponge had a peculiar offensive odour. In this case little medicine was given.

In the case in which it was supposed that the sponge had been digested, a variety of aloetic and other medicines were administered.

ACUTE GLANDERS FOLLOWING A BITE BY A HORSE.

By M. LANDOUZY.

A VINE-GROWER, fifteen days after buying a horse in July 1843, perceived that it was labouring under glanders. The disease was communicated to an ass living in the same stable. In order to make the horse take the drinks, he used to open his jaws with the help of a rope. One day the rope broke, and the jaws closing suddenly, he received a bite on his cheek. On the 20th of December, being two days after this, symptoms of acute glanders manifested themselves. A pustular eruption, abundant discharge from the nares, dyspnœa, diminution of the respiratory murmur, abscesses, &c.; and in addition to these symptoms, there appeared one that has not yet been described—opacity of the cornea.

The man died on the 2d of January. At the autopsy an abundant eruption was found on the thorax and the abdomen; the bronchi were covered by a miliary eruption; the lung was filled with abscesses; the liver and spleen were evidently increased in size; in the intestines there was a miliary eruption above and below the cæcum, and in the cæcum seven ulcerations, a lesion that has not yet been mentioned. The principal features of interest which the case presents are, its inoculation by a bite, the opacity of the cornea, and the ulcerations of the cæcum.

M. BARTHELEMY remarked, that the horse had been five months ill, and that, consequently, as the case was one of acute glanders, communicated by a bite from an animal chronically diseased, the distinction which some persons had attempted to establish between acute and chronic glanders was not warranted.

THE VETERINARY ART IN INDIA.

By J. GRELLIER, *Esq., M.R.C.S.*

[Continued from page 509.]

ON THE INTESTINAL CANAL AND ITS DISEASES.

Stomach and Intestines.

THE stomach of a horse differs very much from that of almost every other animal. It is smaller in proportion to the bulk of the animal, and is partly lined with a strong, thick, insensible membrane, resembling white leather.

The food is first received in a cavity of a funnel-like shape at the upper part of the throat, called the pharynx, which, contracting on its contents, propels it through a passage (the œsophagus) into the stomach. In the œsophagus the insensible membrane (which extends to half the stomach) commences: this membrane is the principal cause that the contents of the stomach cannot be regurgitated as in vomiting. The œsophagus is always collapsed except in the act of swallowing, when it becomes extended to admit the passage of the food forced into it by the contraction of the pharynx; consequently the insensible membrane, not contracting itself when the œsophagus contracts, it lies in loose folds, forming a kind of valvular structure at the entrance of the stomach, which prevents the food from repassing.

This structure is also, perhaps, the reason that such violent medicine may be given without any great inconvenience, as it partly defends the nerves of the stomach, which are very numerous. It is perhaps, too, from this insensible membrane that the stomach is so little liable to disease.

The food, from the stomach, passes into a small intestine called the duodenum, where it becomes mixed with the bile and assimilates. From this it passes through the remainder of the small intestines, which are very much convolved, and then enters a large intestine called the colon, which encircles all the other intestines. The curve which it makes to effect this very much retards its contents, particularly as it decreases very much in diameter as it proceeds, insomuch that one part of this intestine, at some distance from its origin, loses nine-tenths in diameter. This will prove the cause of strong doses of physic being so dangerous; for if a quantity of strong stimulus accumulates in this part of the intestine, the contraction will be such as to produce obstruction and inflammation, which often terminate in gangrene and mortification. It is reckoned that upwards of a thousand horses are annually destroyed in England from too violent doses of physic, as most writers on farriery, particularly a late author, recommends aloes in doses of eight, ten, or twelve drachms, with one or two drachms of calomel, jalap, &c., while Mr. Coleman finds three, four, or five drachms sufficient, with a drachm of calomel, in a cold climate; and the consequence of exceeding this dose I have frequently observed when I was assistant surgeon to the 13th Dragoons, before I had studied the present branch of physic. The dose was then usually regulated by Taplin. At the cavalry depôt at Maidstone, a horse had been physicked as above, and in three days he died. On being opened, the contracted part of the colon was found to be obstructed, and most of the intestine was mortified. In the 13th Dragoons, horses after

being physicked in this violent manner have been so reduced that six months at pasture would hardly recover them.

In different climates the doses of physic may vary. In this country, where there is a continued and very powerful stimulus from the increased temperature of the atmosphere, the solids must be more relaxed and exhausted; consequently a stronger stimulus must be used, which I find to be the case in every instance where I have had occasion to employ stimuli, as in gripes, spasms, &c. I have been obliged to administer twice or three times the quantity which would be required to produce the same effect in England. This holds good in almost the whole of organized nature. The human subject requires double or treble the calomel in this country to produce the same effect as in England; and these principles also extend to the vegetable kingdom.

The physic, therefore, required for a full-grown horse in this climate, may be one ounce of aloes, and one drachm of calomel, with a few drops of oil of aniseed or mint, to prevent pain from flatulence. If it does not operate in eight-and-forty hours, it may be renewed. This dose will suit common occasions; but must be varied according to circumstances, and attended to in the respective complaints. The animal should always be kept on a spare loose diet for one or two days previous to his taking physic: mashes, perhaps, succeed best.

The bowels have a continual worm-like movement called the peristaltic motion, which shifts and changes the situation of the food, and by which fresh portions of it are always brought in contact with the surface of the intestines, where the small absorbent vessels are distributed for the purpose of extracting the nutritious parts. This motion also assists the passage of the fæces.

MEMORY; ITS INFLUENCE AND IMPORTANCE AS A SOURCE OF ACTION IN ANIMALS.

By J. Johnston Kelso, *M.D., Lisburn.*

Besides the influence of memory as a source of action in animals, the consideration of which is here more immediately to engage us, there are, very obviously and distinctly, these other influences in addition:—

1. Instinct;
2. Intellectual action, or ratiocination;
3. Mental feeling, or emotion.

Of these latter sources, or principles of action, instinct only, as we shall find, is entirely independent of any exercise of memory in reference to prior sensations or impressions. Therefore, when in addition to the *direct* and unequivocal influence of memory, whose extensive diffusion through the animal kingdom we shall, it is hoped, be able satisfactorily to establish, we take into account its *indirect* influence, as manifested through processes of intellectual action, or a species of reasoning and mental feeling or emotion, the vast importance of this faculty, as a stimulant and guide of action in many different genera and tribes of animals, at once discloses itself, challenging very forcibly detailed inquiry and exposition. It is certainly only consistent with ordinary correctness to refer phenomena to their proper causes, and this equally in the psychical and in the physical world. But certain it is that almost all recent writers on instinct, of any degree of celebrity, have referred many phenomena to this peculiar influence, which more or less evidently pertain to an operation of memory, or the intellectuality of the animals. This, undoubtedly, is an error which imperatively calls for correction, at least as far as may be. Hence, in order to place the subject in a proper light, to distinguish those actions which are the result of memory from those that belong to instinct,—in a word, to eliminate, as far as practicable, truth from error,—it will be absolutely necessary to go somewhat largely into details;—to review not only the phenomena of memory in animals, and those active mental manifestations connected with their nature, involving, as an essential condition, an exercise of this faculty, but also the principle of instinct itself, and its immediate consequences or effects. With a view to this important object the following communications are placed at the option of *The Lancet;* and, although the ground which we shall have to traverse is, as will be apparent, rather extensive, and rich besides in topics of no ordinary interest, still I hope not to trespass too largely on the valuable space of that journal.

Memory, as is perfectly clear, pertains not exclusively to the mental or intellectual constitution of man: it exhibits itself, also, in some degree, in many, very many, of the lower animals, influencing, or guiding and controlling their actions to an extent little short, probably, of that of the power of instinct itself.

With reference to all the higher species of animals, the indications of the influence of memory are numerous indeed, and most unequivocal; and it may be stated here, generally, that in them, equally as in ourselves, it constitutes the main-spring of all those actions that have conventionally been denominated *intelligential.* But, in regard to the more humble and essentially instinctive orders and tribes of creature life, the existence and active play of this

faculty, as evidenced in *certain* of their actions, has, tacitly at least, been hitherto altogether denied, though, as I am disposed to think, quite erroneously. In a word, as a source or principle of action, both in vertebrated and invertebrated animals, the influence of memory, directly or indirectly, through processes of comparison and combination, has been hitherto either wholly overlooked, or only casually and incidentally adverted to in explanation; and by no one, so far as I am acquainted, has the question received that degree of attention which its importance most undoubtedly demands.

The different sources, or principles of action in animals, we have just now indicated, and it will be seen that they naturally divide themselves into *instinctive* and *non-instinctive.* Of the latter, it has equally been observed, that memory is either the sole spring or agent, or the chief and indispensable actuating power, or rather element of those composite principles and feelings which constitute the source of numberless and infinitely varied actions, habitual or incidental, in many different genera and tribes of the lower orders of creation.

It may be as well, then, briefly to advert, in the commencement, to those actions which are the result, not of memory *per se*, but of mental or intellectual processes *necessarily involving* an exercise of this faculty in some degree, and they may not inappropriately be viewed here under the general head of

ANIMAL INTELLIGENCE.

That there are many different species of the lower orders which habitually will and perform many actions that are admirably suited to the attainment of certain ends,—and these often remote and obscure, and known to us only by repeated observation, or experience and reflection, and reasoning on the inductive principle,—is a proposition the correctness of which there are few, now-a-days, who would be disposed seriously to call in question. And as actions of this kind can never, with any pretensions to common accuracy, be considered as at all pertaining to the power either of instinct or of memory *per se*,—far less, certainly, to mental feeling or emotion,—they have, very correctly, been referred to processes of intellectual action or rationality; implying equally an exercise of these essential powers or elements of reason—*comparison* and *combination*, and memory or recollection of previously experienced sensations, or acquired perceptions.

It was, as is well known, the opinion of both Descartes and Buffon, that animals are nothing more than automata—mere pieces of artificial mechanism, insensible equally to pleasure and to pain,

and incapable of internal feelings or emotions, as well, of course, as processes of ratiocination, implying an exercise of several distinct mental faculties—akin to those of which we are susceptible ourselves. If this were the case, the objects of creation would for ever remain a dark and unfathomable mystery. But the very reverse happens to be the fact. I shall, I feel persuaded, be able satisfactorily to demonstrate that the vast majority of animals are susceptible, in some degree, not only of the common feeling of enjoyment, but of several distinct mental feelings or emotions analogous to those which agreeably or disagreeably influence ourselves. I cannot, too, but think myself capable of establishing, equally clearly, the fact of many animals of different orders, genera, and species being influenced and guided in their actions to an extent not generally known or conceded through an operation of memory, in reference to prior sensations or impressions felt and remembered. Further, I shall be able, I feel convinced, satisfactorily to shew that many animals of all the higher orders and classes are possessed, in addition, generally, to great natural sagacity, of limited powers of reasoning from premises to a conclusion. It is the consideration and illustration of the latter highly interesting and important question to which, with permission, we now propose to turn; and, commencing with insects, the ants may be first noticed as furnishing us with some unequivocal indications of the influence not only of strong natural sagacity, but apparently of a degree of intelligence and memory.

I may here drop the subject for the present, and, with permission, will resume it in an early publication.

THE ROYAL VETERINARY COLLEGE.

We have not heard that any answer has been sent to the petition of the Governors of the Royal Veterinary College, mentioned in our last number; neither, up to the time we are writing, has any communication from the Secretary of State reached the Council; consequently the charter affair may be said to be still pending. Nevertheless our Council have not been idle. They have been meeting weekly, and doing their best to make such a code of by-laws as shall most efficiently and beneficially carry out the ends of the charter: looking neither to the right nor to the left, suffering their minds to be swayed by no bias, restricted in

their endeavours to serve every professional interest to the full by the provisions of the charter alone, they have deliberately considered every law, examined one by one its clauses, and finally determined on its adoption only after the fullest conviction on their part that it was for the general benefit and advantage of the members of the veterinary profession. We regret that the schools should have manifested any opposition to the charter, and the more that they should have done so after the fullest understanding on the part of those under whose direction it was drawn up, that they had concurred in every thing contained therein. We do not pretend to know the precise grounds on which fault is found with the charter; but this we do know and can vouch for—*that private ends were neither in thought, word, nor deed, sought after* by those who have laboured much and long to concoct and perfect an approved instrument. Surely, that which tends to the good of the profession at large must tend to the advantage of the schools of professional education; and surely, the more thriving the state of the profession the greater must be the demand for veterinary surgeons, and the greater the influx into the schools of pupils. It is no more the interest for the schools to set themselves up in opposition to the profession than it is for the latter to do any thing to the injury of the schools: together they constitute but one house, and woe to that house if it become "divided against itself." Better, far better, adopt the motto of the Royal College of Veterinary Surgeons—*vis unita fortior;* for comparatively weak must be either party unsupported by the other: and though the profession may manage to erect and get licensed fresh schools, it will not prove so easy a matter for schools that have quarrelled with the profession to obtain the same support elsewhere. We say again, and say emphatically to both parties, pray remember that *vis unita fortior est.*

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GLANDERS.

By WILLIAM PERCIVALL, *M.R.C.S., Veterinary Surgeon First Life Guards.*

THE PROPAGATION OF GLANDERS BY INOCULATION is a fact so well established that it appears supererogatory to offer any examples of it. It was one of the first questions regarding glanders and farcy which the late Professor of the Veterinary College sought to set at rest; and it was, in numberless instances, proved in the affirmative, both by himself and those studying under him, in the most complete and satisfactory manner.

In later times inoculation has been practised more by way of a test of the presence or genuineness of glanders in doubtful cases than with any view of proving its communicableness; and asses, on account of their comparatively little cost, have commonly been chosen as the subjects of inoculation: the circumstance also of their being, as I before observed, more predisposed than horses to take glanders and farcy, has rendered them additionally inviting. It is not often we hear of inoculation being practised in the horse. I performed it once myself on a healthy middle-aged horse: whether the result proved glanders or not my reader shall determine.

On the 11th of September, 1818, I inoculated a brown horse, then about seven years of age, upon the septum nasi, with matter of glanders procured from the slaughterer's at Cow Cross. On the third day there was a pimply or slightly tumid condition of the part of the membrane inoculated, accompanied by some trifling yellow albuminous issue from the nostril, and swelling of the submaxillary lymphatic gland of the same side; and, on the fourth day, there was evident ulceration, with augmented discharge, and that of a purulent character. On the fifth day there were to be plainly seen two large unhealthy-looking ulcers upon the inferior part of the septum nasi, and there was a mixture of pus and mucus ejected from, as well as adhering about, the external nostril; and from the

enlarged submaxillary glands was proceeding along the hollow between the jaw-bones a cord of tumefied absorbents of the size of my wrist. On the eighth day the ulceration had become deep and extensive. On the eleventh, another cord of absorbents proceeded from the swollen submaxillary glands, over the side of the face, to the affected nostril; and next day suppuration had taken place in a couple of buds upon the cords of absorbents. On the fourth day after inoculation, barytes, in its pure and caustic form, was administered, a medicine in which, at that time, my father and myself placed great faith as a remedy for glanders; and the same medicine was prescribed throughout the case. From the twelfth to the twenty-ninth day no material change was noted; but, on the thirtieth day, such were the alterations for the better, that hopes, which had almost been abandoned, suddenly and unexpectedly were revived, and there seemed every prospect of recovery. The ulcerations upon the septum were manifestly healing, all swelling had left the nostril, and the enlarged glands were diminishing. On the thirty-seventh day there remained but the cicatrices of the ulcers to be seen, with some slight mucous discharge. The appearances of farcy were vanishing also; the farcy-buds, or rather ulcers, healing and cicatrizing; but the enlarged gland under the throat felt soft and disposed to suppurate and ripen. By the fiftieth day, however, all signs of disease had disappeared, save some trifling remains of induration underneath the jaw.

If this was not a case of glanders and farcy, it was, at all events, a case that nobody, save through the test of inoculation, could, for the most part of its progress, have distinguished from glanders and farcy; and that it was not I can imagine many veterinarians will contend, and for two reasons;—one being that the enlarged submaxillary gland shewed a tendency to suppurate, though, after all, it did not break; the other, that the case ended in recovery. It must be remembered, however, that other instances of alleged "cure" stand on well-authenticated record; and that, therefore, this might have been a case, like many or most of *them*, of spontaneous recovery, and consequently there was no absolute need of ascribing the horse's getting well to the barytes.

May 24th, 1820, I inoculated an ass about ten or twelve months old with matter taken from a horse of Mr. Stow's, a farmer, at Farnborough, suspected to have (chronic) glanders. No effect followed. On the 28th I repeated the inoculation with matter taken from the frontal sinus of Lieut. Rich's horse, also suspected of having (chronic) glanders. June 6th, still no appearance of disease. I next procured some matter from an acutely glandered subject, standing for slaughter at Cow Cross, and with it repeated the inoculation for the third time, as before, scarifying the *ala nasi*, and rubbing the virus upon it. On the fourth day after this last inoculation the nostril had become swollen and tender, and had a knotty feel, evidently from lymphatic

inflammation; the submaxillary gland of the same side was also swollen and tender on pressure. *On the sixth day* a foul ulcer appeared upon the inoculated part. *On the eighth* there came discharge from both nostrils; and the ass had fallen very lame in the near fore leg, seemingly from an attack (as yet concealed) of farcy. *Ninth day*, the animal commenced heaving at the flanks, and appeared altogether very ill, continually lying down, &c. Three pints of blood were drawn; this, however, was no sooner done than he became faint from its loss, and staggered, and died about five minutes afterwards. Examination of the head shewed the Schneiderian membrane, on both sides, reddened and thickened in substance, its surface studded with small white tubercles, which, in a short time, would have turned to ulcerations; likewise the nasal *meatus* were filled with sero-mucous discharges.

No question, I should imagine, can arise, that, in the case of the ass just related, glanders and farcy also were produced by inoculation. The same fact stands likewise proved in a case related in the late Mr. Field's "Records*." Again, we may adduce, as confirmatory evidence—if any be wanting—

THE COMPTE-RENDU OF THE VETERINARY SCHOOL AT ALFORT for 1839-40. MM. Renault and Bouley have prosecuted their researches into the nature and symptoms of glanders, with especial direction of them to its contagious property, to which increasing interest has been given since the disease—in so many instances—has proved communicable to the human subject; and they have arrived at the conclusion that *acute glanders is contagious by inoculation from horse to horse.* In the animals they have inoculated, *without a single exception* the infection of glanders has made its appearance from the third to the fifth day.

Standing, however, as the fact of propagation through inoculation does upon the ground of undeniable proof, yet is it also a fact with which those in the habit of practising inoculation are likewise well acquainted, that it is by no means certain that the disease follows the application of the virus: a good deal of fastidiousness or predilection is often manifested on the part of the inoculated subject which we are unable to account for; and this has led some into the error that glanders was not at all or hardly producible in any such manner, and others into the belief that the chances of production were so small as scarcely to render such a result probable. It is evident the success of inoculation must depend upon two conditions:—The condition of the animal from which the matter is taken to communicate the disease, and the condition of the one to whom the matter is applied to receive it; and that, supposing either of these conditions fail, no result can follow. In the case of the ass but just given, it would appear that the horses from which the matter used in the two first inoculations was obtained, were, if glandered at all, but *chronically* so; whereas the

* Posthumous Extracts.

matter that had the desired effect was procured from a condemned subject in the last or ripest stage of acute glanders. In order to insure inoculation for small-pox or for vaccination, we know surgeons to be very particular about the day on which they collect their lymph, believing, nay, knowing, it to be more efficacious or "stronger" at one period than at another, and to grow less efficacious or "weaker" as the disease declines. Why should not something of the same kind happen in the progress of glanders or farcy? It is, indeed, asserted, and on good authority, that in the acute forms or stages these diseases are more contagious than in the chronic or latent forms or stages; a fact which seems to harmonize with the result of our experiment upon the ass, as well as with what we have just observed in regard to the small-pox and cow-pox; those diseases being found to be most contagious when at the height of their natural course.

But inoculated glanders differs strangely from inoculated diseases in general—from inoculated small-pox and cow-pox, for example. These disorders are rendered mild and comparatively harmless by being produced in such manner, whereas glanders, the product of inoculation, commonly manifests itself with augmented virulence and malignity. A horse taking glanders in the common way, apparently spontaneously, may, and often does, have the disease in a sub-acute or comparatively mild form; whereas, when we inoculate an ass for the disease, we expect no other result than, should the inoculation take effect, to see it fall a prey to the ravages of glanders and farcy in the very short space of time of ten or twelve days! Aware of this, we are furnished at once with a reply to persons who inquire of us, why we do not inoculate horses for glanders or farcy, the same as surgeons do children for small-pox and cow-pox? But, supposing even that the disease were, by inoculation, rendered comparatively mild, and in that mild form were curable, still are we not certain that once having it would prove any immunity against taking it afterwards. The fact of the disease appearing in an aggravated rather than a mitigated form after inoculation, also, in some measure, accounts for the rapid and fatal course of it in those melancholy cases in which man has been the subject of it. I do not know that in any instance man has taken the disease save from inoculation: a fact somewhat singular, and one that possibly may prove of some service to us hereafter.

It is not reasoning on sound pathological principles to argue that a disease is not contagious, simply from the circumstance of matter supposed, or even proved, to contain its virus having been besmeared upon the Schneiderian membrane, or having been swallowed into the stomach, without being followed by contamination. I have myself, on several occasions, rubbed upon the membrane

what I imagined to be glanderous matter with impunity. On the other hand, I have produced the disease in this manner. In an experiment apparently so simple as this appears, there are still several conditions on which its success must depend. There is *the condition of the matter*, dependent on the kind, the stage, the duration of the disease affecting the subject from which it was taken; next, there is *the condition of the subject* to which it is applied to receive the disease*; and, lastly, there is to be taken into the account *the condition of the Schneiderian membrane*, ordinarily shielded as it is by its natural mucous secretion from harm, and resistent as it is by nature to the action of *virus* or poison of any kind. I have, on many occasions, imbrued my own hands with the matter of glanders, falsely believing my constitution to be insusceptible of taking any harm, and therefore unheeding whether there were scratches or wounds upon my hands or not: although however I have escaped, and hundreds of others have escaped infection, yet, at length, did one and then another person catch the disease; and now veterinarians no longer dare do that which they have a hundred times before fearlessly done, and with impunity.

With regard to the fact of the matter of glanders having been made up into balls, and so introduced into the stomachs of a horse or ass without producing the disease, a fact to which much importance has been attached by some of our non-contagionists, it is no more than in accordance with experiments of the same kind that have been made with other poisons. Speedily and deadly fatal as the Woorara poison is known to be, inserted in the form of inoculation, Sir Benjamin Brodie found he could administer it by the mouth, even in considerable quantities, without producing any perceptible effect whatever.

* I quite agree in opinion with Mr. Vines, that "strong, healthy, well-bred horses are by far the least susceptible;"—"while, on the contrary, those animals which are badly fed and out of condition, especially asses, whose systems are always weak, are the most susceptible."—*Practical Treatise on the Diseases of the Horse.*

CONTRIBUTIONS TO ZOOLOGICAL ANATOMY.

By James Mercer, *M. D., Fellow of the Royal College of Surgeons, and Lecturer on Anatomy, &c. Edinburgh.*

[Continued from page 412.]

VIII.—*On the Structure and Uses of the Tongue, considered as an Organ of Taste and of Prehension in Graminivorous and Herbivorous Animals.*

It is the generally received opinion that the principal uses of the senses, by virtue of the peculiar properties of their nerves, are to make us acquainted not only with the states of our own body, but also to inform us of the qualities and changes of external nature, in as far as these give rise to changes in the condition of these nerves. This change, termed sensation, is a property common to all the senses; but the kind of sensation being different in each,—in that of light, of sound, of smell, of taste, and of touch.

When we come, therefore, to review these different senses, and observe the manifold conveniences which they individually confer on the animal exhibiting them, the distribution which has been made of them by physiologists, into those possessing "special properties," and those possessing "properties more or less similar to each other," appears to be one founded on facts which can be easily demonstrated, and on conclusions which must be deduced from the facts so produced.

But if we take up a wider range of inquiry, and extend our researches into the fertile field of Comparative Anatomy, we shall find abundant evidence there, that some of those organs, which in man and in the higher classes of animals perform only the part of a special sense, in others contribute very materially to the performance of general functions, such as the ingestion of food, and the affording of assistance to and defending the animal against the attacks of others. The first of these divisions, the "organs of special sense," comprise the organs of vision and of hearing; whilst the second embraces the remaining three, the organs of smell, of taste, and of touch; but, on analyzing these latter more minutely, it would not be difficult to shew, that their arrangement, physically considered, is not strictly correct.

The organ of vision, for example, requires for its peculiar stimulus to exertion the existence of luminous rays transmitted to, and impinging on, its special nerve; and the organ of hearing, in

like manner, depends for its stimulus on the existence of sonorous undulations excited in, or transmitted to, the media in which its special nerve is situated. The existence and nature of the first of these stimuli, however, can only be proven by negative data,—the scholastic dogma of darkness proving the absence of light,—whilst the physical properties of the latter can be rendered more palpable, and can even be brought within the range of our cognizant senses.

Of the three senses included in the second division, that of smell is the more special in its functions, requiring for its excitement to activity the "local application" of external odoriferous particles possessing the physical properties of matter, and which properties can generally be reduced to a palpable and self-evident existence. No other function, however, can, by any reasoning, be assigned to the nose but that of smell, and the investigation of the minute structure of its component parts, in any class of animals possessing the sense, cannot adduce any facts tending to prove the contrary. This sense, therefore, may be looked on as possessing some of those properties which belong to the division of special senses, at the same time that it also exhibits phenomena (in so far as the physical nature of its stimulus is concerned) which require it to be classed with those of common sensation; in fact, it is a link of union between those of special and those of common sensations.

In man, and some others in the higher classes of animals, the tongue seems to serve the function of taste alone; and on investigating the structure and conditions of its upper surface in these, this function can alone be assigned to it.

In taking a review, however, of its uses in the various classes of the vertebratæ, we cannot be justified in considering it as an organ of taste in all of them, although it was long the opinion of naturalists, that "brute animals, especially those which feed upon herbage, and are not liable to be corrupted by example or necessity, distinguish tastes with wonderful accuracy. By the application of the tongue, they instantly perceive whether any plant is salutary or noxious; and to enable them, amidst a thousand plants, to make this discrimination, their nervous papillæ and their tongues are proportionally much larger than in man*." This opinion, however, cannot be tenable on true zoological investigation; and I shall prove in the following pages the very reverse, viz. that the smoother the surface of the tongue and the less developed are its appendages, the more acute is the sense of taste—thus verifying what was long ago observed by Shakspeare, that

"The hand of little employment hath the daintier sense."—*Hamlet.*

* Smellie, Philos. of Natural Hist., vol. i, p. 166.

and, inversely, the more we find these developed, so shall we also observe that the organ acts more as one of prehension than one of taste.

Even in some of the highest classes—the Ruminantia and Felinæ for instance—it principally serves for the prehension and taking in of their food; and it is at least very doubtful whether it possesses the sense of taste in several others, although, on the contrary, we would not be warranted in denying the existence of this sense in these animals, nor even in such as are entirely destitute of the organ, as the function can be performed by other parts, "it not being the effect of a special and limited organ, but a property of the mucous membrane lining the whole of the cavity of the fauces*."

The tongue, the principal organ of taste, and, with the lips, of prehension in the herbivoræ generally, is situated within the anterior cavity of the mouth, the buccal cavity, and forming the very commencement of the digestive organs. Superiorly and anteriorly, the moveable tip of the tongue that is covered by a denser dermo-mucous membrane, and exhibiting more papillary appendages than the body, is placed in contact with the roof of the mouth, that is occupied there by the glands of Jacobson and the cartilaginous canals of Stenon, situated in the anterior palatine fissures, and which form a communication between the nasal fossæ and the mouth. The surface of this portion of the organ of taste is much less sensible than the body and posterior part; but this is compensated for by being placed in contact with such structures in the roof of the mouth, by which the sense of taste merges with and becomes amalgamated with that of smell; a combination of functions evidently possessed by herbivorous animals for the perception of flavours. Superiorly and posteriorly the body of the tongue comes in contact with the surface of the soft palate, the investing membrane of which possesses a considerable degree of sensibility in the perception of sapid bodies. The dermo-mucous membrane investing this part of the organ is also much more delicate and sensitive, and possesses few, indeed almost none, of the papillary appendages for prehension. Laterally, and before, the body of the tongue is connected to the inner surface of the lower jaw, partly by mucous membrane and partly by muscles; above and behind, it is suspended, by means of the isthmus faucium, to the velum pendulum palati, and the internal pterygoid processes of the posterior sphenoid bone; and below, it has a complete attachment to the body, the lesser and greater cornua of the hyoid bone, and to the styloid appendages of the temporal bones.

* Müller, Physiol., vol. i, p. 1059.

In figure and external conformation, the tongue presents a considerable difference in the herbivorous from the canine and feline classes of animals. In the former, though formed of two symmetrical portions, as in all animals, yet it distinctly consists of a narrow, elongated, and extremely moveable portion, the tip, serving the purpose of prehension; and of a thick, firm, and comparatively immoveable portion, the body, attached to the hyoid bone, and evidently serving the purpose of gustation.

In the latter classes, this antero-posterior division is not so prominently developed; but instead thereof, it is formed of two distinctly symmetrical portions, joined to each other along the mesial line, and which latter presents the appearance of a smooth hollow channel, the linea albescens, or worm of the tongue. This linea albescens can be seen to exist in the tip of the tongue of the herbivoræ, but there is no trace of it on the body. In both these classes of animals there is also a considerable difference in the situation, form, and arrangement of the chondro-mucous papillæ or appendages that are developed from the membrane investing the entire dorsum of the organ, and which will be specially considered when treating of this structure.

As the function of the tongue, therefore, evidently consists of two kinds, I shall consider its structure under two heads, the muscular or basement structure, for motion (including insalivation and the primary part of deglutition); and, secondly, the investing membrane, with its appendages, the papillæ, as contributing to that of prehension and taste.

Under the head of the muscles of the tongue there are three groups to be included: first, the extrinsic muscles of the tongue; secondly, the intrinsic muscles of the os hyoides; and, thirdly, the intrinsic muscles of the tongue.

First Group.—The Extrinsic Muscles of the Tongue.

(The Elevators of the Os Hyoides.)

Under this group of muscles are included those that, by their single or combined movements, tend to carry the os hyoides upwards and forwards, under cover of the branches of the lower jaw. It embraces four pairs, viz. the

Digastricus.
Stylo-hyoideus.
Mylo-hyoideus
Genio-hyoideus.

Dissection.—This group of muscles are easily shewn by placing the head upon its side, and in a concave block, and keeping the muzzle well bent backwards over the poll. The integument and

submaxillary fascia and gland being removed, the greater number of them are at once completely exposed.

The *Digastricus* is, as its name implies, a double-bellied muscle, fleshy at either extremity, and tendinous in the centre. It is the most superficial of the muscles contained within the branches of the lower jaw, and is placed immediately within its lower edge. It *arises* posteriorly from the styloid process of the occipital bone, along with the occipito-maxillaris and the occipito-styloideus, and from thence extending downwards and forwards, under cover of the angle of the lower jaw, and inclining inwards to the side of the body of the os hyoides, becomes tendinous to enter the canal in the tendon of the stylo-hyoideus, by means of which it is indirectly attached to the os hyoides. Leaving this canal, it again becomes muscular, and, extending forwards and inwards, becomes *inserted* by a broad and tendinous expansion into the inferior edge of the lower jaw, behind the symphysis. The posterior belly is related externally to the ramus of the lower jaw and the pterygoideus internus, and internally to the stylo-hyoideus, the constrictor pharyngis anterior and medius. The anterior belly is placed immediately beneath the skin, from which, however, it is in part separated by the submaxillary artery: above, it is covered by the mylo-hyoideus, and along the internal side is the submaxillary gland. In its *action* this muscle will carry upwards and forwards the os hyoides, and by this the base of the tongue will be elevated within the mouth: but if the os hyoides be drawn down and fixed, the muscle will then depress the lower jaw, by the posterior belly taking its point of fixion at the occipital bone, and the pivot of motion at the temporo-maxillary articulation.

The *Stylo-hyoideus* is situated along the upper edge of the posterior belly of the digastricus. It is rounded in form, and *arises* posteriorly and superiorly by a strong muscular tendinous origin from the lower edge of the base of the styloid appendage of the temporal bone (the great cornu of the os hyoides of veterinary anatomists generally), and, extending along the posterior belly of the digastricus, it becomes *inserted*, by a flattened tendon, along the side of the body and the posterior cornu of the os hyoides. The inner surface of this tendon is perforated by a canal, which is lined by a synovial sheath, and through which the tendon of the digastric plays, as through a pulley. The relations of this muscle are similar to those of the posterior belly of the digastricus, and the *combined actions* of the two stylo-hyoids is analogous to that of the former muscle, on the os hyoides. If one of them acts alone, then the os hyoides and the larynx generally will be drawn to the corresponding side.

The *Mylo-hyoideus* is situated immediately under cover of the

lower jaw, and is formed of a broad triangular plane of muscular fibres, which, with the muscle of the opposite side, fills up the intermaxillary space, and forms a floor for the inferior part of the cavity of the mouth. It *arises* from the rounded ridge that runs along the inside of the lower jaw from the symphysis backwards to a line with the anterior edge of the ramus, where it turns upwards along the roughened impressions for the pterygoideus internus muscle, to the posterior part of the alveolar edge of the last molar tooth. The fibres from these points run obliquely inwards and backwards, and become inserted into the raphé formed by the two muscles, and into the whole of the projecting carinated process of the body, and into part of the posterior cornu of the os hyoides. Inferiorly, this muscle is related to the anterior belly of the digastricus and to the submaxillary gland and vessels; behind, its tendinous fibres join with the insertion of the sterno-hyoid and thyro-hyoid; and superiorly with the genio-hyoid and all the intrinsic muscles of the tongue; and at the inferior edge of the hyo-glossus it forms a concavity for the reception of the sublingual gland and gustatory branch of the fifth pair of nerves, and which separate it from the mucous membrane of the mouth. Its *action* on the os hyoides is similar to the two former muscles; but it also aids materially in the evacuation of the saliva from both the submaxillary and sublingual glands;—the duct of the former gland, twining around the posterior border of the mylo-hyoid muscle, becomes compressed between it and the hyo-glossus in its course to the mucous surface of the mouth.

The *Genio-hyoideus* is placed immediately above the mylo-hyoideus, and on either side of the mesial plane of the mouth. It *arises*, with its fellow of the opposite side, by a strong and rounded tendon, from the concavity of the symphysis menti, and, extending downwards and backwards, forms a rounded fleshy belly, that becomes *inserted* into the apex of the carinated process of the body of the os hyoides. Inferiorly and externally it lies on the mylo-hyoideus; and superiorly and externally it is related to the genio-hyo-glossus and the sublingual gland, the stylo-glossus longus and brevis, and the hyo-glossus muscles. Its *action* is to elevate the os hyoides, and to compress the sublingual gland against the side of the tongue.

Second Group.—THE INTRINSIC MUSCLES OF THE OS HYOIDES.

Under this group I have included two muscles that are situated between the cornua of the os hyoides, and act especially on its anterior or moveable cornua. These muscles are, the

Anterior chondro-hyoideus.
Posterior chondro-hyoideus.

Dissection.—Remove all the former group of muscles from the os hyoides, dissect away the vessels and nerves from the side of the pharynx, and draw downwards and forwards the bone with a pair of hooks, and both these muscles will be exposed,—the posterior muscle on the side of the bone, and the anterior between the lesser cornua and the convex surface of the epiglottis.

The *Anterior or transverse chondro-hyoideus muscle* is situated along the superior surface of the body of the os hyoides, and between the anterior or lesser cornua. It is formed of a rounded and firm band of fibres of a semi-oval form, convex towards the base of the tongue, and concave upwards and backwards to the epiglottis, from which latter, however, it is separated by the hyoideal insertions of the genio-hyo-glossi muscles.

Its fibres *arise* from the inner surface of the anterior cornu of one side, and arch slightly across to the corresponding surface of the opposite cornu. Anteriorly it is covered by the superior or posterior margins of the hyo-glossi, and the inferior margins of the genio-hyo-glossi muscles; and posteriorly, the arched hyoideal fibres of the latter muscles and some loose fat intervene between it and the epiglottic fibro-cartilage. By its *action* it approximates the anterior cornua of the os hyoides, and by this means compressing the base of the tongue upwards and backwards, causes the contents of the numerous mucous follicles at its base to become emptied of their contents during the passage of the bolus of food over the epiglottis. By this action it also aids the palato-pharyngeus muscle in constricting the isthmus faucium at its base, and serving the purpose, in man, of the palato-glossus, which latter muscle is absent in the quadrupeds. The muscle, however, has no influence over the position of the epiglottis, or the state of the rima glottidis.

The *Posterior chondro-hyoideus* is placed behind the former muscle, in the angle between the anterior and posterior cornua. It is of an irregular triangular form, with two of its sides attached; one to the anterior edge of the posterior cornu, immediately within the origin of the hyo-glossus, and before that of the constrictor pharyngis medius; and the other, *its insertion,* is attached to the whole of the posterior edge of the anterior cornu. Externally it is covered by the inferior extremity of the styloid appendage of the temporal bone, the hyo-glossus, and the tendons of the stylo-hyoideus and digastric muscles; and internally it lies on the genio-hyo-glossus and the constrictor pharyngis anterior. In the combined actions of both muscles they draw backwards and fix the anterior cornua to the body and posterior cornua of the os hyoides, and, thus fixing the extremities of the styloid appendages of the temporal bones to the anterior cornua, enables the muscles

that proceed from these appendages to act with perfect energy on the different parts of the tongue to which they are distributed. They also have no influence on the condition of the anterior aperture of the larynx.

Third Group.—The Intrinsic Muscles of the Tongue.

Under this group are included those muscles that form the substance of the tongue, and comprehends the

Hyo-glossus.
Stylo-glossus longus.
Stylo-glossus brevis.
Genio-hyo-glossus.
Lingualis.

In this arrangement the muscles are enumerated as they are observed on dissection from the side to the centre of the tongue, excepting, however, the lingualis, which is chiefly spread out along its surface.

The *Hyo-glossus* is a thick, square-shaped muscle, placed obliquely along the side of the base of the tongue. It *arises* from the concavity along the side of the body and the greater part of the edge of the posterior cornu of the os hyoides. The fibres generally run in a direction vertical to the long axis of the tongue; those that come from the posterior cornu pass upwards and backwards to the base of the tongue; and those from the body of the bone run forward to the side of the middle of the organ, where they become amalgamated with the substance of the genio-hyo-glossus, and the deep fibres of the lingualis, under cover of the stylo-glossus longus. None of the fibres proceed to the tip of the tongue, and they are seldom found beyond the elevated line on its dorsal surface, that separates the body from the moveable tip. Externally and inferiorly it is covered by the mylo-hyoideus, the stylo-hyoideus, the tendon of the digastricus muscles, and the lingual nerve; and, internally, it lies on the lesser cornu of the os hyoides and the articulation between it and the apex of the styloid appendage of the temporal bone. Here the muscle also covers the lingual artery, that lies on a plane with the lingual nerve; also the chondro-hyoidei, the stylo-glossus brevis, and the genio-hyo-glossus muscles. When the two muscles are combined in their action they depress the sides of the tongue, render it convex along the centre, and also retract it entirely within the mouth; and one muscle acting alone will carry the base and body of the organ to its corresponding side.

The *Stylo-glossus longus* is situated along the entire side of the tongue, and immediately beneath its investing membrane and the sublingual gland. It *arises* posteriorly from the external surface of the apex of the styloid process of the temporal bone, and, passing along the external surface of the hyo-glossus, becomes *inserted* by its superior edge into the substance of the tongue as far as the tip. As it proceeds onwards in its insertion, the substance of the muscle becomes greater, and beyond *the body of the tongue* it forms, with its fellow of the opposite side, nearly the entire substance of the tip or point. Externally and inferiorly it is covered by the mylo-hyoideus the duct of the submaxillary gland, the gustatory branch of the fifth pair of nerves, and the mucous membrane covering the side of the tongue; and internally it lies on the hyo-glossus, and genio-hyo-glossus muscles. The *action* of both muscles is to *retract* the entire substance of the tongue within the mouth, as also to turn upwards and backwards its tip, so as to carry any food from the roof of the mouth and the buccal, or cheek pouches, backwards to the isthmus faucium; and from their being in conjunction with the genio-hyo-glossi muscles that protrude the tongue, the inferior or anterior aperture of the nostrils and the lips and whiskers are cleared of any adherent matter, and carried within the mouth. *They are, therefore, those muscles of the tongue that collect the food for the lips.* One of these muscles acting alone, will place the tongue in the corresponding check pouch; and it may be observed that these muscles are the most important of the intrinsic muscles of the tongue, inasmuch as they form almost the entire substance of its moveable portion or tip, and they also are the most important agents that contribute towards the function of the tongue as an organ of prehension.

The *Stylo-glossus brevis* is a small muscle, and placed deeper than the preceding, between the hyo-glossus and the genio-hyo-glossus. It *arises* from the apex of the styloid appendage of the temporal bone and the point of the anterior cornu of the os hyoides, where its fibres join with those of the convex edge of the anterior chondro-hyoideus; and passing forwards into the centre of the tongue, it becomes *inserted*, partly with the stylo-glossus longus, and partly with the fibres of the genio-hyo-glossus, into the body of the tongue near its centre. Externally it is covered by the hyo-glossus and the stylo-glossus longus muscles; and internally it covers the lingual artery and the genio-hyo-glossus muscle. In its *action* it combines the uses of the stylo-glossus and genio-hyo-glossus; with the former retracting the tongue, and with the latter depressing the central line, and rendering it concave for the safe passage of fluids towards the pharynx.

The *Genio-hyo-glossus*, forming the central muscle of the tongue, is thin and triangular, narrow and pointed at its origin from the lower jaw, and radiated towards its insertion. It *arises* from the concavity of the symphysis menti, immediately in front of the genio-hyoideus, and, becoming radiated, it is *inserted* into the whole length of the tongue, from the tip to its base, and also into the body and anterior cornu of the os hyoides.

Externally it is covered by the anglo-hyoideus, the stylo-glossus longus and brevis, the hyo-glossus, and the apex of the styloid appendage of the temporal bone, the sublingual gland, and the gustatory branch of the fifth pair of nerves. Internally it lies in apposition with the opposite genio-hyo-glossus, and posteriorly its hyoideal fibres arch over the concave edge of the anterior chondro-hyoideus. In its *action* it produces several of the movements of the tongue. When it is fixed and pointed by the other muscles, the posterior fibres carry it out of the mouth, and the anterior set will afterwards restore it to its usual position. The whole length of the muscle acting along the centre, will render it concave along the mesial line, and form a channel for the safe passage of the liquid part of the food to the pharynx.

When we look, therefore, to the various movements of the organ in the graminivora, the herbivora, and the carnivora, we find them very numerous and complicated. On analysing them, however, we find that they may be arranged under the elementary forms of protrusion, retraction, depression of the centre and of the tip; elevation of the tip, and lateral inclination of the whole. The muscles, therefore, that induce these different movements may be thus classified:—*Protrusion* is effected by the genio-hyo-glossi, and these with the hyo-glossi and stylo-glossi breves again produce *Retraction*. *Depression of the centre* is the result of the combined actions of the middle fibres of the genio-hyo-glossi, the hyo-glossi, and the stylo-glossi breves muscles. *Depression of the tip* is caused by the contraction of the anterior fibres of the genio-hyo-glossi: *elevation of the tip* by the stylo-glossi longi, *and lateral inclination of it*, so as the whiskers may be cleaned, food grasped, or the cheek pouches emptied by the stylo-glossi longi and breves and the hyo-glossi muscles. *Compression and elevation of the base* towards the mouth is caused by the anterior chondro-hyoideus; and *retraction of the base and passive depression of the epiglottic fibro-cartilage* on the anterior aperture of the larynx is completed by the action of the posterior chondro-hyoidei.

The *Lingualis muscle* is the term applied to a series of irregular bands and lamellæ of muscular fibres placed chiefly immediately beneath the dermo-mucous membrane of the tongue.

According to Gerdy*, it consists of four sets of fibres,—a transverse set, a vertical set, two deep sets, and a superficial lingual layer. The *transverse lingual muscles* are placed beneath the superficial layers; they traverse all the breadth of the tongue, and, passing between the lateral fibres of the superficial lingualis, which they cross almost at right angles, attach themselves to the investing membrane under the edge of the organ. They are divided along the centre of the tongue by the fibro-cellular band, the linea albescens or worm of the tongue, and behind they become gradually more and more curved towards the base of the organ. *The vertical set* stretch from the inner surface of the membrane that covers the superior surface of the tongue to that which invests it below, over its entire extent, and mixes itself freely with the fibres of the transverse set, in the form of a warp. They become much curved and oblique towards the base of the organ. *The deep set* of fibres consist of two fasciculi placed on either side under the two posterior thirds of the tongue, between the hyo-glossi and genio-hyo-glossi muscles. In the ox their fibres are attached behind to the glosso-epiglottic yellow elastic tissue.

The superficial set of fibres are the most important of the whole, and alone act on the surface of the tongue and its papillæ.

This muscle consists of two distinct lamellæ of fibres, extending from the base to the tip of the organ, and separated from each other by the linea albescens. In their general outline and configuration they are slightly parabolic; their concavities looking towards each other along the median raphè, and their convexities to the margins of the tongue. Posteriorly they arise by means of the glosso-epiglottic elastic tissue from the upper surface of the os hyoides, and from thence proceed forwards to the different portions of the adherent surface of the investing membrane. The inner set of fibres are considerably the shortest; but they gradually become more lengthened as they are examined near the margins. Their free or inserted extremities are into the whole of the lower surface of the investing membrane. This can be proved by two facts,—first, by the roughened appearance of the dissection after its most careful removal, this condition evidently depending on the severing of the muscular fibres from it in their transverse direction; and, secondly, from our inability to trace, even by the aid of a glass, any of the muscular fibres forming this layer curving downwards to the base of the organ—the general tendency of all the muscles of the tongue, the intrinsic and extrinsic, being towards its upper surface and tip.

* Recherches, Discussions, et Propositions d'Anatomie, de Physiologie, de Pathologie, &c. p. 20, et seq. Paris, 1823.

Immediately beneath these layers of muscular fibres we find another layer of comparatively loose cellular tissue surrounding the free extremities of the different muscles of the body of the tongue. This layer is very vascular, being freely supplied by terminal branches of the lingual arteries.

In some animals, as the chameleon, it is better developed than in others; and in this animal forms a distinct layer of erectile tissue, which becomes tense and turgid during the sudden and rapid darting of the organ on its prey.

Where it is not so well developed, the rete Malpighi chiefly serves the purpose of enabling the superficial lingual muscles to be freely and easily moved from before backwards over the surface of the tongue, unconnected and unrestrained by the influence of the other muscles, from which they are completely separated. Analogously considered, it is similar in situation and use to the adipose layer on the surface of the body, which separates the panniculus carnosus from those muscles which are in immediate connexion with the trunk, and thereby has its action confined to the common investing membrane and its appendages.

Having thus traced the fibres of the muscles, and seen that they are extended along the whole of the upper surface of the organ, and fixed posteriorly to the os hyoides, it will be easy to observe, that this latter must be the part whence it can become fixed before it can be called into action. Taking this, therefore, as its point of fixion, whenever it contracts, either by the will of the animal or by the presence of some stimulus, it becomes shortened in its length, and puckered, as it were, into transverse folds; and it will also be observed, that, in consequence of the intimate attachment of the anterior extremities of the fibres to the adherent surface of the investing membrane, this must also be shortened and wrinkled in a corresponding ratio. No sooner, therefore, will this be effected, than its immediate and free prolongations, the papillæ, will have their bases drawn backwards along with it, and with the natural consequence of lifting up and tilting forward their apices; so that when the entire muscles are in a complete state of contraction, and the investing membrane shortened to its greatest possible condition, the whole of the papillæ on the dorsum of the tongue are raised up, and arranged, as already stated, in nearly regular undulating lines; serving thereby as so many tenter-hooks for assisting in laying hold of the grass in the herbivora, and forming so many hollow channels for lifting up, and containing safely, the fluids in such animals as take in this part of their food by lapping.

The generally received opinion of the action of these muscles, viz., "of bending up the tip of the tongue," can only therefore be

a secondary effect, following the perfect evolution of the papillæ; but I doubt much if the muscles ever act in this manner, seeing there is a sufficient number of more powerful ones to perform it.

[To be continued.]

AN ESSAY ON FAT AND MUSCLE.

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The object of this essay is to endeavour to explain "the causes that appear to determine the production of fat and muscle respectively, according to the present state of our knowledge of animal physiology." Formerly the study of the uses and functions of the different organs, and of their mutual connexion in the animal body, was the chief object of physiological research; but, although they yielded the most valuable results in relation to the recognition of dissimilar forms and conditions to be found in healthy and diseased structures, they afforded no conclusions calculated to give us a more extensive insight into "the essence of the vital processes." The recent alliance of chemistry with physiology has furnished most valuable data both in this respect and as regards the nutritiveness of particular vegetables in the feeding of our domesticated animals. The most important discoveries in this branch of science are those of Professor Liebig, he being admitted by the unanimous voice of European chemists to be the first living authority on Organic Chemistry. Professor Playfair was the first English chemist who attempted to apply those discoveries to the practical purposes of the farmer—holding up the torch of science, as it were, to the agriculturalists, and teaching them the advantages to be derived from the union of practice with science. It will be seen, in the course of this essay, that we have adopted many of the physiological views of Professor Liebig: and, if we have succeeded in adding but one useful fact to the mass of knowledge already acquired, and which may be advantageously put into practice in the ordinary operations of a farm, our object will be sufficiently realised.

Your attention will first be directed to some of the phenomena connected with *nutrition* and *growth*. When we consider that

the food of vegetables and animals is either altogether different in their substance, or passes before being assimilated into a new form, we must admit that the nutrition and growth of both depend on chemical agencies, although these operate under peculiar conditions, and are influenced by the unknown force which is termed the *vis vitæ*, or *vitality*, so as to produce results that cannot be imitated by the chemist. The food of vegetables is derived from the crude and simple materials which they absorb from the *air*, the *earth*, and the *waters*. These, after being converted by the powers of vegetable assimilation into the substance of the plant, acquire the characteristic properties of organized products. Hence, plants can grow at the expense of the elements around, where no living substance ever previously existed; while animals, on the contrary, can only exist upon matters previously organised either by plants or other animals. In their well-marked forms, no two things can be conceived to offer a stronger contrast than these great divisions of organized beings; yet the naturalist cannot determine, in the animated chain, where the one ends or the other begins; nor can the chemist detect, by his analyses, any greater differences in their constituent parts.

Before, however, we can comprehend the manner in which these changes are effected in the living organism, we must make ourselves acquainted with some of the laws, vital and chemical, that regulate the metamorphoses of these materials, and the interchange of atoms occurring between the blood and the structures in the process of nutrition. Accordingly, we will first direct your attention to the process by which the aliment is received into the bodies of animals, and prepared to form a part of their fabric. When the food has entered the stomach, the gastric juice is poured out, and the whole is converted into a pulpy mass termed *chyme*. The process by which this step is produced in the assimilation of the food constitutes what is commonly called *digestion*. The next step occurs in the intestinal canal, where the chyme is united with the biliary and pancreatic secretions, and becomes converted into *chyle*. Brande found no essential difference in the chyle of graminivorous and carnivorous animals. Dr. Marcet imagines that the former is less abundant in albumen than the latter; and Liebig informs us that all the compounds of proteine, absorbed during the passage of the chyme through the intestines, take the form of albumen. The chyle is absorbed from the inner surface of the intestines by a set of vessels termed *lacteals*, which commence by very minute orifices in incalculable numbers, and unite successively into larger and larger vessels until they form trunks of considerable size, which empty their contents into a *receptacle* for that purpose, forming the entrance to the *thoracic duct*. In this

receptacle, other absorbent vessels termed *lymphatics* also terminate, and empty their contents. The fluid which they convey is of nearly the same character as that brought by the lacteals. Almost every part of the body is in continual decay, so that we may justly say death and decay are constantly going on in every living body, and are essential to the activity of its functions—a quantity of organised matter being continually removed, and replaced by that which is newly formed. Of this, a portion is doubtless unfit to be retained within the body, and is cast out by the various processes of *excretion;* but it appears that another portion of it may again be made use of, and is, in fact, taken up by the lymphatics, and brought to the central receptacle to be mixed with the newly absorbed chyle: so that an animal may be said, in a certain sense, to live upon its own flesh. The *chyle* and *lymph* thus mixed together flow into the thoracic duct, by which they are conveyed into a large vein—the *jugular*—and are sent together by a direct and short course to the lungs.

The changes which result from the passing of the blood through the lungs form a very important part of the process of nutrition. The blood, the newly formed as well as that which has been returned by the circulation after repairing and renovating the tissues, here comes in contact with the atmospheric air, which is principally composed of two gases, oxygen and nitrogen, in the proportion of 21 parts of the former and 79 of the latter, beside the watery vapour with which the atmosphere is always more or less charged. A change immediately takes place, from the dark purple which the blood has when it is brought to the lungs, to a bright vermilion colour. When the air has produced this effect it is found that a certain proportion of oxygen which it had contained has disappeared, and the place of the oxygen is almost wholly supplied by an addition of carbonic acid gas, together with a quantity of watery vapour. With regard to the nitrogen of the atmosphere Liebig says that it is applied to no use in the animal economy except diluting the oxygen; while other chemists, Mulder for instance, affirm that nitrogen is both absorbed and exhaled by the blood in respiration.

The question next arises, what becomes of the oxygen that disappears in respiration, and what is the origin of the carbonic acid gas? The blood consists of the same elements as the food which the animal consumes, containing, as we have seen, a very large proportion of carbon and hydrogen: and as carbonic acid gas consists of oxygen and carbon, it is evidently the result of the combination of the oxygen with the carbon of the food. According to Boussingault, "a horse consumes in this manner in twenty-four hours $97\frac{1}{8}$ oz. of carbon, and a milch cow $69\frac{9}{10}$ oz.; and the former requires

in order to convert the carbon into carbonic acid 13 lbs. $3\frac{1}{2}$ oz. of oxygen, and the milch cow 11 lbs. $10\frac{3}{4}$ oz. in the same time.

In whatever way carbon may combine with oxygen, the act of combination cannot take place without the disengagement of heat. There exists in the living body no other known source of heat but the chemical action between the elements of the food and the oxygen of the atmosphere, and it signifies nothing what intermediate changes the food undergoes in becoming assimilated to organised tissues, or in its passage through the liver in the formation of bile. The last change is uniformly the combustion of the carbon and hydrogen, and the production of carbonic acid, watery vapour, and animal heat. No part of the oxygen taken into the system is given out again in any other form than that of a compound of carbon and hydrogen; and as these substances are supplied in the food, it is clear that the amount of nourishment required for any animal will be proportionate to the quantity of oxygen taken into the system.

There are two causes which chiefly contribute to increase the consumption of oxygen gas; these are TEMPERATURE and EXERCISE. We will proceed to consider the effect of these in the living organism by a few examples from the farmer's every-day practice. In the winter the air is more condensed than in the summer, consequently the same volume of air in the winter contains a larger per centage of oxygen than in warm weather, when it is more rarified. It is for this reason that a larger supply of food is consumed by persons living in cold countries than by those who are inhabitants of hot climates. We thus perceive an explanation of the apparently anomalous habits of different nations. The maccaroni of the Italian and the train-oil of the Greenlanders are not adventitious freaks of taste, but necessary articles fitted to administer to their comforts in the different climates in which they have been born.

Example No. 1.—A flock of Leicester sheep on tolerably good food will increase in weight throughout the year about 52 lbs. of mutton for each sheep, but this accumulation takes place chiefly during the spring and summer months, for, during the cold weather, it requires all the farmer's supplies of food to keep them at the same weight. Should the cold prove very intense, and the supplies of carbon and hydrogen in the form of food be not at hand, the store of fat which the animals have been accumulating in the mild seasons will be soon made use of to keep up the animal temperature.

Example No. 2.—"One hundred sheep were folded by divisions of pens, each of which was 22 feet in length by 10 feet in breadth, and possessed a covered shed attached to it. They were kept there

from the 10th of October to the 10th of March. Each sheep consumed on an average 20 lbs. of swedes daily. Another hundred were folded in similar pens, but without sheds, during the same time, and their daily consumption of swedes amounted to 25 lbs. each. The sequel was, that those sheep which enjoyed the protection of the covered sheds had increased 3 lb. each more than those that were left unprotected, although the latter had consumed one-fifth more food*."

Example No. 3.—In the mountainous districts of Scotland, the necessity of artificial shelter for sheep has long been acknowledged —for, when the stormy season sets in, there is a necessity of feeding the sheep with hay, both morning and evening, the quantity of the fodder necessary being generally proportionate to the degree of cold.

Rest also, as well as the necessary protection from cold, is an equivalent for food. The consumption of oxygen in a given time may be expressed by the number of respirations; it is, therefore, obvious that in the same animal the quantity of nourishment required must vary with the force and number of respirations, and, as the number of respirations is fewer in a state of *rest* than during labour or exercise, the quantity of food necessary in both instances must be in the same ratio. This can also be exemplified by the farmer's daily practice, since he is well aware that the quieter an animal is kept when feeding, the quicker it fattens.

Example No. 1.—It is uniformly found that a stall-fed cow in the summer will yield considerably more butter and milk than one fed in the field with a greater supply of food. The reason is obvious; absence of oxygen prevents the inspiring of so large an amount of it as would take place in the open air.

Example No. 2.—In the rearing of calves for veal in Holland, it is usual to confine them in suckling houses or pens so narrow that the animal cannot turn round. The calf is fed through an opening in the doorway, just large enough to allow the head of the animal to be thrust out: as soon as he is fed, the opening is closed, and the animal is kept in total darkness. In this manner it is found that calves get fat in a considerably shorter period than if allowed to move freely in an open stall.

Example No. 3.—In the suckling of house-lambs of the early Dorsetshire breed for the London markets, the dams are fed with hay, oil cake, and cabbage in an enclosure adjoining the apartments where the lambs are confined. The lambs are excluded from the light, except at the intervals when the shepherd suckles them upon the ewes. Some feeders confine their lambs in narrow

* See Journal Royal Agri. Soc., vol. iv, p. 222. Professor Playfair's Lectures.

separate stalls to prevent them from playing with one another; but others deem the exclusion of light and the absence of motion and noise the best for this purpose. By these means they speedily fatten, and their flesh becomes exceedingly white and delicate.

This brings us to that very important part of our Essay, the PRODUCTION OF FAT. We have seen, from the examples just adduced, that, under certain circumstances, viz., the absence of exercise and cold, and the presence of a proper supply of food, herbivorous animals speedily become fat. By reference to the table containing the relative proportions of nutritious matter in the ordinary cultivated crops of the farmer, it will be seen that the proportion of beef-suet which exists in wheat or barley or straw and turnips, is exceedingly small; indeed, the turnip does not contain any, and yet animals under such a diet will speedily fatten. The fat, then, is the product of a peculiar digestive process on the unazotised constituents of the food, and is formed in consequence of a want of due proportion between the food taken into the stomach and the oxygen absorbed by the skin and lungs. The chief source of fat is starch and sugar, and its composition is such, that if deprived of oxygen, fat remains. "Thus, if from starch C 12, H 10, O 10, we take 9 at oxygen, there remains C 12, H 10, O 1, which is one of the empirical formulæ for fat." It is obvious from this that Liebig's theory is the right one, and that fat can only be formed by a process of deoxidation. He regards fat as an abnormal condition, since wild animals, such as the hare, the roe, and the deer, never produce any—the exercise which they continually undergo preventing its formation. Besides this, they never eat except when hunger requires it, while the sheep and the ox eat almost without intermission, and, when young, they convert into fat and organized tissue all the nutritious parts of their food beyond the quantity required for supplying the respiratory process and the waste of the system; so that they soon become plump and fleshy.

Want of exercise, then, and diminished cooling are equivalent to a deficient supply of oxygen, for when these circumstances occur, the animal absorbs much less oxygen than is required to convert into carbonic acid the carbon of the substances destined for that purpose. We have a beautiful example of this in the "conditioning of the hunter," which consists in giving such exercise and food as will, without reducing the strength of the animal, prevent the formation of superfluous flesh and fat. *Air*, *exercise*, and a proper supply of nitrogenised food, such as oats, peas, beans, &c., contain the grand secret in the art of training. But these articles also contain a large proportion of starch and fatty matters,

and yet when in proper condition, the hunter never becomes fat. The reason is, that these substances, by the constant exercise which is given, are consumed in the lungs, while, under different circumstances, the same horse with little exercise and little oats, being fed chiefly with straw, hay, and turnips—articles that do not contain a quarter part of the fattening principle of food contained in the hunter's diet—would be found plump and fat. Here we have the normal and abnormal conditions compared together, as they regard the capability of horses to undergo fatigue, since the well-conditioned hunter is capable of undergoing great exertion with very little fatigue—while the frothy lather with which the non-conditioned horse is covered after very little exertion, evinces undeniable inferiority.

From what has been stated, then, we may safely conclude that fat is chiefly produced from the starchy matters contained in the food of animals, all the excess of which that is not consumed in producing animal heat is taken back into the circulation, and deposited, in the form of fat, in cells appropriated for that purpose. It would appear also that the bloodvessels have the power of taking back the fatty matter again into the circulation, when it is required; so that one of the objects which this deposition fulfils is to store up, when nourishment is abundant, a supply that may be taken back into the system, and made use of in time of need.

These accumulations are found in different parts of the bodies of animals of the same kind, some breeds of cattle being disposed to carry fat externally, and others internally, while in others it is mixed in the muscle, forming what is commonly called a proper mixture of fat and lean. In the races of cattle disposed to carry fat externally, the African ox, with a large fatty hump on his shoulder, and the mild zebu of India, with an immense lump of fat on his neck and rump, are striking examples. Among sheep we have many instances of accumulations of external fat. Throughout Arabia and Syria, the countries over which the patriarchal shepherds roamed, the breeds, which are two, are characterised by immense accumulations of fat on their rumps and tails. In one breed, we have an accumulation on the tail, averaging from 14lbs. to 18lbs., while the dead weight of one of these sheep will not amount to more than 50lbs. or 60lbs. The Cape sheep are also of the broad fat-tailed kind. These animals have little or no internal fat, it being chiefly collected on their rumps and tails. Climate must have some influence in producing these characteristics, since the very women are distinguished at the Cape for their prodigious fatty rumps. In our own country, examples of external fat are particularly seen in the once-famed Dishley breed of cattle, which have an accumulation of fat spreading itself over the rump. There

appears a tendency of the fatty tissue to remain separate from the muscle, in the improved long-horned breed, the fat mingling less with the lean than in any other of our native breeds. The Hereford breed have also a similar tendency, but not nearly in so great a degree. In the Jersey breed of cattle, we have an example of accumulations of loose fat in the inside. This peculiarity is common, more or less, to all good milching breeds, for they all turn out well when well fed, in the "fifth quarter." Some French and Spanish cattle, imported into Cornwall in the summer of 1842, when killed, shewed an immense accumulation of internal fat; they were also particularly lean and coarse-looking animals. In the improved Devons, the fat and muscle are generally well mixed; while in the common coarse breed of the Devon kind we have plenty of inside tallow. The short-horns carry more inside fat in proportion to their size than the improved Devons; they are also better milkers. From these examples we may safely infer that the better the milking qualities of the breed are, the more likely is that breed inclined to carry inside fat.

THE VETERINARIAN, OCTOBER 1, 1844.

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

THE VETERINARY PROFESSION—THE CHARTER.

No. I.

Whitehall, July 10, 1844.

Sir,—I AM directed by Secretary Sir James Graham to transmit to you the enclosed copies of two petitions, agreed to at a meeting of the Governors of and Subscribers to the Royal Veterinary College of London, holden on the 1st instant.

Sir James Graham is desirous of receiving any answer or statement which the Council of the Royal College of Veterinary Surgeons may wish to make, especially with reference to the allegation that their Charter was obtained without the knowledge of

the petitioners, and that there was an understanding between the parties that the proposed Charter, or instrument for that purpose, should be submitted to the Professor and Assistant Professors of the Royal Veterinary College of London for their consideration, after all the provisions to be inserted had been set forth in it, and that it should contain nothing which could prove detrimental to the Royal Veterinary College of London—and that the full draft of such instrument was never submitted to them previously to its ultimate presentation, and that they were in ignorance of several provisions contained in it, which they now find will operate prejudicially to the said College.

I am, Sir,
Your obedient Servant,
S. M. PHILLIPS.

THOS. TURNER, Esq. President of
the Royal College of Veterinary Surgeons.

No. II.

To the Right Honourable her Majesty's Secretary of State for the Home Department.

The humble Petition of the Noblemen and Gentlemen Subscribers to the Institution called the Royal Veterinary College of London, agreed to at a General Meeting of the Governors and Subscribers, holden at the College on the 1st July, 1844,

Sheweth,—That in the year 1791 the Royal Veterinary College of London was established, for the purpose of education in the veterinary science. The College is supported by voluntary public subscriptions, and is governed by a board consisting of President, Vice-President, and a Committee of Governors. There are three professors of veterinary science, who are the teachers and lecturers in the various branches; a board of medical officers of the highest attainments also, with the assistance of the professors, are examiners of the pupils, and a lecturer on chemistry and the materia medica; forming, altogether, as efficient an institution for the instruction and admission of persons to practise in the profes-

sion of veterinary surgeons as the fullest protection to the public can require.

That about forty years ago Parliament, being convinced of the public advantages of this College, granted a sum in its aid; but for the last thirty years the College has supported itself without further aid, and has gradually risen in the estimation of her Majesty's military authorities and the public, for the sound and efficient mode of education there adopted; in proof of which may be adduced the appointment upon the recommendation of this College.

That your petitioners have now a large property embarked in this Institution.

That the College has hitherto subjected their pupils to a rigid examination of their qualifications in the veterinary science, and has granted to all such as had duly qualified themselves, a diploma or certificate of qualification, which, while it afforded great protection to the public, enabled the pupils, from their competency and efficiency, to take a position in after-life much to the credit and advancement of the profession which this College has established.

That to the surprise of your petitioners, her Majesty has been induced, in accordance to the petition of certain veterinary surgeons, founded entirely on the public advantages which have arisen from this College—to grant a Charter to veterinary surgeons holding certificates from this and the Edinburgh College, erecting them into a corporation by the title of "The Royal College of Veterinary Surgeons."

That the petitioners for such Charter in no way represented the President, Vice-President, Governors, Trustees, or Subscribers to this College; and their petition was presented, and the Charter thereupon obtained, without the knowledge or consent of your petitioners, whose Institution, after a struggle for a period of upwards of fifty years, is thus rendered subservient to a corporation which has no ground for existence than that based upon the success and advantages of this very Institution.

That the Charter so granted renders nugatory any examination by the efficient board of your petitioners' College, and converts the

College simply into a school for the education of pupils in the veterinary science. The Charter also precludes any Professor of your petitioners' College from interfering in the examination of students applying to become a member of the chartered corporation, and authorises generally, orders, bye-laws, and rules, to be made by the said corporation for the management of their affairs, and for regulating the examination of students, which will be highly prejudicial to the College of your petitioners.

No. III.

To the Right Honourable her Majesty's Principal Secretary of State for the Home Department.

The Humble Petition of the Noblemen and Gentlemen Subscribers to the Institution called the Royal Veterinary College of London, agreed to at a General Meeting of the Governors and Subscribers, holden at the College on the 1st July, 1844.

Sheweth,—That in the Charter lately granted for the establishment of a College, to be called the College of Royal Veterinary Surgeons, that the names of

WILLIAM SEWELL
CHARLES SPOONER, and
JAMES B. SIMONDS,

being the Professor and Assistant Professors of the Royal Veterinary College of London, appear as petitioners for the granting of the Charter in which their names are thus included.

That it is true the above persons signed a petition purporting to be for a Charter to establish an institution such as the Royal College of Veterinary Surgeons; but they did so on an understanding that before any specific instrument for such purpose was applied for, that such instrument should be submitted to them for their consideration, after all the provisions to be inserted had been set forth in it; and that it should contain nothing which could prove detrimental to the Royal Veterinary College of which they are the officers.

That the full draft of such instrument never was submitted to them previous to its ultimate presentation; and that they were in ignorance of several provisions contained in it, which they now find will operate prejudicially to the Royal Veterinary College.

That the President, Vice-Presidents, Trustees, Committee of Governors, and Subscribers of the Veterinary College, as stated in the petition herewith enclosed, were left in ignorance of any intention to petition for any such Charter for the institution of a College of Veterinary Surgeons, and urge the objections and complaints contained in this document.

In explanation of the words "rendered subservient" in the 13th line of page 2 of said draft—that the Royal Veterinary College will be rendered subservient to the new institution on account of its diplomas hereafter to be granted taking the place of those hitherto granted by the Royal Veterinary College, which have hitherto insured sufficient attainments in her graduates—that in proof of this, her Examining Board already proposed to dissolve itself; and that the new institution proposes to consider as qualified for examination at their board, persons basing their claims upon their connection with the Royal Veterinary College, but who have not submitted for final examination to the examiners of, or been certificated by the Examining Board of the Royal Veterinary College.

W. SEWELL, Governor,
On the part of the Governors.

No. IV.

The Prayer of the Noblemen and Gentlemen, Subscribers to the Institution called the Royal Veterinary College.

THAT your petitioners disclaim all wish to interfere with any institution her Majesty may think well to organize, for ensuring the efficiency of veterinary practitioners; but humbly pray that two of the medical officers, and one of the professors attached to your petitioners' College, may, *ex officio*, form part of the Board of Examiners of the Chartered Corporation, since occasions may arise

on which the attainments and conduct of pupils at this College may be misrepresented.

That no student shall be competent to examination by the Board of the Chartered Corporation who shall not have obtained a certificate of qualification from the Examiners of the College of your petitioners, or one of the other Colleges named in the said Charter.

That, should her Majesty deem that the insertions or alterations of the provisions of the Charter here designated be such as are inconsistent with its spirit and intention, that then your petitioners pray that the Royal Veterinary College of London be altogether withdrawn from the operations of the said Charter, to the obtaining of which they have been no parties; and that the Royal College may be permitted to re-assume the same independent position it has hitherto held.

W. SEWELL,
On the part of the Governors.

I hereby join in and sanction the substance and prayer of the above petition.

ANGLESEY,
Vice-president.

No. V.

At a meeting of the Council of the Royal College of Veterinary Surgeons, specially convened, and held at the Imperial Hotel, Covent Garden, in the county of Middlesex, on Friday, the 19th day of July, 1844, for the purpose of receiving and taking into consideration a communication received by the President from the Secretary of State, and afterwards by adjournment at the same place on Monday, the 22d of July, 1844,

Present,—Mr. TURNER, President, in the Chair.

Mr. Cherry	Mr. Mayer, sen.
Mr. Ernes	Mr. Spooner
Mr. Braby	Mr. Baker
Mr. Simonds	Mr. Robinson
Mr. James Turner	Mr. Henderson
Mr. Field	Mr. Gabriel
Mr. T. W. Mayer	Mr. F. King.

The letter from Mr. Under-Secretary Phillipps to the President of this College, and the copies of two petitions which had been presented to her Majesty's principal Secretary of State for the Home Department, from "The Noblemen and Gentlemen, Subscribers to the institution called the Royal Veterinary College of London, agreed to at a general meeting of the Governors and Subscribers, holden at the College on the 1st July, 1844," having been read and very fully considered, and this Council having taken all the means in their power to ascertain the particulars referred to in such petitions, beg, agreeably to the suggestion of the Secretary of State, to transmit to him the following statement of facts:—

That, in the year 1840, the memorial marked A * was presented to the Governors and Subscribers of the Royal Veterinary College of London, at their annual meeting, by deputation, which deputation requested the Governors of that College to petition for a Royal Charter of Incorporation for themselves and for the veterinary profession. That, shortly afterwards, the Governors of the Royal Veterinary College returned the answer marked B†: that in consequence thereof a meeting of the veterinary profession was called by public advertisement, which meeting elected a Committee for the purpose of endeavouring to obtain for the profession a Royal Charter of Incorporation, upon some such plan and constitution as the then Royal College of Surgeons enjoyed: that the utmost publicity was given to those proceedings: that, early in the year 1841, the Committee prepared the petition and address marked C‡, copies of which were sent to the Professors of the Royal Veterinary College of London: that, in addition, a deputation was appointed to wait upon those gentlemen, and that such deputation had an interview with them at the Royal Veterinary College of London, Mr. France, the solicitor to the Governors of that College, being present, and being then introduced to the deputation as the legal adviser of the College: that at that interview it was admitted by the Professors and Mr. France, that it was perfectly just and right for the veterinary profession to have a

* See VETERINARIAN, vol. xiii, p. 193. † Ibid, vol. xiii, p. 543.

‡ The petition and address here referred to is the same as that circulated among the profession in the early part of the year 1841.

Charter of Incorporation, but that the Professors then declined to sign the petition unless the Committee consented to certain alterations being made in the petition by Mr. France, the solicitor of the Governors: that the alterations suggested by Mr. France, marked D*, were laid before the Committee, who declined to accede to them; and that the petition, accompanied by the draft-charter, was presented at the office of the Secretary of State, without the signatures of the Professors of the Royal Veterinary College, but that the Committee for obtaining the Charter had previously resolved that no clause should be introduced in the Charter which would interfere with the private arrangements of the Royal Veterinary College; and that, in consequence thereof, the clause usually inserted in charters, enabling the corporation to hold land by granting a dispensation from the operation of the statutes of mortmain, was by the Committee struck out of the draft of the proposed Charter.

That, prior to the renewal of any application for the proposed Charter, a deputation from the Committee of Veterinary Surgeons again waited on the Professors of the Royal Veterinary College of London, at the latter end of the year 1842, Mr. France, the solicitor to the Governors, being then also present: that such meeting was held by virtue of a previous appointment: that at this meeting the draft of the proposed Charter was read over by the Secretary to the Committee of Veterinary Surgeons, and also the petition for Charter: that certain alterations in the petition and Charter were then suggested by Mr. France, by which alterations Mr. France stated, that he thought they would be rendered complete, and which, if adopted, would secure the co-operation of the College: that the deputation requested Mr. France, on the part of the College, to make the alterations suggested by him, which he accordingly did, and which, after they were received from Mr. France, were unanimously adopted by the Committee.

That a fair copy of the draft of the proposed Charter, and also of the further petition for the Charter, as severally altered by Mr. France, were then laid before Professor Sewell at the Veterinary

* The alterations here alluded to, concluded with praying that a Charter should be granted to the Governors and Graduates of the Royal Veterinary College of London.

College, when he stated that he could not sign without consulting Mr. France and the Governors; and that the petition and draft Charter were then left with Mr. Sewell for this purpose; and that, upon the chairman of the committee waiting upon Mr. France a few days afterwards, he was informed by Mr. France, that he had already secured the assent of the Governors, and had no doubt of obtaining the signatures of the professors, provided a further alteration was made in the petition, and which was accordingly made.

That the Charter (a copy of which, marked E*, is herewith left) was, with petition, fairly copied, and laid before Mr. France at the early part of February 1843, by the Secretary to the Veterinary Committee, Mr. T. W. Mayer; and that Mr. France having again perused the documents, gave the Secretary a note to Professor Sewell, stating that he (Mr. France) had perused the petition and Draft Charter, and there was nothing in the Draft Charter detrimental to the interests of the Veterinary College, and that Mr. Sewell might attach his signature to the petition; and that in consequence Mr. Sewell attached his signature to the petition; and that the Assistant Professors likewise signed, and were included as petitioners at their own request.

That from that time until the presentation at the Home Office, no further alteration was made in the provisions of the Draft Charter; and that on the draft Charter being referred to —— Bethune, Esq. by directions from the Home Office, some additions were made by Mr. Bethune to its provisions, which have been inserted in red ink in the Draft Charter, and in the copy thereof marked E*; that due notice of the application and the provisions of the Charter was inserted in *The Times* newspaper.

That in January 1844, Mr. France, having seen the advertisement, addressed to the Chairman of the Veterinary Committee, a letter, of which a copy, marked F†, is herewith sent, and that in consequence of the receipt of such letter, the Chairman of the Com-

* This Charter contained all the clauses in the Charter as printed in this Journal, except those respecting the formation of any new school, the rendering the Body Corporate a Profession, and the preventing the Professors or Teachers from becoming Examiners.

† Requesting an interview on the subject of the advertisement.

mittee and their Solicitor called on Mr. France with the Draft Charter as altered by Mr. Bethune; that the alterations made by Mr. Bethune were inserted in red ink in the Draft Charter, as shewn in the copy marked E, and that Mr. France's attention was particularly directed to them by the solicitor to the committee: that Mr. France carefully read over those alterations, which he stated he considered to be improvements; and again, on behalf of the College, approved of the Draft Charter, and returned the same to the Chairman and Solicitor of the Veterinary Committee, with a suggestion that the term "certificated members" should be altered to "graduates" of the Royal Veterinary College, which suggestion the Committee were desirous of adopting, but which Mr. Bethune, on further communication with him, refused to permit, observing that the Veterinary College of London had no right to confer degrees.

That there was no understanding, express or implied, that besides submitting the Draft Charter to the Solicitor of the Royal Veterinary College of London, it should be submitted to the Governors, Professor, and Assistant Professors of that College, it being understood that whatever communications were to be made to that College should be made by Mr. France, their solicitor, with whom the petitioners for the present Charter communicated in his official capacity of solicitor to that College.

We declare that the full Draft of the Charter as it was ultimately granted is the same as that submitted to Mr. France and approved of by him.

That the veterinary profession were given to understand by Mr. France, that the Governors of the College were perfectly aware of the movements of the veterinary profession, and that the Committee of the petitioners never withheld any information from the College authorities; that reports of the proceedings of the Committee were from time to time published and circulated.

That Assistant Professor Simonds, of the Royal Veterinary College of London, was throughout the whole of the proceedings for obtaining the Charter, a member of the Committee for obtaining such Charter; that Professor Sewell, of the Royal Veterinary College of London, since the Charter granted to this body has been obtained, and since the whole of the Charter after it was obtained has been

read over in his presence, has contributed his subscription towards the expense of obtaining such Charter; and that Professor Sewell and Assistant Professors Spooner and Simonds, are members of the Council of the "Royal College of Veterinary Surgeons," and have, since the Charter has been granted to that body, taken a very active part as members of such Council; and that Professor Sewell and Assistant Professor Spooner, are Vice Presidents of the Royal College of Veterinary Surgeons.

That although veterinary surgeons have been prevented by the Governors of the Royal Veterinary College of London, from becoming subscribers to that Institution, and are excluded by their bye-laws from ever being elected members of their Examining Board, which, with the exception of the Professors, has consisted of physicians and surgeons only, yet these matters have not been allowed to prevent strictly honourable conduct being observed towards the heads of that Institution; that the object of the veterinary profession has been from the first, to place veterinary science in the position which, as the sister of human medicine, she ought to enjoy.

The Council of the Royal College of Veterinary Surgeons confidently assert, that there is nothing in the provisions of their Charter calculated to destroy or injure the interests of the Royal Veterinary College of London, or of any other college now or hereafter to be created.

No. VI.

To the Right Honourable Sir James Graham, Bart., her Majesty's Principal Secretary of State for the Home Department.

Sir James,

I AM requested by the Council of the Royal College of Veterinary Surgeons to tender to you their sincere thanks for the kind manner in which you have enabled them to answer the statements and allegations which have been forwarded to you by the Governors, Noblemen, Gentlemen, and Subscribers of the Royal Veterinary College of London against the charter of the Royal College of Veterinary Surgeons.

The documents which I have now the honour to enclose were submitted and approved of at a meeting of the Council on Friday last, and adjourned to Monday last, which will prove the aspersions made in the two petitions to be entirely groundless.

Having been Chairman of the Committee, I have consequently taken an active part in all the proceedings, and am ready and competent to substantiate the truth of the statements contained in the enclosed reply of the Council, if called in question.

I have the honour to be,

Sir James,

Your most obedient and very humble Servant,

THOMAS TURNER, President.

311, Regent Street,
July 23, 1844.

WE are glad to find that the Jockey Club, profiting by past experience, are taking proper precautions to prevent the fraudulent entry of horses for stakes, the competitors for which are, by their own laws, restricted to certain ages. Since trainers and their servants are so unmeddling and innocent as never to give themselves the trouble to look into the mouths of horses sent to them with certain engagements, or so ignorant as not to be able to tell their ages supposing even they did happen to look into their mouths, it is high time that those who reign over the turf should take measures to ascertain, before any horse be allowed to run, that his age be such as to qualify him for the stakes he is to compete. In such a racing country as ours, where thousands and thousands of pounds often change hands on the event of a single race,—where a fortune is, by speculations on the turf, one day made, another day lost, it is of the utmost consequence to insure fair play; and yet, that many a four-year-old has run as a three-year-old, many a three-year-old as a two-year-old, there remains, since the late disclosures have been made, in our mind not the slightest doubt. Nothing can be more disheartening for fair-dealing men, or disgusting to

gentlemen of the turf, than such knavish practices as these. Every body must see that, unless an effectual stop be put to them, the turf must have its foundations sapped, and that which afforded noble and honourable diversion to the lords of our land, degenerate into a game which, like blind hooky, is only advantageously played at by black-legs and sharpers.

The remedy for this crying evil is, in one word, *identification.* Let the candidate for the race be demonstrated to be the horse he is represented to be, and fair play becomes established. But how is the identification to be obtained? What are to be the tests or proofs of identity? Will a *name* suffice? Certainly not. A name is quite as calculated to mislead as to set right. Will a description of the horse suffice—his colour, marks, height, character, &c.? Everybody knows that colour alters with years. Up to a certain age the colt does not get his proper coat, and after he has got it, with years it will change its shade, in some instances it becoming darker, in the majority of cases, lighter; and examples stand on record of the colour itself changing. Horses called black have been known with age to turn grey, or white even; bay to turn brown; and brown to turn bay. Some colts alter amazingly in shade of colour, so much so as hardly to be recognizable after a long absence even by those who know them best. And then again, the shedding of the coat, and the condition the horse is in, and the situation—out or in-doors—he has been living in, will all make differences. Colour, therefore, though undoubtedly the plainest and most obvious characteristic that presents itself, one that everybody immediately fixes upon, is still not one on which *alone* we ought to place dependence.

If not in colour, can we place reliance in *marks?* We answer, Yes!—it is our belief that marks never alter: a horse having a star and a white leg will, under any changes his shade of colour may undergo, always possess his star and white leg; nor will the star become larger or smaller, the white leg more or less white. Marks, therefore, of themselves are more to be trusted to than colour; both combined will, if properly noted, constitute such a description of the horse as will, with few exceptions, at any time serve to identify the animal.

But it may happen that the horse possesses no marks; or it is possible two horses may have marks precisely alike; or the registry of them may prove insufficient to distinguish the cases in which they are nearly alike. Then comes to be regarded the *character* of the horse—his countenance, his form, his height, his action, &c., and so far as personal identification goes, a great deal—any and every information—is to be learned from traits of character. But can these be made points of registry?—can any written description of a horse's countenance or action, or even of his form, be such as anybody, as well as the describer, can understand the practical application of? Height being the result of measurement can, to a certain extent, be made matter of physical calculation; but height, it must be remembered, progresses with growth, and, when we come to mathematical precision will be found to vary somewhat according to the mode in which the horse is measured.

Uncertain and insufficient, however, for the desired end as any one of these characteristics may prove, taken by itself, yet, when we come to apply them in combination, shall we pretty generally find them satisfactory in testing the identity; and to them, if we would but add the *age*, we should say, altogether, the identification could hardly fail to turn out completely satisfactory.

What, therefore, we should recommend to the Jockey Club to establish is a REGISTRATION OF RACE-HORSES, such as has of late years been kept of human kind. Let those gentlemen but refuse, after a certain period of date, to recognize or admit to run any but a duly registered horse, and let them order that every horse entering for stakes must prove his qualification and identity by a reference to the GENERAL REGISTER—kept at the office of Mr. Weatherly, or at some central and equally convenient place—and the machinery of identification is complete. No more, then, shall we hear about factitious Running-Reins, and Leanders, and Bloodstones; no more of four-year-olds running as three-year-olds, or of the latter as two-year-olds: every tub will then be forced to stand upon its own bottom, every horse that runs to appear in his own proper character.

P.

CATTLE AND HORSE INSURANCE.

Of all the improvements that have been brought under the consideration of the British farmer within the last half century, *Insurance* is one of the most important. Its advantageous application, in cases of loss from incendiary and accidental fires, has been experienced and gratefully acknowledged by thousands.

While these influences, however, have been operating to his advantage—while human ingenuity has been taxing its powers to the utmost in order to relieve him from the pressure of the times—while intelligence of every kind has been brought to bear on his interests—is it not somewhat strange that until the last few years no plan has been devised for carrying on that grand desideratum, the Insurance of Horses and Cattle?

The farmer, to a considerable degree, can provide himself against the uncertainty of human life; he can protect himself against the ravages of fire, and partially against the blighting agency of the elements; but in other respects he has been found altogether unprovided for and unprotected. Disease may spread through his stock, and his losses may reduce him to the verge of ruin, and still he has no protection, no fund on which he may fall back—no insurance office to which he may look for substantial restitution.

In France societies for the insurance of cattle have long been in existence. In Belgium they are equally popular. In many parts of Germany they are flourishing; in Prussia and in some other countries they are upheld by legislative protection; in England no such society had ever been dreamed of until within a comparatively short time; and then some of the dreadful diseases that ravaged our country began to appear. Then came societies for the protection of the farmer against particular diseases—*the pleuro-pneumonia* fearfully standing at their head—associations on a large scale—well digested in detail—having the benefit of the past experience of other countries, and conducted by men of known respectability and practical talent. Such has been the gradual improvement that has taken place.

To this has followed the improvement of the horse, far more rapid and assured than either of the others, and far more evidently involved with the noblest interests of our country.

We mean not the recurrence of various diseases with regard to which the farmer may, as usual, apply to the veterinary surgeon, but, principally or entirely, those dreadfully devastating maladies by which, occasionally, whole flocks and herds have been at one fell swoop carried away.

In entering into our subject we inquire,

What is the average length of the life of horses, dividing them into the following classes; viz.

1. Horses used for agriculture exclusively.
2. Ditto for ditto, and occasionally for other purposes, not being for posting, omnibuses, cabs, &c.
3. Ditto, carriage horses, and such as are used for riding, not being posters, hired hacks, butchers' horses, &c.
4. Ditto, hunters and stallions.
5. Ditto, mares of the different classes.
6. What is the average rate of mortality among the different classes above mentioned?
7. What are the most prevalent diseases?
8. What are the most fatal?
9. To what diseases are young horses particularly subject?
10. Under and above what ages ought we to insure our horses?
11. At what rate per cent. may the different species of horses be replaced, whatever has been the injury to which they have been exposed?

Taking a rapid sketch of these things, alphabetically arranged, we meet with the following interesting papers:

The first is from Mr. BAKER, of *Reigate*.

He says that horses used for agricultural purposes exclusively are certainly the longest lived, many of them attaining a great age, and being capable of performing their required labour with health to themselves as well as profit to their owners. Few animals thus employed, and fairly used, die under fifteen years; and the average may with much truth be stated from this period to twenty years.

He has not found much difference in those lighter-bred horses that may be occasionally used for other purposes, such as being ridden to market, or drawing in the cart, and other light work on the road or connected with farming pursuits: he considers, therefore, that the same average may be taken with these.

The carriage horse, and those which are used for riding, suffer more from the wanton caprice of wilful man, and thus have their career of usefulness and life shortened to an average period of perhaps ten or twelve years.

Hunters are still more liable to have their powers taxed beyond the limits of humanity, for which reason they decline proportionately early in life, and generally not numbering more than ten or fewer summers.

Stallions live to a much more advanced age.

"I have been recalling to mind," says Mr. Baker, "several cases of longevity that have come under my notice during my practice,

and I find that, in most instances, there has been a decided majority of mares. This fact, combined with reference to my case-book of diseased animals, leads me to believe that mares are, in general, longer lived than horses."

There are various circumstances which reasonably explain why this should be the fact. Mares, when recovering from any casualty, either of disease or accident, are frequently considered worthy of breeding from, and are consequently turned out to pasture, and time allowed to nature to recover the proper balance and harmony of the functions of life and health. Mares, then, among the different classes alluded to in your questions, may be averaged in each one to a period exceeding that of the horse by two or three years at least.

The most prevalent diseases among farming horses are epidemic catarrh, fever, spasmodic colic, inflammation of the bowels, pneumonia, grease, œdema of the extremities, and diabetes. He has had many cases of simple inflammation of the eyes, and which he has ascribed to the great failing in this part of the country of keeping stables not only insufficiently ventilated, but also much darkened. Symptomatic phrenitis is also of frequent occurrence in this class of horses. Carriage horses, and those used for riding, &c. are oftener attacked with pneumonia and catarrhal affections generally, bronchitis, chronic cough, bronchial lesions, and defective wind, roaring, inflammation of the bowels and other vital organs.

He thinks that these comprise the most general diseases. Of course, all horses are liable to external maladies, and likewise to spavin, disease of the tendons or their ligamentous connexions, bursal diseases, &c., and the several disorders to which the feet are subject; these, however, are not commonly fatal, and are slightly mentioned.

Young horses are more especially attacked with strangles, febrile affections generally, affections of the throat and air-passages, and also inflammatory action in the various viscera of the chest and abdomen.

He next comes to the question, "Under and above what age would it be prudent to receive or refuse to insure horses, &c." The young horse might generally be received; but no one would think of insuring those that are far beyond the average age.

The last question—"At what rate per cent. might the different classes of horses be insured?" would be most correctly answered by a calculation, drawn, from the respective averages of the different classes. Many instances may be adduced of extreme long life. There was a horse which he possessed as a gift from a friend, that was regularly hunted when he was twenty-five

years old, and readilyfollowed the hounds with an unbroken spirit and untiring activity. He kept him four years afterwards, when be began gradually to waste away, and refused his food. At length, when he was nearly thirty years old, considering what

> "We shun to know,
> That life protracted is protracted woe."

he had this noble favourite mercifully destroyed.

A solicitor in Reigate had a mare that lived to be thirty-six years old; and Mr. Coulstock informed him that he occasionally hunted this mare when she was thirty-two years old. He could state some other similar cases; but his average is more to ascertain the usual age of this noble animal than to multiply instances of unusual occurrence.

Mr. Beeson, of Amersham, follows in alphabetical rotation.

1. Horses used for agriculture exclusively are, in this part of the country, the shortest lived of all others that he has to do with. This I attribute (says he) to the very coarse manner in which they are fed; being generally compelled to eat in the winter refuse corn and hay, such as is not fit for the market, and in the summer subsisting on green food, in many instances without any corn.

Some well-formed horses can live out twenty years, while many are abandoned much earlier,—in point of fact, not being able to endure farmers' work on farmers' living. There are, however, many instances, in well regulated stables, of this kind of horse living to twenty or twenty-five years, or even more. Out of eighteen horses working on the farm of T. T. Drake, Esq., and doing only such carting as is occasionally necessary on the estate, I cannot find that more than five have died during the last fifteen years. Of course, there have been some killed on account of their age, and also a few sold, and replaced by young ones.

Another employer has had eight horses die out of half the number just mentioned, in the same period of time, besides some being abandoned as unfit for their work. There was much more connected with the breed.

2. Agricultural horses that are occasionally used for other purposes are, for the most part, the property of better horse-masters than farmers are, and, in consequence, can endure more and live longer. For instance, a brewing establishment here, connected with a large farm, employing, in the whole, about forty working cart-horses, beside a few rest horses and some colts, and the management of which is entirely confided to me, I have had, in the last fifteen years, eighteen horses die. To allow for any I may have overlooked, I will say twenty horses. It is very satisfactory to me

to know, that in this establishment we have always a great number of old horses, and, indeed, are obliged to slaughter some old ones every year, and cull others, now and then, for sale, as they get slow and otherwise incapacitated, in order to make room for younger ones. This is attributable to careful management and the reciprocal advantages of the farm. No doubt that horses used for agriculture would be the longest lived of any were their general management in consonance with their healthful employment.

3. This description of horse, I think, often wears well, doing their work to a great age. Some may get too slow, at from 16 to 20, or may be put to slow work, on account of stiffness or some description of lameness. It is their legs that oftener fail than their constitution.

4. Hunters, I think, although occasionally known to do their work to a greater age, begin to get too slow, or otherwise unfit for work, at about 16.

Many stallions are kept here, not exclusively for covering, but as being altogether more enduring than geldings.

5. Brood mares, upon the whole, I think, are not longer livers than other horses; for, although for the most part they are kept in a condition which does not subject them so much to the common causes of disease, they have the additional contingencies of breeding, parturition, &c.

6. As it regards the average mortality of the different classes—several have died under my treatment, others have died suddenly and without any treatment, and many that have been killed as worn out are taken into the account

7. Farmers' horses are occasionally the subjects of every variety of disease,—strangles, distemper, catarrhal fever, epidemics, and the severest bronchitis and pneumonia, which occasionally rage in the character of an epidemic, they are very obnoxious to. It matters not where the situation or what the kind of management in many of the epidemics. Many disorders of the stomach and bowels are very fatal; as spasm, rupture, strangulation, enteritis, &c.

In the second variety of the horse, diseases of the stomach and bowels are not so frequent, but chest affections in general a little more so.

The third variety of the horse are still less subject to intestinal disorders, but chest affections are more frequent; and we likewise oftener find disease of the liver, kidneys, &c. The most destructive are disorders of the chest.

The hunter particularly is exposed to accidents, the variety of which I need not enter into. He is, however, especially subject to pulmonary congestion, which is, in this description of horse, perhaps the most destructive disorder to which he is exposed.

Stallions are, in general, horses of endurance, accidents excepted. Mares, in addition to the list of diseases to which other horses are subject, have disorders of the uterus of sometimes a dangerous character, and also of the mammæ. Hysteritis is sometimes fatal; and I have known the uterus completely twisted or turned round in the act of rolling, and consequently tearing its attachments, at the same time allowing the investiture of the fetus to escape through a large rent of the uterus into the cavity of the abdomen, at or near her time of foaling. I have also seen the distention so great, in an advanced state of pregnancy, that the muscles of the abdomen have given way, and allowed the bowels to escape through to the integument to an enormous extent. Parturition is often a difficult affair; and the udder, also, is rendered subject to disease.

Young horses are especially the subjects of strangles, catarrhal fever, and epidemics. The sucking foal is not unfrequently attacked with strangles, and as severely, like other horses. I was requested, in a hurry, this summer, to attend a foal that was suffering so much with strangles that it was feared he could not live until I got there; I, however, promptly attended to the request, and found the swelling about the throat so enormous that suffocation seemed inevitable: I, therefore, without a moment's hesitation, and with only the assistance of a labourer, and his wife to hold the candle, opened the trachea, which, of course, gave him instant relief, and the case turned out completely successful. From this and many other such cases it seems necessary to insure early attention to every case.

Mr. CARTWRIGHT gives the following answers to the Queries:

1. About 15 years.
2. . 12 years.
3. . 12 years.

4. I think that this ought to be divided, as hunters, from their dangerous employment, are liable to die sooner than stallions; but I suppose (he adds) that you would not allow for horses dying after a severe chase. Hunters, in the hands of a skilful and sensible rider, would last longer than if they belonged to a young and foolish sportsman. I should arrange the age of hunters at 8 to 11 or 12, but I would not insure them, as I think there can be no certainty about it. One man may take every possible care, and another may destroy all before him, so that one would be paying for the other. Those that keep them can generally afford to pay for them.

There ought to be a difference in the stallions. I have always fancied that there is a greater mortality in cart-horses than in thorough-bred ones. I think the former, during "the season,"

are often improperly fed and treated, and are in the hands of a more ignorant class of people.

I should think that cart-stallions may average 10, half-bred 12, and thorough-bred 14.

5. I cannot but think that mares of all classes may live to about the same age as horses.

6. The average mortality I should think to be,

in the first class . 1 in 20 every year
in the second class 1 in 22
in the third class . 1 in 24, or, perhaps, not quite so many in either class.

In the fourth class (hunters) 10.

As for stallions I can say but little.

7. Enteritis and Pneumonia. I almost think that as many horses die from enteritis as from all other diseases put together, and principally from the shameful neglect of not calling in early and proper assistance.

9. Principally strangles—and, if worked, more subject to every disease than older ones, especially to bowel complaints, and the diseases of the air-passages. In young stock there is no great fatality, not even from strangles.

10. I am inclined to think that all should be insured, in order to satisfy the farmer.

11. If I am asked at what rate per cent. the different classes of horses may, or ought to be insured, my reply must be, that I cannot tell. It depends on various circumstances, and principally on the age of the animal. To this, however, it may be interesting to add a list of the patients that have partly or entirely passed under my care.

Statement of Diseases.

2	Cart horses	Strangulation and enteritis.
1	Cart mare	
1	Hack mare	
1	Cart filly	
1	Hack filly	
10	Cart horses	Enteritis.
13	Cart mares	
2	Hack horses	
1	Hack pony	
1	Hack two-year old . .	
3	Hack mares	
1	Two-year old filly . .	

37

37	Brought forward.	
1	Hack pony	Diseased bowels.
9	Cart horses and mares .	Pneumonia.
9	Hacks, mares and horses	
4	Cart mares	Glanders.
4	Hack horses	
1	Hack horse	Stomach staggers.
1	Ditto	Phrenitis.
4	Cart horses	Ruptured diaphragm.
3	Hack horses	Ditto.
2	Cart horses	Ruptured stomach.
1	Blood horse	
1	Half bred	
2	Cart Horses	Diseased kidneys.
1	Half bred	
1	Two-year old galloway .	
1	Hack horse	Ruptured spleen.
1	Ditto	Diseased spleen.
1	Hack pony	Catarrh.
6	Cart horses and mares .	
1	Old mare	Peritonitis.
1	Filly	
1	Hack mare	Laminitis.
1	Hack pony	Rabies.
1	Hack horse	Struck.
1	Hack mare	Choaked with an egg.
2	Cart mares	Injuries.
1	Cart horse	
1	Hack mare	
1	Blood mare	
1	Pony	
1	Cart horse	Paraplegia.
103	Total.	

Cart horses and mares	59
Hack horses and mares	41
Young ones	3
	103

Professor Dick, in a letter with which he has favoured Mr. Youatt on this subject, says, "I am induced to think that, after six or seven years old, there is a great chance of their being free from all disease. A horse, with ordinary care and good usage, will live until he is twenty or twenty-five. Many live ten or fifteen years after that, and continue to do very fair work; but, in my opinion, the average of what I have mentioned will be about twenty or twenty-five.

Blood-stallions will, I think, reach twenty-five; but I do not think that cart stallions will reach so much, as they are more frequently cut off by acute diseases, arising from improper management. I think brood-mares will reach about twenty-five years.

The most common diseases in farm horses are those of the bowels, inflammation and cholic, arising from overloading the stomach by too large a feed after too long fasting. In a large farm, about nine miles distant, twelve horses were lost in one year from improper feeding; and in a letter which I had lately from one of the brothers —there are two brothers in the farm—he mentions the fact, that since they had adopted my suggestions, with regard to the division of labour and the mode of feeding, they have not lost a horse from those causes, during, I think, from four to five years. Diseases of the bowels are, on the whole, the most common and the most fatal.

There are some situations in which diseases of the lungs prevail much, especially in particular seasons.

Farms most exposed to easterly winds, and more particularly without shelter on the sea-shore, or in small valleys where a current from the east blows, or on a hill-side, or stables in any situation where they are exposed to east, north, or west winds, are very liable to have disease of the lungs produced in seasons when these winds prevail. The opening into stables ought always to be on the south or west. The north and the east are the worst.

Young horses are most liable to strangles or diseases of the organs of respiration; and these diseases are most fatal at the age of from three to five years. After six or seven, the risk diminishes; and it will be found that few horses actually die of old age after they are ten or twelve years old. Their limbs are worn out before their general life and health are impaired, and at a proper value according to the age, there is little risk, in my opinion, if continued at the work they have been accustomed to and experiencing the same general treatment.

As I have already stated, I have no proper data, and therefore cannot say at what rate insurances should be made.

[We regard these records as exceedingly valuable, and shall be thankful for any similar ones with which our correspondents will favour us.—Y.]

A CASE OF RUPTURE IN THE ILEUM IN A DOG.

By THOMAS WILLIAMSON, M.D., *of the Leith Dispensary, communicated by* JAMES MERCER, M.D., *Edinburgh.*

My dear Sir,—ENCLOSED you will receive an interesting case of rupture of the entire thickness in the lower part of the ileum in a dog, as the result of an external injury. Such cases are of the highest importance, from the infrequency of their occurrence, as also from the trifling external appearances to guide the veterinarian in the anticipation of so severe an internal effect. It is already well known that rupture of the stomach, under circumstances with its engorgement, either solid or fluid, sometimes happens, and with a speedily fatal termination; that rupture of the diaphragm of the liver and of the spleen also occurs, and with the same effect; and all from violent muscular exertion or other external causes. But instances of laceration of the small intestine in its lower part, in the horse, ox, or dog, are by no means common, and which may be partly explained from the extreme size of the great intestines, and their apparently secluded and well defended situation in the abdominal cavity, especially in the first class of animals.

The subjoined case also agrees much, in the general train of its symptoms, with those given by Hurtrel D'Arboval, Lafosse, and Dupuy, of rupture of the stomach or upper part of the intestine, and especially of the latter viscus, with the exception, perhaps, of the special symptom mentioned by the latter author, the "mouvemens convulsifs des muscles coccygei inferieurs." Such instances of so serious and fatal an injury, from so slight an external cause, "even though obtained from a dog," are of the highest importance in a medico-legal point of view, both to the medical and veterinary practitioner; and should you deem its insertion worthy of a place in your Journal, you will oblige,

My dear Sir, your's truly, &c.

On the 8th of February last, a small cocker dog, previously in the enjoyment of good health, was set upon by a shepherd's dog, and continued for some short time under the animal's feet. From its cry of distress, it evidently had sustained some severe injury, notwithstanding it walked home (a short distance) not, apparently, suffering much. About an hour, however, after having received the injury, it gave evident symptoms of uneasiness, and vomited a small quantity of frothy mucus. From this time until forty-

eight hours afterwards it remained pretty much in the same state, evidently very sick, without, however, any additional vomiting. Now, a very marked change took place. The poor animal was seized with violent vomiting of blood, which continued more or less for the space of six or eight hours, and, in the intervals of vomiting, large quantities of dark grumous fluid issued from the mouth and rectum. Urgent symptoms of collapse now appeared, and the dog died, labouring under all the symptoms of perforation or laceration of some portion or other of the alimentary canal.

Before dissection, after death, it was ascertained that no external mark of ecchymosis was visible upon any part of the abdomen. Upon laying open the abdominal cavity, a large quantity of grumous fluid (similar to that which had issued from the mouth and rectum during life), was found,—probably from four to six ounces. The intestines throughout presented the appearance of acute inflammatory action having been going on, having on their serous covering globules of castor oil, which had in vain been administered to the animal in hope of relief. The ileum at its lower third was found to have sustained a laceration, so extensive as to permit an entrance to the point of the fore finger. Upon reflecting the abdominal flap, and examining its tissues, no infiltration of blood was visible. All the other organs of the dog were healthy.

The above is a very interesting case, as illustrative of the great amount of injury caused by direct external violence which the internal viscera of the abdomen may sustain without any apparent external lesion existing. I have elsewhere published a somewhat similar case, as occuring in the human subject, where the patient, a young man, received a kick on the abdomen from a horse, and died labouring under somewhat similar symptoms as the dog, with no external mark of injury on the abdomen, and yet dissection revealed to us, that the ileum was in this instance not only lacerated, but actually torn across throughout its entire caliber. This fact, in a medico-legal point of view, is well worth remembering, and derives considerable value and increased confirmation from the case of the dog now narrated.

THOMAS WILLIAMSON, M.D.
Leith, 17*th Sept.* 1844. Physician to the Leith Dispensary, &c.

TWO CASES OF DISEASE IN PIGS.

By Mr. JAMES H. SHENTON, *V.S., near Manchester.*

Sir,—IN reading a few of the late numbers of THE VETERINARIAN, I have been much pleased to find so many interesting cases contributed to it relating to the lower orders of domestic animals. It much delights me to find that the brightest ornaments of our noble profession are beginning to acknowledge that there is much honour as well as pleasure in studying and striving to alleviate the diseases of the pig or the dog, as the noble horse, or even man himself.

In your last two numbers I find several cases relating to that very useful but greatly neglected animal, the pig; one whose flesh is found on the table of the richest lord, and in the cottage of the poorest peasant: an animal that tends so much to the pecuniary comfort of the poorest agricultural labourer, and to the gratification of the greatest persons in the realm.

Until lately, its medical state and wants have been greatly neglected; but I am much pleased to find that the members of the veterinary profession generally now attend upon it whenever called upon, and exert their greatest skill in alleviating the pain and disease even of a pig.

I take the liberty of sending you an account of two cases of a disease in the pig which, at times, prevails to great extent in this part of the country, and generally proves fatal: indeed, many persons here seldom try to get help for it, believing it to be comparatively insensible. The disease is known in Lancashire and Cheshire by the name of "turn i' the head." In my opinion, it is phrenitis, or inflammation of the brain. If you think the following cases worthy of insertion in your periodical, they are at your service. You will do with them as you think proper.

On the 24th of June last, I was called upon to attend a pig belonging to Robert Gardiner, Esq., of Chasely House, near Manchester. The animal was about six months old, of a very good and large breed, and a fine pig of its age. It was in a hot and somewhat ventilated sty, with five or six more; I therefore ordered it to be removed into a sty by itself. From the symptoms which I observed after watching it some time I was of opinion that it was a case of true phrenitis. The symptoms were, the eyes open, full, and red, with a wild painful expression—no appetite—the bowels constipated—the conjunctival tunic of a blood-red colour—the ears drooping—and every ten or fifteen minutes vio-

lent paroxysms of pain coming on—the servant-man called them fits—on the first appearance of which the poor animal would champ its jaws, its mouth becoming filled with frothy foam. It would then turn round several times, and immediately stop and begin to elevate its head by degrees, until it had risen to the highest point, then fall on its side and lie in an apparently insensible state and seeming, indeed, as it were dead, for several minutes. It would then rise with the greatest fury and run forcibly against the wall or sty. Tetanus or locked-jaw would then come on for a short time, after which the animal would appear better, until the recurrence of the paroxysm.

I opened the largest veins in the ears and roof of the mouth, and after they had bled tolerably freely, I ordered a febrifuge to be administered combined with a strong vegetable cathartic. This was ordered to be given in a sufficient quantity of ol. lini. The patient then had a little warm broth poured down its throat when the paroxysms were suspended.

June 25*th.*—The symptoms are much the same as yesterday. I ordered the dose to be repeated, and the broth or milk to be continued, the same as yesterday. I applied the following blistering liniment on the top of the head, behind the ears, and under the jaws: pulv. lyttæ, pulv. euphorb., pulv. ant. tart., ol. terebin., et liq. ammon.

26*th.*—The patient is somewhat better to-day, the paroxysms do not appear so frequently and are much weaker when they come on. The eyes appear better—the conjunctiva is not so red—the medicine has slightly acted on the bowels, but the fæces are still hard and knotty. The liniment that was applied behind the ears has not produced vesication of the parts, but set up a strong counter-irritation in the form of a large inflamed dense swelling. The animal refuses all food, therefore I had it drenched as before, and half a dose of the medicine given at night. A little of the liniment was continued on the inflamed parts, in order to keep up the counter-irritation.

This morning there is another out of the same lot of pigs attacked in the same manner. I went and examined him, and found he had refused his food for the first time last night. The symptoms were the same in every respect as in the first case. I acted precisely in the same manner, bleeding, drenching, and applying the same kind of counter-irritation.

27*th.*—The first case is becoming much more favourable to-day. The paroxysms appear but seldom, and are considerably weaker. The bowels are acted upon, the fæces being softer and voided in greater quantities. The animal has a disposition to eat a little to-day, but has not power in its jaws or tongue to take anything into its mouth. The attacks of tetanus appear but seldom.

I ordered vegetable and mineral tonic medicine to be administered, with some linseed oil.

The second patient is a little better to-day. The paroxysms appear much weaker. Tetanus comes on at intervals, but soon disappears again. The bowels are slightly acted upon. The counter-irritation is going on favourably. Repeat the application of the liniment, and give a dose of the cathartic medicine as before.

28*th.*—The first case rather worse to-day, the paroxysms more frequent and stronger than yesterday. Repeat the first dose of medicine, apply the liniment again, and drench as before.

The second case is much better. The paroxysms are considerably weaker. The pig eats a little. I ordered half a dose of the medicine to be given. A little softening liniment was applied to the inflamed parts, and broth or milk forced on the animal.

29*th.*—Both cases much better to-day The paroxysms seldom appear, and they are not very severe when they do, nor do they last so long as at first. I ordered a dose of the tonic medicine beforementioned to be given to each pig to-night, to have milk or broth to drink, a little grass to eat, and the emollient liniment to be applied to the inflamed parts.

30*th.*—Both cases improving fast. Apply the same treatment.

July 2*d.*—Both cases doing well, except that the animals are weak and thin. Give plenty of broth or milk, and a little grass or other green vegetables to eat. Cease to give any medicine.

4*th.*—Almost recovered. Both eat very well, look much better, and are very lively.

6*th.*—Discharged cured.

I saw them a week or two afterwards, and they appeared as well as they did before they were attacked, and were becoming very promising animals.

A CASE OF RHEUMATISM IN A HORSE.

By Mr. R. H. Barber, *Leopold Place, Edinburgh.*

On the 3d of October, 1843, I was requested to examine a six-year-old bay hunter, the property of a gentleman of this city. The history of the case is briefly as follows :—The animal had been for several months previously in the possession of his then present owner, during which period he was considered to be in a most perfect state of health up to the morning of the 1st of October, when, upon removing him from his loose box, he was observed to go lame, for which no reason could be assigned, as his exercise

had been moderate and regular, and he had not been exposed either to cold or any other exciting cause of disease.

Upon my arrival at the stable, I found the animal so lame that it was with great difficulty he could be led out of his loose box, and, from his peculiar style of going, I at once perceived that the near shoulder was the seat of lameness. I most minutely examined his shoulder and the inferior parts of the limb, but could discover no tangible cause for such excessive lameness, there being neither heat, tenderness, swelling, nor any other sign of sprain, bruise, or injury. His pulse was of the natural standard, his spirits good, and he was feeding well. I then had his shoes removed, and found his feet perfectly sound.

From this total want of symptoms of external injury I felt inclined to attribute the lameness to cramp or rheumatism. The peculiar jerking manner in which the muscular contractions were performed—the levator-humeri in particular, in conjunction with the other muscles of the shoulder, and arm being apparently spasmodically acted upon in every flexion of the limb—seemed to justify the opinion that cramp was the cause of the lameness. Under this impression, I pursued the following treatment:—

Treatment.—Hot fomentations were applied to the shoulder, and mashes with alteratives.

4*th.*—No better. Continue the same treatment.

5*th.*—The near hind leg is now similarly affected. No diminution of lameness in the fore-quarter. I gave a five-drachm laxative ball—the fomentations were discontinued.

6*th.*—The physic is operating. The lameness in the fore and hind quarters not quite so much displayed.

7*th.*—Physic has set, and the patient is decidedly improving.

8*th*, 9*th*, 10*th*, *and* 11*th.*—Rapid and regular progression towards soundness. I gave another alterative.

12*th.*—Metastasis of lameness from the affected limbs to the off hind leg: the ʒv laxative repeated, combined with ʒij of ginger.

13*th.*—There was a gradual improvement from this to the 17th, when I ordered the horse walking exercise. Within ten days from this date he was perfectly sound, and passed an examination as such.

Remarks.—After a careful consideration of the symptoms of the above case, I am inclined to doubt the correctness of my opinion —that the lameness proceeded from cramp—a term which is very vague, and conveys no well-defined impression of the nature of a disease. I am inclined to attribute the above obscure symptoms to that sub-acute inflammation of the muscular tissue or its investing membrane, constituting the disease termed rheumatism; and the rapid metastasis of the lameness from one limb to another fully

confirms this diagnosis in the eyes of those who have paid any attention to the disease in question, and who are aware of the speed with which it is often transferred from the muscles in one part of the body to those in another. During the whole period of his illness the horse, while standing, betrayed no symptoms of unsoundness, which farther bears out this supposition. Had the lameness originated from cramp, the limb affected, in all probability, would have been spasmodically contracted, even when in a state of rest. No other explanation of the disease can be offered, unless we refer it to some vibration of the spinal cord conveyed to and developing itself in the ultimate ramification of the nerves supplying the affected limbs, and thus causing the unsoundness.

TWO CASES OF RUPTURE OF THE RECTUM IN A HORSE.

By Mr. J. WOODGER.

ON August the 23d, at 3 o'clock P.M., an aged chestnut cart-horse, belonging to Mr. B—, market gardener at Fulham, was sent to my infirmary, as having the gripes. He exhibited the first symptoms of it at 7 o'clock, A.M.; but the owner did not think it to be dangerous, therefore he deferred sending it until the above-mentioned time, when the symptoms were as follow: —

Pulse at the jaw quite imperceptible—ears and extremities extremely cold—Schneiderian and conjunctival membranes very pallid—countenance dull—frequently looking back to the sides, as indicative of extreme pain—the abdomen swollen and tense, and the body bedewed with a cold clammy sweat—pawing with the fore feet, and frequently lying, or rather falling down, for he would fall in an instant, as if shot, without giving the least warning: of course, I gave the owner no hopes of his horse's recovery.

Treatment.—As the case had been of so long standing, I gave sp. of nit. eth. with tinct. of opium of each ʒj, sol. of aloes ʒvj, linseed oil ʒvj, ordering him to be backed raked, and giving repeated clysters of warm water. I also applied mustard cataplasms to the abdomen, and stimulated and bandaged the extremities.

At 4 o'clock my patient appeared more tranquil, but the pulse was still imperceptible. I gave sp. nit. ether. ʒj,; tinct. of ginger and opium of each ʒss, in warm water.

At 6 o'clock, three hours after admittance, he died.

Post-mortem.—On opening the abdomen nearly the whole of the intestines and peritoneum presented an intense degree of inflammation, and the abdomen was nearly filled with a dark fluid. After carefully removing the intestines from the abdomen a fine specimen of ruptured rectum presented itself to view, about two feet and a half from its termination: the rupture was three inches and a half in extent, and caused by a portion of an oat-hair calculus, that had become impacted therein. It was of an irregular size. The remaining portion was found in the colon weighing in the whole 3 pounds 15 ounces.

The horse had not been known to have had any intestinal irritation during the three years that he had been in Mr. B—'s possession; and it would have continued much longer, without its proving of much inconvenience, had not a portion of it become separated. I think the rupture must have been caused by the sudden falling of the animal. The remaining portion is in my possession.

A somewhat similar case occurred in a horse belonging to Mr. Webb, of Fulham.

On the 6th of this month, my attention was called to one of his horses, which he considered to be dangerously ill. They had given him a draught, and back-raked him before I saw him. The symptoms were similar to those attendant upon a case of violent gripes; but, on passing my hand up the rectum, I could find a rupture eight inches in length. I gave the owner no hope, but had the horse sent to my infirmary on the 7th. Before evening he died. The rupture, I think, must have been caused by violence used by the horse-keeper that back-raked him. Not that there would be any thing interesting in this case to induce me to send it; but having two similar cases in so short a period, I took the liberty of forwarding them for your inspection.

REVIEW.

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

Farming for Ladies, or a Guide to the Poultry-yard, the Dairy, and the Piggery. *By the Author of* British Husbandry. London: John Murray, 1844.

On a careful perusal of this most interesting volume, we pronounce its author to be peculiarly fitted for the office of popular instructor in rural economy. Nothing contained in it is unsuited

to the highest intellect, neither is it above the comprehension of the most humble. "It is," to use his own words, "neither intended for the mere cottager, nor for persons of large fortune, but for those in the middle ranks of life who study healthful domestic economy, either for the pleasure or the profit which it affords. In saying this, however, we may justly add, that a cottage housewife might gather useful hints from its contents, while a duchess would lose nothing by its perusal."

As one intimately acquainted with the doctrine of household avocations, the author deals with every subject in a practical way, and gives his readers a collection of facts highly interesting and useful.

The style in which it is written is pleasing, and abounds with anecdotes illustrative of the subjects that come under consideration.

In the metropolis the prices of poultry are generally so great, that persons of narrow income can but seldom place them on their tables. Fortunately, however, the taste is now growing general among persons who can afford it, of having a little retreat or villa. To this is added, if possible, a paddock for the feeding of a cow, a yard for the breeding some poultry, some sheds for their accommodation, and a little piggery; and it is inconceivable how much this would add to the luxuries of the table, with scarcely, or not at all, increasing the expense.

The most illustrious lady in the land sets us the example. Those who are in the neighbourhood of Windsor, and in the habit of taking an early morning walk to enjoy the rich demesne crowned by its ancient castle, must have often seen two persons in plain attire tripping lightly across the mead of Datchet, in order to visit a farm at the extremity of the Home Park. These persons are her Majesty and Prince Albert, pursuing their way to the dairy and poultry-yard, and in their progress sporting with their infants, who are either mounted on their pieball ponies or driving their well-trained goats in a phæton. It is impossible to witness the unaffected enjoyment of the royal couple in this domestic excursion, unalloyed as it is by any restraint of official etiquette, without feelings of extreme pleasure. It is a bright pattern to others of the highest rank, and, if copied, would reflect credit upon those of an humbler station.

A little "Farming for Ladies" will be found to suggest methods for a serious saving in domestic economy. People are constrained now-a-days to open their eyes to their true interest, and if, upon reflection, "the fairest of creation" can find that, not by labour, but *mind*, they can assist in bearing the burden and heat of the day, here is a wide field now presented, where the acquisition of practi-

cal and scientific knowledge can be attained, and recreation at the same time enjoyed by the old; while, in the young, by the tenderness necessarily bestowed on the animals committed to their care, a kindly feeling towards the whole creation will spring up insensibly in their bosoms and grow with their growth, to the manifest improvement of their dispositions and the heartfelt joys of a beloved family.

THE VETERINARY ART IN INDIA.

By J. GRELLIER, *Esq.*, *M.R.C.S.*

(Continued from p 576.)

INFLAMMATION OF THE KIDNEYS.

THIS disease frequently proceeds from an imprudent use of diuretics. In this country I have sometimes known the kidneys to be slightly inflamed by some noxious or acrid herbs mixed with the grass, which appear to act in a similar manner to cantharides, stimulating the whole urinary canal from the kidneys to the end of the urethra. If the quantity received be small, it irritates the kidneys, and the secretion of urine is increased; but if sufficient to inflame them has been taken, the quantity of urine discharged will be small and high coloured, attended with considerable pain and anxiety, which frequently subsides when the operation of the herb is finished. In these cases, the taking three or four quarts of blood from the system, and soft congee drink, will generally succeed.

The general symptoms of inflammation of the kidneys are as follow:—The animal expresses great uneasiness, generally standing with his hind legs extended; the pulse will be strong and quick; the urine small in quantity, high coloured, and frequently tinged with blood. The animal will also shrink on being pressed on the loins. Some caution is still required, to ascertain the disease, which may be confirmed by the following disagreeable operation: A farrier, acquainted, with the situation of the bladder, should insert his hand up the rectum to examine its state. If collapsed, with the above symptoms existing, you may conclude with confidence that one or both kidneys are inflamed; if, on the contrary, the bladder is distended, some other part must be the seat

of disease, as no affection of the kidneys can retain the urine in the bladder. The cause must, therefore, be either in the neck of the bladder or urethra, and a catheter must be employed, as directed in the inflammation of the neck of the bladder.

When the kidneys are inflamed, five or six quarts of blood should be taken from the system, and every kind of liquid should be avoided, as the secretion would increase the irritation of the already too irritated glands.

Purgatives of five or six drachms of aloes may be employed; but calomel and the turpentines must be carefully avoided. A clyster of warm water, with an ounce of aloes dissolved in it, might perhaps answer the purpose of evacuating the intestines; and gently irritating them, to divert the fluids from the seat of disease; with this intention, it should be repeated every six hours until the symptoms abate. At the Veterinary College, a continual application of cold water over the region of the kidneys is recommended. Blisters with Spanish flies must be avoided, as they particularly affect the kidneys: the purpose of blisters will be, however, fully answered by firing over the loins, and, as in other visceral inflammations, ligatures may be employed round the legs. Exercise is particularly prejudicial, until the vigour of the animal is perfectly restored. Stones are sometimes found in the kidneys. I think I have seen some in Mr. Coleman's museum, weighing six or eight pounds, with accumulated strata super strata of various shades. I imagine there can be no remedy for this disease, as it cannot be detected until in its advanced stage. Calculi are seldom found but in the pelvis of the kidneys, as the horizontal position of the animal prevents their gravitating to the bladder, as in the the human subject.

MISCELLANEA.

A flock of Sheep poisoned by eating the Ranunculus Repens.

The sheep had not been many hours in the field before the shepherd observed that several of them seemed suddenly to fall down, as if they had been struck by lightning—their eyes rolled about in their sockets—their heaving was hurried and laborious, and some of them kept turning round and round as if they were dizzy, and died with their heads inclined over their left flank.

He fancied that the seizure was owing to a *coup de sang*, and bled the animals accordingly; but the loss of blood seemed to do harm rather than good, for 11 animals died almost immediately afterwards.

A veterinary surgeon who was summoned, immediately detected the cause of the mischief in the great admixture of ranunculi with the grass. He, therefore, at once recommended that the bleedings should be discontinued, and a dose of sulphuric ether in milk be given to all the affected animals. Under this treatment the alarming symptoms quickly subsided, and although for some days the sheep remained very feeble and tottering on their legs they all recovered completely.

Singular and disgraceful Decision.

At the Aylesbury petty sessions, held a short time since, a farmer of Aylesbury was charged, at the instance of the Society for the Suppression of Cruelty, with having maliciously, cruelly, and wantonly, tortured an in-pig sow, rendering himself liable to a fine of 40s. The solicitor for the defendant urged that a sow was not an animal contemplated by the act of Parliament under which the information was laid, because in the act there were several animals enumerated, but not the least mention made of a sow. The case upon these grounds was dismissed. Shameful!!

Shameful Usage of a Horse.

To a considerable portion of this shameful story the writer was a witness:—

Samuel Knight, a carman in the service of his brother, David Knight, a milk-man and cow-keeper in Hanger-lane, Tottenham, was charged with the following cruelty:—He was driving a horse in a heavily-laden milk-cart, with blood trickling from its belly into the road. One of the constables employed by the Society for the Suppression of Cruelty saw him, and immediately stopped him and examined the horse, and found him to be perfectly covered with sores and ulcers. He took off the harness, and found beneath the cart-saddle a deep wound, nearly as large as the crown of a man's

hat, in a state of suppuration and sloughing—the back-bone entirely raw for half its length—its nostrils bleeding—its mouth jagged and cut by the bit. There were no fewer than ten ulcers and raw places—every prominent part of the animal's body having a sore place, and the poor brute in so weak a condition that it was ready to fall as soon as it was deprived of the support furnished by the harness and cart.

I happened to see it, and joined with the officers in stating, that it was one of the most shocking sights of the kind that I had ever witnessed. It was horrible to think of working a horse in such a condition.

The prisoner said that he was not so much to blame as they supposed; he received only 2*s.* per week and his board for his services, and if the magistrate inflicted any fine upon him he must go to prison, for he could not pay it. He had told his brother that morning that if he forced him to go out he must give him notice to quit, for it was too dreadful to be endured.

The brother was sent for. The magistrate told him that he should fine the prisoner 20*s.* for driving a horse in so shocking a state; but, as it was under his authority that the offence was committed, he should pay the penalty for his brother.

David replied that he would go to prison first.

The officer said that he had offered 15*s.* for the poor creature, that his torture might be put an end to. The owner of the horse refused to part with it, and swore that they should not have it for £10; but he would keep it to spite them.

Mr. Broughton, the magistrate, said that it was one of the grossest cases of cruelty he had ever seen or heard of. He was sorry the penalty would fall on the prisoner, who was not the really guilty party; but it was impossible for him to pass over an offence of such an aggravated nature, and he should therefore order him to pay a fine of 20*s.*, or in default a fortnight's imprisonment.

When he was removed from the bar, the prisoner entreated his brother to pay the penalty for him, reminding him that he owed him 15*s.* for wages, and promising to pay the other 5*s.* as well as he could.

The miscreant of a brother obstinately refused the solicitations of the prisoner, and left the court.

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GLANDERS.

By WILLIAM PERCIVALL, *M.R.C.S., Veterinary Surgeon First Life Guards.*

THE MIASM OF THE STABLE.

THE late Professor of the Royal Veterinary College was a great non-contagionist in his opinions, not believing that "one glandered horse in a thousand, or even in ten thousand, caught the disease from contagion;" but that the ordinary and almost exclusive source of glanders and farcy was what he called the *poison*—what I have here denominated the *miasm*—of the stable: "a poison generated," he said, "in a confined atmosphere, out of exhalations from the breath, the dung, the urine, and the perspiration of horses pent up in it." And in support of this theory of general and almost exclusive causation he had collected many facts which, with great ingenuity and force of reasoning, he shaped into arguments admitting of the following classification:—

First: the Professor argued, since nothing short of *immediate* contact could, in his opinion, produce glanders by contagion, and since, even then, abrasion of the touching surface or inoculation in some way or another was, he thought, required, the disease could rarely, according to his notions, be propagated in any such manner.

Secondly: that the *first* horse that ever became glandered could not possibly have contracted the disease through contagion.

Thirdly: that several well-authenticated instances stood on record of glanders and farcy having broken out (in an epidemical form) among horses who, in apparent health at the time, had been placed in new stables or on board new ships; and that such sudden and general attack of the disease had been satisfactorily shewn to be owing to want of due ventilation.

Fourthly: that where such *fomites* of infection had been destroyed, places, before to the utmost degree unhealthy, had been rendered perfectly salubrious by the introduction of proper ventilation.

Let us examine these alleged facts, together with the ingenious and plausible arguments our late Professor founded upon them.

Coleman's talents were of an order that gifted him with a ready and acute perception of things in general, enabling him often to discover cause and design where, to those around, all seemed buried in mystery. This penetrative and fertile genius of his, however, would at times lead him beyond the limits of fair and legitimate deduction into regions of theorization where his best friends felt loath to accompany him: he had at the offset, perhaps, framed a pretty and truth-looking theory; but too often would he mar the fair image he had created by loading it with more accountability than it was able to sustain. Thus it was with the point of hippopathology now before us. He succeeded in proving to the minds of most, if not of all veterinarians of his time, that the poison or miasm of the stable was a fruitful source of glanders and farcy, and that it was especially operative when those diseases broke out on a sudden, or in an *epidemic* form; but he refused to admit the influence of contagion in any case save where actual contact and abrasion, tantamount altogether to inoculation, could be proved to have taken place. In every other instance of alleged contagion brought before him he could discover some want of ventilation, some source of "poison;" and to such an extent did he carry the omnipresence of this supposititious poison that I have heard him say that horses at pasture even might, by sniffing over parcels of dung or places wetted by urine, in the open fields inhale it in as efficacious a form as though they had inspired it generated in their stables. Consistently with which notions, so far did he carry his plans of ventilation that he thought open sheds in straw-yards should have apertures for the admission of pure and the emission of impure air, the same as stables themselves. And yet, non-contagionist as Coleman was in his opinions, the regulations issued from time to time at his suggestion for the guidance of the veterinary surgeons of the army were, in their nature, as effectually calculated to prevent the spread of the disease by contagion as any one of an opposite way of thinking could possibly desire, as will appear by the subjoined extract from them, received by me in the month of October, 1837:—

Extract of a Report from the Principal Veterinary Surgeon.

"I have always considered it the duty of all commanding officers and veterinary surgeons of cavalry regiments to report to the respective barrack-masters any and every stall occupied by a glandered horse, and requiring painting, &c.; and, it is my opinion, that not only those stalls or standings occupied

by horses with symptoms of glanders, require being painted in oil, but that the whole of the racks and mangers should be thoroughly washed with soft soap and hot water well softened by soda, and which I have no doubt, if the stables are properly ventilated, will prevent all danger from infection. Glanders is much more frequently produced by defective ventilation of stables than by glandered matter."

(Signed) "Edward Coleman, P.V.S."

If it can be shewn, beyond any reasonable ground for doubt, that glanders may be, and not infrequently is, taken through *mediate* contagion, through stabling, &c.—and I think enough has been advanced in these pages to demonstrate, at least, the plausibility of such a deduction—then Coleman's first argument sustains so much weakening, that the miasm of the stable no longer can be regarded as the *universal and exclusive cause* of glanders and farcy which he, in his enthusiastic prosecution of his schemes of ventilation, imagined it to be, but must descend in the grade of causation, to take no more than its due share in the production of the disease, along with other equally well-grounded and recognized causes.

Secondly: that Coleman established his great point, that glanders and farcy *did* originate independently of contagion, there is no question. Setting aside the necessity of actual contact, and the improbability of horses coming together in such manner as to catch the disease through inoculation one from another—neither of which positions would experience suffer Coleman to maintain;—setting aside, also, the posing query ever put to contagionists, "Whence did the *first* glandered or farcied horse take the disease?" there is ample evidence on record to demonstrate that foul and ill-ventilated stabling have proved a fertile source both of farcy and glanders*; and to Coleman the greatest credit is due for the masterly and persevering manner in which he discovered and exposed this *fomes* of infection, and for never, after his discovery of it, leaving it—so far, at least, as the cavalry and ordnance stables were concerned—until he had cleansed it out from the very bottom, and, in the place of a heated and polluted atmosphere, filled the public stables with currents of cool and pure air—with air that was wholesome for the horses to breathe, in the place of that which was pregnant with miasmatic vapours: continually charged as the unrenewed atmosphere of the closed-up stable must have been, even in the daytime but especially by night, with carbonaceous exhalations from the lungs of its inhabitants, and ammoniacal and

* M. Patu, M.V. to the 4th (French) Cuirassiers, ascribes the extraordinary prevalence of glanders and farcy in the French cavalry to the crowding together of the horses in small, low-pitched, ill-ventilated, dark, damp stables; and finds great fault—not without reason—with the authorities for not affording proper and healthful accommodation.—*Veterinarian for* 1836.

other noxious effluvia from the urine, the dung, and the perspiration. To neutralize or expel this miasm constituted Coleman's *principle of ventilation*;—this was the object he ever and always had in view. How far his plans for effecting it were judicious, or the best that could, under the circumstances, have been devised, is quite another question: that, in general, they proved successful, is in a measure shewn in the comparative infrequency of glanders and farcy at the present day. I say, *in a measure*, because we have had no reason to take it for granted that contagion had no, or even comparatively small, influence: whatever share it might have had, however, in the causation, it is not likely that Coleman, intent as his mind ever was upon his favourite theory of stable "poison," would have heeded it.

To my mind, however, Coleman's own reasoning on the *modus infectandi* of this poison is in every way sufficient to prove that the disease, once generated, is capable of spreading by contagion, and through the medium of the air, too, from one horse to another. If the atmosphere of the stable, charged as we know it to be with humidity, can carry a miasm from the excretions and secretions into the nose of the horse, sufficiently concentrated to produce glanders and farcy, is there any good reason why the same atmosphere may not convey the virus of glanders itself, evaporating from the nose or lungs of a glandered horse, or from the open buds of a farcied one? Surely, that which can conduct poison from the dung or urine upon the floor of the stable, can transport gaseous virus from one horse's nostrils into those of another;—and, surely, the virus emanating from a chancrous surface must be as virulent and efficacious as any generated in the dung, the urine, or the breath of horses in health*.

Thirdly: no doubt has ever been entertained by me of the spontaneous origin of glanders and farcy—of their origin apart from the influence of contagion. Coleman, whose field for observation was greater than almost any man has enjoyed either before or since—he having had the Army, the Ordnance, the Veterinary College, and some private practice besides, to range over—adduced much satisfactory evidence in proof of this fact. He shewed that these diseases, on several occasions, had made their appearance in situations never inhabited by horses before, and

* "A glandered horse may contaminate the air of a stable to such a degree that horses breathing the same air may become infected with the disease, although the infected may never come in contact with the infecting horse. Fortunately, glanders is not so infectious as some other diseases to which horses are liable, otherwise the breed would soon become extinct."—*Vide an admirable article* "*On the External Causes of Disease*," *by W. F. Karkeek, V.S., Truro, in* The Veterinarian *for* 1833.

then, for the first time, by horses at the time of their entry in apparently perfect health; in new, public and private stables, and on board of new ships*. And he said that the morbific agent was the poison the healthy inhabitants of such uncontaminated abodes themselves generated, by being shut up without due or proper ventilation.

SMITH contended as strongly as Coleman for the origin of glanders independent of contagion, and admitted how frequently and commonly the disease broke out in foul and unventilated stables; but he ascribed the mischief to the consumption and consequent *deficiency of pure air*, and not to any specific poison. Coleman, however, had from the first suspected this cause himself, and immediately set about the investigation of it; and the result of his inquiry was, that—to use his own emphatic language—"the air of the closest alley in London was found to contain as much oxygen in proportion as the air that encompasses the hills of Highgate:" shewing him that there was no good ground for believing that the atmosphere of the close stable possessed less pure air than that out of doors; and serving to confirm him in his opinion of what was the real deleterious agent, which was *the animal poison*.

Fourthly: that, as I observed before, Coleman's introduction of ventilation into the stables of public and private establishments has been productive of incalculable benefit, admits of no question whatever: not only has it proved prophylactic against glanders and farcy, but against other diseases as well; and were the profession and the public indebted to him on no other account, the good arising from ventilation alone is sufficient to preserve his name, for many a year to come, in the records of veterinary science.

WHAT THE NATURE OF THIS MIASM OR INFECTION IS—Whether it be similar in its essence to the virus of glanders itself, or whether it simply be an irritant of that miasmatic description that empoisons the system, and breeds malignant disease somewhere, depending for the form in which it breaks out upon certain local susceptibilities, producing one disease in one part, another disease in another part, we have no direct or positive evidence to shew. Coleman was clearly of opinion that, though *specific* he considered "the poison," it was *general* in its operation: he not only ascribed glanders and farcy to its influence, but *rabies*† likewise, and also

* Although some doubt has been cast by "an old artillery officer" on Coleman's account of the Quiberon expedition (in the VETERINARIAN *for July* 1840), yet has the fact of glanders having broken out on board of ship been attested by Mr. Mogford (in the VETERINARIAN *for Aug.* 1840), as well as by Smith.

† On the occasion of the Professor being examined before a Committee of the House of Commons, touching the Bill to prevent the spreading of Canine

periodic ophthalmia and grease. Supposing the existence of a *virus* in each one of these diseases, nobody would contend they

Madness, to the question, "Have the goodness to state what (in the course of many years' experience) has occurred to you?" he gave the following answer:—

"I have made up my mind on one point, in which many people, however, are of a different opinion,—that the disease is often produced without contagion."

"Spontaneously?"—"Yes; but when I say spontaneously, I believe that to arise in consequence of the fact of their being exposed to their dung and urine, and to confinement, too much feed and too little exercise. I do not believe that carrion flesh is capable of producing it, but I think it arises more from being confined, tied up, and exposed to their own dung, and their own urine, and their own breath, and also from the want of proper exercise. I believe that, with hounds in kennels that are properly attended to, it is rather an uncommon disease; but when the kennel has not been attended to, canine madness sometimes takes place, of which I know one instance in particular: the subscription pack of fox-hounds in Surrey had the disease to a considerable extent, and there was one remarkable fact, that the dogs did not bite the bitches, nor the bitches bite the dogs. The kennel had been very much neglected; there was no water flowing through the kennel: I suggested improvements in that respect, and the disease for a length of time disappeared."

"In the cases you are now speaking to, have you examined the dog after its death in any case where the dog has not been bitten?"—"It is impossible to prove the negative: we cannot say the dog has not been bitten; but if it did always arise from the dog being bitten, *how came the first dog to be mad?* But, independently of that fact, it will be found, that in different parts of the country you hear nothing of hydrophobia, and then you hear of it in different parts of the country pretty nearly at the same time. Now there are many diseases highly contagious in themselves, but which are capable of being produced without contagion. The glanders can be thus produced—it is a contagious disease; and so is farcy; and yet it is a fact that these diseases are more frequently generated than propagated by contagion. The itch also is notoriously produced by filth, and, when produced, becomes contagious; so with ship fever and gaol fever, which, when they break out, become contagious; but they can be generated."

"Would the glanders be produced by inoculation in the case you refer to?"—"I can mention one extraordinary instance, which was in the Quiberon expedition. There were a great many horses examined prior to their going out, and not one of them had any apparent disease: they were put on board different transports; they encountered a hurricane; they were obliged to put down the hatches; several horses were suffocated, and great numbers of them became glandered in consequence. At Dover, in the year 1796, where there was a great encampment, the government could not get stables to receive them late in the autumn: they built close and confined stables; and the most healthy horses went into those new stables, and a great number became glandered, affected with farcy or diseases: a great many of them died. Many of the horses were sent to Hythe and placed in an open shed; not one of these horses became affected. It was certainly intended that animals with lungs should have an element to breathe once, and but once, and that the air should receive something from the blood, and impart something to the blood; but that, when made to go several times into the lungs, it produces a disease which becomes infectious. In the human subject it produces fevers and the plague, and farcy and glanders in horses, the pip in fowls, and the husk in pigs."

were all four of the same nature, or that the diseases themselves differed—no more than farcy and glanders differ—only in being seated in different parts or tissues; therefore, when Coleman asserted that the same poison that produced glanders would produce ophthalmia, grease, and rabies, it is manifest he could have regarded the poison but in the light of a common though malignant infector.

There is no absolute need to suppose that the infection or miasm generated in the atmosphere of the stable, and believed to be the producer of glanders and farcy, is the same as the contagious virus of glanders itself: it may be a sort of *malaria*, the result of the decomposition of animo-vegetable matter, or else of a compound of mephitic vapours positively injurious of themselves to the mucous membrane of the nose and air-passages, independently of any exclusion or diminution of the oxygen of the confined air. And as a poisonous agent, it may either prove at once noxious to this membrane itself, or, through its medium, become absorbed and carried into the circulation, contaminating the blood, and breaking out in the form of *farcy* in some horses, in that of *glanders* in others; and capable—the same as malaria is thought capable of producing fever in some persons, cholera in others—of producing, according to Coleman, *ophthalmia* and *grease* as well, and even, in the dog, *rabies*. Whatever plausible reasons there may be, however, for believing that what will produce glanders and farcy, the same may create ophthalmia and grease, there do not appear to be any examples of the spontaneous origin of rabies; the only argument in support of such a presumption being the hackneyed question of, how the first case of rabies came to appear.

ON THE DISTEMPER AMONG CATTLE.

By Mr. JOHN RELPH, *Sebergham.*

IT is well known that horses and cattle are liable to premature death from inflammation of the various tissues, and many other forms of disease to which domestication, the seasons, and hereditary predisposition subject them. During the prevalence of easterly winds in the spring inflammatory affections of the respiratory organs often abound, and so do those of the brain and liver in a hot summer. These agents render the animal more susceptible to certain diseases, and this predisposition frequently modifies the dis-

ease itself; so as to give it a more or less destructive character. We may easily conceive that an analogous modification may take place in the zymotic diseases from the malaria or morbid poison suffering some change during its progress; and this we find to be the case, as was exemplified in the benign character assumed by the aphthous disease in cattle during the last spring.

By alterations in the type of disease thus induced the remedial measures proper at one period are found to be insufficient or even injurious at another, and hence, in some measure, the discrepancies of authors respecting the virtues of many medicinal agents.

Illustrative of this, I may state that, in this locality, in the summer of 1840, many of the diseases of cattle were accompanied by an irritable condition of the mucous coat of the alimentary canal, which precluded the exhibition of tartarised antimony and several valuable therapeutics, in cases where such are usually our sheet-anchors.

The veterinarian of extensive practice will find that a solitary case of any disease rarely occurs; but pneumonia, enteritis, and tetanus, will each reign predominant during a certain period, and leave the work of devastation to others in the list of our nosology. It is of great importance to detect any peculiarity that may attend the prevailing disease, so as to shape the treatment accordingly.

A very instructive history of a disease that occurred among sheep in the environs of Pesth, in Hungary, is given by Raspail in the ninth volume of *The Medical Times*, page 158. The disease attacked the flocks at pasture and set at nought the attempts of veterinary surgeons and learned commissions to discover its nature and to impede its progress, until at length it was found to be of mechanical origin. The spiculæ of a plant that abounded in the locality penetrated the skin of the sheep and produced extensive and complicated constitutional derangement and death.

These observations are intended to shew that we may have a certain disease very prevalent, and even assuming a peculiar type, without regard to malaria or contagion; but the history of veterinary medicine and our own experience inform us, that certain specific diseases occasionally invade our domestic animals—diseases that have been known as murrains, distempers, epizootics, &c.—varying much in their form, but supposed to originate in a morbid poison. These miasms or morbid poisons have been distinguished as animal, or those that, under certain circumstances, are developed in the animal system, as glanders, rabies, &c.; and terrestrial or marsh miasms, or those that proceed from the decay and decomposition of matter on the surface of the earth. Although the idea of noxious gases emanating from the interior of the earth during earthquakes and other convulsions in nature, as developed by Syden-

ham, Hecker, and so lucidly dilated upon by Professor Sewell, has been ridiculed by some writers, yet it seems highly probable.

The diversity of character exhibited by these occasional diseases, I fancy, almost demonstrates the truth of this theory. Each miasm, on being introduced into the animal system under certain circumstances, produces a certain train of phenomena* according to its kind. Some act on the blood and some on the serous or mucous membranes. Modern pathologists have revived the doctrine of the ancients, that their mode of action much resembles that of a ferment; and, consequently, have included under the order zymoses (from zymoo, to ferment) all those diseases here alluded to, and formerly known as epidemics, epizootics, &c. By the introduction of this term into our nosology, and by restricting the use of the words infection and contagion to their literal signification, much ambiguity may be avoided.

When the malaria or poison is reproduced in the course of the disease, and is capable of extending its action to another subject through the medium of the atmosphere, it is infectious; but if, on being reproduced, contact with the sick or its secretions is necessary to its extension, then it is contagious. Every infectious disease is contagious; but the reverse does not hold.

The distemper among cattle, the immediate subject of this paper, appeared in Ireland in 1841 and spread itself in that country, and at length gained the western coast of England and the northern one of Scotland. In August 1842, a farmer on an open plain near the centre of the maritime county of Cumberland bought four Irish stirks. In October one of these became ill; he bled it and gave salts, but it died.

Soon after another of the lot was in like manner affected. The same means were resorted to but without success, and, after some days, my attendance was requested.

On comparing the history of these two cases, and the symptoms presented by the latter—which was evidently fast sinking—with the description of the new distemper generously presented to the public through the medium of THE VETERINARIAN, by Mr. J. Barlow, I had little doubt of the identity, and intimated my opinion to the owner. The illness next shewed itself in two of his milch-cows, in the latter part of December, and for two months afterwards fresh cases continued to occur in this stock.

It is worthy of remark, that the cattle which I have attended in this complaint were scattered over an area of twenty miles in diameter, and embraced almost every quality of location: but it was most fatal in a stock on the banks of the river Caldew, near

* Vide Sewell's Oration, VETERINARIAN, 1839.

to Carlisle, in March and April, 1843. This stock mostly consisted of well-bred short-horns, well kept, and partly fed on bran, &c., from an attached mill. The sheds and yards were not disposed in the best order for the avoidance of excremental effluvia; and probably the disease was influenced by some of these circumstances. In most instances there was positive proof of connection with diseased stock; in almost all the others fresh cattle had been introduced from the fairs, affording strong presumptive proof that they had come from diseased stocks; and, in all, the bought-in cattle continued several weeks, or even months, apparently well, and then exhibited the disease in all its virulence. I have no proof of the disease having been conveyed from one stock to another by the herd or attendant, though great facilities existed in some instances; neither have I known it pass by contiguity to another stock; but different classes of cattle on the same farm, that were usually kept apart, have been affected without (as was presumed) coming in contact.

Symptoms.—The animal is observed to be tucked up in the carcass, and falling off in condition—the appetite rather defective—turnips are refused—the secretion of milk is diminished—there is frequent shifting of the hinder extremities in the stall—their movements are languid, stiff, or wavering. The bowels become irregular—the fæces are scanty, often inclined to diarrhœa, mostly mixed with mucus, and little urine is excreted. A short, husky cough is often present, pulse 70 to 80, and the respiration mostly accelerated.

In some cases, five or six days elapse before these symptoms are much aggravated; in others, they progress rapidly. The pulse becomes more frequent and quick, but seldom full and strong; the respiration increases, accompanied by a sigh or groan, emitted by a sudden relaxation of the laryngeal muscles at the commencement of expiration. The crepitous râle is frequently audible in some parts of the chest, with absence of the respiratory murmur in others; and the cough is more annoying. The appetite fails, and there is much unwillingness to move. The ears and horns are often hot; sometimes alternated with cold fits, and rigors, general or partial. There is tenderness of the spine and chest, sometimes also of the throat.

In the third stage these symptoms are aggravated; the breathing becomes laborious—mostly irregular; the moan is piteous: sometimes the countenance is dejected, and the ears drooping; the bronchial râle only is audible in some parts of the chest, which emits a dull sound on percussion. Dysentery generally occurs; the emaciation and weakness are extremely great; spume drivels from the mouth, and the animal sinks of chronic asphyxia.

In some cases, a swelling appears on the head or throat, with greater depression of the vital powers; and when the heart is more particularly affected, there is mostly regurgitation in the jugulars, and earlier debility. When effusion of serum has taken place in the pericardium, I have heard the gurgling sound "as of water discharging from an inverted bottle," first alluded to by Mr. Cartwright as a diagnostic of hydrops pericardii.

Characteristics. — The versatility of this disease makes me approach this point with diffidence. In the first stage—as in all cases of simple fever—we have considerable febrile excitement, without being able to connect it with any local lesion. In the second, the abnormal physical signs of the chest, particularly when confined to one side—complicated with derangement of the digestive system—especially a strong tendency to dysentery, with hot ears, enable us to speak with a confidence that too seldom fails.

Predisposition. — Cows in milk, and in gestation, are most liable to it; but neither age nor sex claim exemption.

Anatomical Characters.—The lining of the trachea, and soft parts around the larynx, often present a dark appearance; the right lung in most—the left in some—in others both are greatly enlarged and consolidated, hepatized, and more or less infiltered with a bloody serosity. Extensive effusions of coagulable lymph are often found on the surfaces of the pleura—sometimes uniting the lungs, pericardium, and parietes of the chest to a great extent. There is also effusion of serum into the chest and pericardium.

The internal coat of the fourth stomach and large intestines is often high coloured, and easily detached.

There is serous effusion into the ventricles of the brain, and, in some, upon its surface, with congestion of the pia mater, and, not unfrequently, softening of a portion of the cervical spinal cord.

The facts and circumstances above detailed seem to warrant the following conclusions:

1. That functional derangement, succeeded by febrile action, always precedes and exists for some time previous to the development of pulmonary disease.

2. That partial congestion and effusion of coagulable lymph take place simultaneously with the affection of the pulmonary tissue; that is, it constitutes the primary, not the subsequent stage, as in true pneumonia.

3. That the obstruction in the lungs thus induced, connected with the functional derangement of the digestive system, by arresting the due arterialization of the blood, and cutting off a fresh supply of chyle, tend still more to deteriorate the former fluid; and thus to create the debility and consequent effusion of serum into the cavities of parts previously weakened by disease.

I may here observe, that many consider the disease to be essentially a pleuro-pneumonia; and it has been supposed that the morbid condition of the brain is the effect of sympathetic participation in the serous membrane. Were this the fact, we might expect to find the peritoneum occasionally involved.

Many of the early symptoms, as hot ears, the recurrence of rigors, the excited, or, in some cases, depressed countenance and imperfect action, especially as these two latter are more marked in the cases exhibiting effusion upon the surface of the brain; with the constant change in that organ, and even the inefficacy of venesection and sedatives in taming the arterial action—these point out the brain and nerves as the real seat of the disease. When we reflect on the great influence exercised by the mental operations on the different secretions, and on the various results of functional changes in these systems—as tetanus and encephalitis, for instance (which undoubtedly belong to the encephalon, and may be cured with as much certainty as enteritis)—surely it requires no great stretch of the imagination to adopt the above conclusions. I freely admit that my post-mortem examinations were too limited to stamp the theory with indubitable verity; and need not advert to the necessity of seizing every opportunity for these at the different stages of the disease.

I conceive, then, that the disease is of the zymotic order; that it is contagious; or, if infectious, it is so only in a slight degree: that is, the morbid effluvia, commingling with the atmosphere, soon becomes diluted to a certain point, beyond which it is inert. That it possesses the singular property of cleaving to the animal for weeks, or even months, without perceptibly disturbing the animal economy; but, ultimately, the brain and nerves, particularly the ganglionic, become diseased; the functions of the latter are impaired, and abnormal action in the secreting organs under its control is the result; and hence, also, the effusion of coagulable lymph into the lungs, and a vitiated secretion into the intestines.

Treatment.—The excitement of the brain and fever, which are the leading features of the first stage, require special attention, and in several instances have been overcome, and the disease cut short, by the administration of the following twice a-day:—℞ antim. pot. tart. ʒj, pulv. pot. nit. et pot. bitart. āā ʒiss, sulph. sublim. ʒvi. Mix and divide into three or four doses, giving ʒss of tar along with each.

Should the disease progress and irritability of the bowels be manifested, this medicine must be discontinued, as I have always found the antimonial, and likewise digitalis and hydr. chlor., even when combined with opium, act injuriously at this period. If the pulse is full and strong, with a scarlet hue of the visible mucous

membranes—as those of the conjunctiva and vagina, and absence of diarrhœa—blood may be drawn, but with caution. In some cases the blood-letting may be repeated in twelve or twenty-four hours; but, as a general rule, I abstain from blood-letting, having frequently employed it myself, and seen it employed by others, to the aggravation of the complaint.

Next to the question of venesection, the state of the bowels must be ascertained, and if costiveness exists give ol. lini. ℥xij ad ℥xxiv, with the addition of ℥j vel. ℥ij spts. eth. nit., if the rumen is found to be overburdened with ingesta or distended with gas. These may be repeated in less doses if necessary. Cathartics must be studiously avoided; therefore the mildest laxatives must be given with care.

The next indication being to arrest the deposition of lymph and establish healthy secretion and absorption, chlorine, iodine, and some of their compounds, by virtue of acting chiefly on the organic or vegetive system, are available. Some years ago, having seen the chloric acid $(Cl. + O^5) + (OH)$ highly extolled as a stimulant to the nervous system and a sedative to the vascular by a writer in *The Lancet*, I have given it in this and other diseases of cattle and horses; and although my opportunities of attentively observing its effects do not warrant me in giving it a positive recommendation, yet it is my impression that it will prove a very valuable auxiliary to our therapeutics. It may be given in doses of ℥iss ad ℥iij in cold water three or four times a-day. In the course of a week, or when the fever assumes a decided typhoid form, the chloric acid may be superseded by the ammon. hydrochloras in doses of ʒiv to ʒvj two or three times a-day, or by iodine; and, when the debility is more marked, the iodine may be mixed with ferri sulphas or cupri sulphas, to which stimulants and bitter, may be added when thought proper. In several cases the hydrochloric acid was given a few days previous to venturing on the stronger mineral tonics; and also, when the system got surcharged with iodine this or the liq. ammon. sesqui carb. was resorted to.

The diarrhœa, even when assuming the mucous character, which is generally found in this complaint, is best combatted by the preparations of iron and copper. I tried the vegetable astringents and opium with antacids without effect; but by discontinuing the iodine and giving the ferri carbonas or ferri sulph., the flux was often stayed, and then the chances of recovery were greatly increased.

I have used setons and blisters to the sides and dewlap, and also to the head and neck, extensively and freely, and am satisfied that they have comparatively little power on this affection. When adopted, the formula given in THE VETERINARIAN by Mr. Fer-

guson will be found an energetic blister, which was long a desideratum in cattle medicine, and for which that gentleman merits the thanks of the profession.

Diet.—When the beast ceases to ruminate its diet must be restricted to meal and water, gruel, linsced, &c., and this must be persevered in until the stomachs resume their functions. In many instances this did not occur till the sixth or eighth week, and then renovation proceeded quickly. Several decided instances of perfect restoration to health were witnessed after a great portion of the air-cells of the lungs had been impervious. The bronchial murmur only could be heard on most of the chest; but by degrees the respiratory râle was developed, which salutary action of the absorbents appeared to be excited by iodine and the tonics.

It is almost unnecessary to state that the sick should be separated from the healthy: a comfortable loose box, neither too close nor cold, is suitable for the former, and when the season is cold let the body be clothed.

Prevention.—To this end let the cow-house be made as close as possible, and, after the cattle have removed, fumigate it with burning tar and sulphur. Afterwards, the walls should be whitewashed, and the floor dusted with quick-lime. Pots with chloride of lime, with which a few drops of sulphuric acid have been mingled, should be occasionally placed in various parts of the sheds, both with the sick and adjacent healthy cattle; and if the disease should reappear, I would repeatedly subject the convalescents, as well as those that had been near them, to moderate sulphurous acid gas fumigations, as above directed, or to those of nitric acid gas, procured by adding, from time to time, a few drops of sulphuric acid to half ounces of powdered nitrate of potass, placed in pots.

The excrements of the sick should be speedily removed and buried, and cleanliness strictly enforced. The form and mode of administering cattle medicine claim a few remarks. As a general rule, the liquid or perhaps semi-liquid form is the best; and, whether we select linseed or barley-meal, or cold water and flour, as a vehicle, its consistency is of much importance. The mixture should be just sufficiently attenuated to flow from the horn; and when leisurely given in this state, it will rarely fall down upon the larynx, and distress and endanger the beast, as too often happens when a thin liquid is given.

This also applies to the horse.

There is another circumstance often lost sight of by writers, to the great detriment or even destruction of their remedies: I allude to the physical and chemical properties of the prescription, and the directions for mixing it up. Certainly, we now rarely see the absurd directions, "to be boiled in 2 quarts of ale until one-half is con-

sumed;" but we often find an equally great absurdity in seeing highly volatile ingredients, as camphor, ammonia, ether, and even prussic acid, ordered to be mixed in hot water or gruel, whereby they must be partly or entirely dissipated.

Again, iodine is often mixed with gruel or linseed-meal, converting it into an iodide of starch, a very feeble preparation. Of course, volatile ingredients should be given in cold water or mixtures, and iodine in cold water or chamomile or wormwood tea, when these are admissible, and given some time after the animal has had gruel or farinaceous food. The active preparations should also be well diluted, so as to disturb as little as possible the already irritable stomachs. For the same reason, I prefer small and repeated doses.

In conclusion, I would state, that the painful interest still felt in this zymotic, as evinced by a premium having been recently offered for an essay on the subject, induced me to attempt this exposition. The treatment advocated has been comparatively successful, yet it cannot be held forth as a certain cure; and if the Editors see in the paper matter worthy a place in their very useful journal, it is humbly dedicated to their use by their

Obedient servant,

J. Relph.

DEATH OF A PONY FROM A SPONGE GETTING INTO THE WINDPIPE.

By Mr. W. A. Cartwright, *V.S., Whitchurch, Salop.*

About six o'clock in the morning of the 24th Sept. 1844, a two-year-old pony, belonging to Mr. George Venables, of this town, was fetched up home out of a field to go a journey, and was then perfectly well. A little before seven he ate a bran mash, and soon afterwards he was seen to be unwell. He ran about the stable, jumped up, and fought with his fore-feet—shrieked out, and lifted up his head; at other times he would draw his head and breast together, and shew every symptom of being choked: he also coughed violently, and made a shrieking noise. I was then called in to attend him, and, as the pony belonged to my next door neighbour, I was shortly there.

Symptoms.—He had now a fit, with similar symptoms as above described—was in dreadful agony—running forwards, lifting up his legs with great force—dashed about the stable in every direction—and looked wild: respiration was a little increased.

From these symptoms I concluded that he was choked, but I could not see or detect any thing in the œsophagus. I put a balling-iron into his mouth, in order to examine the upper part of the œsophagus and pharynx, but I found that I could not get my hand far enough. I next passed a small probang half way down the œsophagus, but, it being only one used for sheep, I could not continue it into the stomach. We then drenched him with some oil and gruel, but were able to get only little of it down, as he either could not or would not swallow.

In about an hour after these symptoms became worse—respiration much increased, tongue becoming livid, eyes staring, Schneiderian membrane highly injected, great anxiety—and, on placing my ear to the trachea, especially near the chest, I could hear him breathe with great difficulty, something like a broken-winded horse, and as if he drew the air in and forced it out of the lungs with great difficulty.

From the existence of the foregoing symptoms, I was determined to bleed him, in the hope that it might relax any spasm of the muscles surrounding any obstruction, and also relieve the increased respiration and determination of blood to the head. I therefore abstracted about five quarts of blood from him, which issued in a very fluent stream, and was becoming a little dark coloured. This bleeding evidently relieved the more violent symptoms for a time, but still his respiration continued sadly too quick, and very similar to a broken-winded animal.

In an hour or little more after the bleeding he again became restless, but not so violent as at first—his pulse was more natural, and his body and legs tolerably warm. On applying my ears to the larynx and windpipe, I could discover that there was a considerable obstruction therein from some cause, even more than I could imagine to be produced by mere pressure on the trachea. We continued occasionally to horn down small quantities of oil and gruel, but I fancy little went down. A small quantity, however, certainly did. It would seem, that by lifting the head, in order to drench him, pain and difficult respiration were produced.

3½ P.M.—About this time he died. During the whole period that he lived his respiration continued to be considerably increased, and a peculiar heavy wheezing sound continued in his trachea, sometimes worse than at others, but always laboured. Most of the time, except when we were walking him about, he would stand tolerably still in the stable, but was evidently uneasy and in pain, would now and then cough violently, and make a squealing noise. The coughing appeared to give him excessive pain. A considerable quantity of slaver was constantly issuing from his mouth. A little before he died he was standing up, and looked almost as

well as he had done at any period of his illness. He was warm all over, and his pulse was not materially altered, but his breathing was heavy. I scarcely knew what to do with him, the symptoms of choking not being urgent, or whether I should introduce a larger probang, or give more oil and gruel. Not being inclined, however, to introduce the former, I was in the act of administering the latter, and while I was holding up his head and drenching him, he again commenced fighting with his fore feet, and ran about the stable making a shrieking noise. He presently, however, fell down, struggled violently for a little while, and died.

He was immediately skinned, and in less than half an hour I made a post-mortem examination of him. I had him placed on his right side, and then carefully laid bare the whole length of the œsophagus, by first removing the muscles adjoining it down the neck, and then the ribs on the same side. In cutting off a portion of the left lung, close to the trachea, I saw something within, and, on careful examination, I found that it was A PIECE OF SPONGE. I then laid open the trachea, and found its inner membrane beautifully and highly injected, and as red as scarlet. The sponge was 6½ inches in length, and in some places would have been, when dry, 2 or 3 inches wide. It occupied the lower part of the trachea, and some of it was even drawn into the larger branches of the bronchial tubes. The sponge, had it been dry, would, I have no doubt, have distended the trachea, and, if fully saturated with water, would have filled a space double the caliber of the trachea. The parts surrounding the glossal opening and the epiglottis were considerably swollen and inflamed.

On the outer surface of the œsophagus adjoining the trachea, and where the sponge lay, there were two spots of extravasated blood, each the size of a sixpence, also a small portion of lymph and serum. The lungs were not at all congested, but, on the contrary, of a pale and natural colour; but there was a considerable quantity of frothy spume in the bronchial tubes, especially on one side of the thorax.

Observations.—I consider this a very rare and extraordinary case, and, perhaps, the only one on record in any of our English works.

There can be little doubt that after he had eaten his mash he picked up the sponge from out of the window where it had lain some days, and having chewed it for a time attempted to swallow it; in the endeavour to accomplish which the sponge became impacted in the superior part of the œsophagus, after having passed over the epiglottis. While there, it must have been drawn back into the lungs by some violent acts of inspiration, assisted, most probably, at the same time, by vomition.

During the whole period that he was ill, except when a few fits of apparent choking or suffocation took place, the respiration was not so bad as might be imagined, and there were no indications of death from suffocation; nevertheless, his respiration was considerably increased and laboured, and the air seemed, both during inspiration and expiration, as if drawn in and forced out of the lungs with great difficulty, and just in the manner—now we know the cause—that we might have imagined it would have been. There can be no doubt that he must have breathed through the sponge, although it completely filled the trachea.

Although I believe that the pony was choked, there being the usual symptoms but in a milder degree, yet I thought that there was something unusual and mysterious about the case, indicating more of pneumonia, or, perhaps, tracheitis or bronchitis, and which I fancied might have been produced by the pressure of the offending body on the trachea. The symptoms of choking, on the contrary, must have been produced by the pressure from without on the œsophagus by the sponge in the trachea, and from there being similar symptoms in a case like this when trying to remove the offending body from the windpipe.

AN ADDRESS TO STUDENTS.

By the Editor of "The Lancet."

ANOTHER year has passed, and hundreds of students are flocking into the great metropolis to complete their medical studies. In accordance with our annual custom, we shall now address a few words of advice to our young friends.

To those who have already spent a year in town the routine of the life of medical students is well known. They have made their choice, and are either diligent and attentive to their studies, thus paving the way for future prosperity; or otherwise they have fallen and become a prey to dissipation, thus preparing themselves for a career of imposture, not to say of crime. To the first, we can merely say, persevere, and you will be rewarded, not only by the approbation of your own conscience, but, in all probability, by deserved success in the profession which you have chosen. The latter we most urgently implore to change while there is yet time. The year lost can *never* be regained, it is true; yet much may be done in the period which still remains towards acquiring a good practical knowledge of the profession. If that is misspent, if pleasure

only is pursued, and reliance is placed on a few months' grinding for professional information, a diploma may be obtained, but success in after-life and peace of mind will be utterly unattainable. The man who does not study with the stimulus of his examinations before him, and surrounded by all the incentives of a student's life, will not study at a later period. He will remain ignorant, with, perhaps, just enough knowledge to perceive his deficiencies. To such an one, practice is a state of purgatory, unless, by a dint of blunders, in the course of years, he either acquire a kind of practical acquaintance with the symptoms and treatment of disease, if not with disease itself, or otherwise become hardened in his ignorance, and reckless of its consequences.

The task of the student who makes his first appearance on the field of action is more difficult. He arrives, as it were, in a *terra incognita*, and has every thing to find out, every thing to arrange, with reference to his sojourn in town. The most important point to determine is the school at which he intends to study. But this is one which is generally decided before he leaves home, and very properly so, as the elements of a decision are as easily obtained in the country as in town, and as it is very desirable that on a student's arrival his plans should be all carefully laid down, so that it may merely be necessary to carry them into execution. It would, therefore, be of but little avail to point out the comparative merits of the different schools, even were such a course not a deviation from that impartiality which, with us, is a law. The organization of the various schools is fully developed in the student's part of the present number, and it remains for the students, and for their medical friends and preceptors, to exercise their discretion. There is, however, one caution which we must enforce; which is, that no school should be chosen which does not afford ample opportunities for *clinical* instruction, and that students should be careful that the scenes of their lectures and hospital studies are sufficiently near to each other to prevent unnecessary loss of time in going from one to the other. There is one exception which may be made to this latter rule. For the sake of exercise, one of the evening or early morning lectures might be attended at a little distance from the centre of exertion. A walk could thus be arranged for the morning or evening without interfering with the business of the day.

The student who comes to London to walk the hospitals, as the term is, must remember that he has not come for pleasure, but for study. Indeed, it is as well that he should know that if he performs his duty to himself and to society, the effort which he will have to make will be greater than any which he has hitherto

executed, or, perhaps, than any he will hereafter be called upon to perform. He must not attempt to combine pleasure with his labours. It is an utter impossibility. He will have, during his entire residence in town, a great deal more to accomplish than he can possibly master, and every half hour devoted to pleasure is so much taken away from necessary study.

The great secret of a life of mental labour, such as the one on which he is about to enter, is regularity—extreme regularity. With its assistance, the routine of daily duties ceases to be irksome, every thing is accomplished without pain, and health is preserved. The effort which a student is called upon to make is not a convulsive one, but continuous; one which must be repeated day after day, for the two or three years which it is destined to last, without injury to the health, if possible. Let us see how this may be accomplished.

The brain of a hard-working student is continually at work. It is not merely re-acting on impressions passively received; it is actively engaged during many hours of the day, and the consequent exhaustion is much greater than under other circumstances. Regular rest, therefore, is of much more importance to the student than to persons otherwise employed. Instead of diminishing the period for rest, as is too often done, he should rather increase it. Seven hours' sleep is enough for a healthy adult, under usual circumstances; eight hours is not at all too much for the hard-working student. The brain has thus time to recover itself from previous exertion, and is perfectly fresh and ready to perform its wonted task. A working student ought always to be in bed by eleven, and up on the following morning at seven. By rigidly adhering to this rule, he will scarcely ever be troubled with the headaches, dizziness, and mental unfitness for work which are experienced during the day by those who consume the midnight oil. Moreover, if he take sufficient exercise, and live abstemiously, he may study for years—eight, ten, or even twelve hours a-day—without injuring his health—a most important fact. He will thus, in a given time, accomplish infinitely more than the student who works by fits and starts; sitting up the greater part of the night for weeks at a time, and often, by that means, irreparably injuring his constitution. It is not the sudden gush of water, but the drop, incessantly falling, that wears the stone. The student who rises at seven, and is engaged all day in attending lectures, dissecting, and following hospital practice, will find, as the evening draws on, that his attention flags, that he becomes drowsy, is obliged to read passages twice over to understand them; a certain proof that the brain is becoming tired. When this is the case, study is very

unprofitable; what is read is not remembered. It is, therefore, at this period of the evening that a little relaxation, in the shape of a lighter reading, may be resorted to. Even the most earnest student may often, with actual benefit to himself, lay aside his medical books at ten o'clock, and devote the remaining hour of the evening to general literature. Another important feature in the life of a hard-working student is, the nearly absolute necessity of abstaining from stimulant liquids. We do not allude to stimulants taken in excess, but even to the use of stimulants taken as a beverage, unless used in very great moderation. A very limited quantity of wine, or strong malt liquor, will re-act so far on the nervous centres as to render mental labour, for some hours, difficult, if not impossible. This is the reason why so many persons say they cannot read or write at all after dinner. It is not so much the food they eat which oppresses them, as what they drink. Were they to make a moderate meal, and only drink water, so far from feeling incapacitated for study, they would, on the contrary, feel invigorated, and, by the time half an hour or an hour had elapsed, be able to study with greater ease even than before dinner. Many literary characters entirely ruin their health from ignorance of this fact. They dine at five or six, taking strong stimulants, and are thus thrown into a state of excited somnolence for several hours, during which they find themselves incapable of mental labour. At nine or ten, when the effects of the stimulants have disappeared, effects which they attribute to the dinner generally, they sit down to study, at which labour they remain until one or two o'clock in the morning, thus laying a foundation for dyspepsia and a host of other complaints. The nutrition of a young adult is quite capable of being supported in its most perfect state by a good substantial diet, without the use of stimulants of any description, provided sufficient and regular rest be obtained. We consequently strongly advise hard-working students to confine themselves as much as possible to water, as a beverage, unless they spend a considerable portion of their time in the dissecting-room, in which case it may, perhaps, be prudent to take small quantities of weak stimulants.

Some of our young readers may think that we attach too much importance to these hygienic rules. We assure them, however, that such is not the case: they are the keystones to the successful and pleasant pursuance of their necessary duties; and it is because they are often, indeed generally, neglected by students of all kinds that we have thus brought them prominently forward. Of how many instances do we know, where strong constitutions have been injured, and weak constitutions irreparably broken up, not to speak

of prospects blighted and hopes destroyed, for want of the knowledge which we have endeavoured thus briefly to convey !

Numerous are the branches of study which will claim the student's attention. All must in turn be attended to ; but there are two, the importance of which must never be lost sight of for a moment,—anatomy and hospital practice. Anatomy is the foundation of the healing art, and is equally indispensable to the physician and to the surgeon. The more accurate and the more extensive the knowledge of anatomy acquired by the student, the easier will it be for him to rise to eminence in after-life. The driest, the most minute, and elaborate details of structural or practical anatomy find their application in the study and treatment of disease; indeed, there is not a branch of medical knowledge which will better repay the time bestowed upon its cultivation as a science than anatomy. Our young friends must not, however, be disheartened or impatient should they not at all be able at once to commence their anatomical studies. The month of October is one during which the mortality is comparatively slight; consequently the supply of subjects is small—indeed, totally inadequate to the wants of the numerous students who flock to town, and who, generally speaking, all wish at once to commence dissection. Should any, therefore, be disappointed at first, they must make up their minds to wait, and employ their time as usefully as possible, until the time arrives when a more abundant supply of subjects may enable them to commence.

In no degree inferior in importance to the study of anatomy is attendance on hospital practice. The wards of the hospital to which the pupil enters, and the visits of its medical officers, should be seriously and regularly attended during the whole time of his residence in town. It is thus that he is to learn how to recognise and how to treat disease. If he neglect this opportunity, either from idleness or because he thinks he has already had sufficient facilities for studying disease during his apprenticeship, he remains, for the rest of his life, either a grossly ignorant man, or a mere shadow of the one medical man whose practice he has seen. During the period allotted to following hospital practice, the student has to lay in a stock of practical information for the rest of his life. At that period he ought, therefore, to endeavour to see and study carefully at least a few examples of nearly every ailment to which the flesh is heir, in order that he may be prepared to recognise and treat disease when he is himself called upon to act. At the same time, he must not attempt to follow too many cases—especially "medical" cases—at once. If he does, his recollections will become confused, and he will cease to profit by what he sees. The

most benefit is to be derived from the study of a moderate number of diseases, taken indiscriminately. These cases should be seen daily, and notes written down respecting them, in order that the details may not only be rivetted in the memory, but also in order that they may be referred to in after-life. Lastly, it must ever be remembered that a *practitioner* is destined to rise or fall by his knowledge of disease, and that nearly all other branches of medical learning are merely adjuvants to enable him to arrive at a true knowledge of the phenomena of disease, and of their treatment.

Among the accessory sciences, there is one to which we must more especially direct the attention of students; viz., chemistry. Organic chemistry has made such rapid strides of late, it is evidently destined to play so large a part in the domains of the healing art, that an extensive knowledge of it has become more than ever necessary to the medical practitioner. At the same time, students must not fall into an extreme, and devote themselves entirely to chemistry. Botany, chemistry, natural philosophy, &c., are, after all, only accessory sciences, although indispensable accessories: the student who loses sight of the object for which he studies, and pursues them abstractedly as sciences, becomes not a medical man, but a chemist, a botanist, with, generally speaking, only a smattering of medical knowledge.

CATTLE AND HORSE INSURANCE.

[Continued from page 627.]

Mr. Daws pursues the subject:

1st. Upon one or two farms in my district I have ascertained that the horses live to 25 years on the average, if well treated.

2d. About the same as the former.

3d. Twelve years.

4th Hunters, if well treated, live to about 12 years; but after they have been used a few seasons they are generally sold for other purposes. Stallions kept entirely for procreation live to about 20 years.

5th. Mares, in my opinion, may be classed with the horses.

6th. Cannot here speak with certainty, the greater part of them being consigned to the knackers' yards.

7th. Inflamed lungs—catarrhs—inflamed bowels—foot lamenesses and enlargement, or ramollissement or rupture of the liver in old fat horses.

8th. Inflamed lungs and bowels, and hæmorrhage from the liver.

9th. Inflammatory affections of the air-passages.

10th. Under 4 and above 12.

11th. Cannot at present reply, but will endeavour to ascertain soon from one or two horse proprietors.

Mr. HALES, of Oswestry, stands next:—

I do not know that I can give you any very satisfactory answer to your queries respecting horses, but I will do so as well as I can. I must, however, premise, that it appears to me there will be great difficulty in effecting insurances on horses, and for this reason,—that for one that is destroyed by death, there are twenty that become comparatively valueless from lameness, blindness, broken wind, and other ills that horse-flesh is heir to: many of these are sent to the tan-yard, and this applies more especially to horses of the greatest value. A cart-horse may be able to do his work with these inflictions, but a racer, hunter, or a hack, could not. For instance, a gentleman insures his hunter for £100. He takes him out and irrecoverably lames him, and yet the horse may live for many years, but not be worth £10. The insurer must either discontinue the insurance and be out of pocket what he has paid and have his horse spoiled, or he must continue paying on to the term of his natural life; for I suppose if he is destroyed the insurance is forfeited: without, therefore, you can have tables calculated for accidents and diseases not affecting life, but usefulness and value, I am inclined to think that you may, at first, not make as much of insuring horses as you could wish; but with cattle the thing is very different*.

1st, 2d, 3d. I shall put your first three queries together, as I think there is little difference as to the duration of *life* in agricultural horses; those used occasionally for other purposes, and in carriage horses and hacks, with the exceptions you name, and consider the average may be safely taken at from 12 to 15 years.

4th. A horse would not be considered a thorough-bred hunter before he was 5 or 6 years old, and, providing he dies a hunter, he may average 12 or 14 years of age; but there is not one in half a dozen that remains to that age in a hunting stable, if alive.

Stallions (by which, I presume, you mean covering stallions) live to an age from 12 to 14 years, but are apt to go blind.

5. The lives of mares are quite as good as horses, with the exception of brood mares in or near the period of parturition; but

* These are very important considerations, and should receive their due weight.

probably taking all classes, would not be more than one per cent. between them.

6. This query I can scarcely answer, having kept no tables of my own experience in this matter. When we have epidemic diseases of the air-passages death may be prevalent—at other times they may be scarce; and, looking back through the last year, I can scarcely remember more than three or four from previous illness; but several have been killed by accidents. I have recommended others to be destroyed, as not worth the attempt at cure; and three or four have dropped dead from old organic complaints and ruptures caused thereby. I should not think the average of deaths in the classes mentioned would exceed from two to three per cent. per annum, and certainly not the latter, exclusive of horses killed by accident. I am speaking of our own district, which is entirely an agricultural one, but there are many gentlemen's seats in the neighbourhood, where carriage-horses, hunters, and hacks are kept.

7. The most prevalent diseases are inflammatory attacks of the mucous membrane lining the throat and air-passages, which, when epizootic, are called distemper, and strangles among the colts.

8. The most fatal diseases are inflammation of the bowels, tetanus, inflammation of the lungs, apoplexy or paralysis, or both conjoined, and, of course, glanders, when it gets into a stud.

9. Strangles, and also to distemper, more than old horses; also liable to some local diseases that would diminish their value, but not endanger their lives.

10. There are three risks that colts are liable to before coming into work,—strangles, castration, and breaking; but these are not great if properly attended to—perhaps, however, sufficiently so to make some condition in the insurance. Old horses, horses from fourteen to sixteen years old, occasionally get internal chronic disease—not obvious, perhaps, until the animal dies suddenly, or with a very short illness. This should be considered in the insurance.

11. I have never troubled myself with regard to calculations of this kind.

Mr. HAYES, of Rochdale, stands next on the list.

1. In horses used for agriculture the average length of life will be about eighteen years, mares a little less. Rate of mortality, one in fourteen; mares one in ten or twelve. The most prevalent diseases are flatulent colic, pneumonia, pleuritis, enteritis, acute indigestion, broken wind, and chronic cough. I think you ought not to insure them under three or above twelve years of age: the rate might be from 1*s.* 6*d.* to 2*s.* in the £1 per annum on the fixed value of the horse. The most fatal diseases are acute indigestion, enteritis, with inflammation of the lungs and pleura.

2. Horses used for agriculture, and occasionally for other pur-

poses but not for posting, omnibuses, cabs, &c., length of life about fourteen years; rate of mortality, perhaps about one in ten. Diseases more prevalent and more fatal in proportion as they are used for other purposes, consequently the rate of insurance must vary in a considerable degree.

3. In carriage horses, and such as are used for riding, not being posters, hired horses, butchers, &c., the average length of life would be about fourteen years. The most prevalent diseases are nearly the same as the above, with the addition of catarrh, influenza, &c., and not above nine nor under four years. The rate 2*s.* 6*d.*, or thereabouts.

4. Hunters and stallions will, I think, class with No. 3.

9. The diseases young horses are more particularly subject to, are strangles, epidemics, pneumonia, pleuritis, bronchitis, colic, sprains, fractures, &c.

I think the insuring of horses will be a severe blow to the veterinary practitioner, unless you enforce the employment of the qualified veterinarian as one of the conditions on which will rest the fulfilment of the policy. Many will care little what becomes of the horse after they have insured him to the full value, or, perhaps, beyond it; and the veterinarian will seldom be employed, unless he is necessarily a part and a portion of the procedure of the transaction*.

Mr. GEORGE HOLMES, of Thirsk, gives a very interesting account of the Horse and Cattle Insurance. He puts the affair in the form of question and answer.

1. What is the average length of life among horses used for agricultural purposes exclusively?—*Ans.* I think from 15 to 23 years in this neighbourhood, which is a fine open tract of country.

2. Of agricultural horses, but used occasionally for other purposes, not being for posting, omnibuses, cabs, &c.?—*Ans.* I reckon from about 12 to 18 years.

3. Ditto, carriage horses, and such as are used for riding, not being posters, hired hacks, butchers' horses, &c.?—*Ans.* I think from about 10 to 15 years.

4. Ditto, hunters and stallions?—*Ans.* I calculate from about 12 to 20 years.

5. Ditto, mares of the different classes?—*Ans.* I imagine from about 18 to 25 years.

6. What is the average rate of mortality among the different classes abovementioned? —*Ans.* I think the proportion will be about $5\frac{5}{19}$, $6\frac{2}{3}$, 8, $6\frac{1}{4}$, and $4\frac{3}{7}$ per cent. respectively.

* I have had frequent consultations with Mr. Shaw on this very important point; and he has assured me again and again that none but qualified veterinary surgeons shall have any thing to do with cattle or horse insurances. This is a most important point: it is all that can be wished for.

7. What are the most prevalent diseases among horses?—*Ans.* Class 1, indigestion, arising from feeding upon hard fibrous coarse food, and standing idle a day or two now and then in the stable; also, a strangulated gut, which is of frequent occurrence. Class 2, similar in degree to Class 1. Class 3, inflammation of the lungs and the common distemper. Class 4, similar to Class 3. Class 5, similar in degree to the different classes of horses and the purposes for which they are used.

8. What are the most fatal?—*Ans.* Strangulated gut, inflammation of the lungs, and hydrothorax.

9. To what diseases are young horses most particularly subject?—*Ans.* Inflammation of the lungs, and catarrhal fevers.

10. Under and above what ages ought we not to insure horses?—*Ans.* Class 1, under 15 and above 2 years. Class 2, under 12 and above 4 years. Class 3, under 10 and above 4 years. Class 4, under 12 and above 4 years. Class 5, under 18 and above 3 years.

11. At what rate per cent. might the different classes of horses be insured?—*Ans.* This, of course, will depend on the age at the time of insurance. Class 1, above 5 and under 15, may be safely at 10 per cent. Class 2, above 6 and under 12, at about 14 per cent. Class 3, above 6 and under 10, at about 15 per cent. Class 4, above 6 and under 12, at about 20 per cent. Class 5, above 6 and under 15, at about 10 to 14 per cent.

Mr. KENT, of BRISTOL, inquires into the average length of the life of horses, and gives the following list:—

1st. Twelve to 15 years.

2d. Ten to 12 ditto.

3d. If early used for such purposes, 5 to 8 years.

4th. I believe that hunters do not average more than 4 years *in that work*, but I am not aware that they are shorter-lived than other horses. The number of stallions is too small to afford me an opportunity of forming an opinion. I have had two die, and only two, under my medical treatment, in thirty-one years; each horse was 4 years old, and both died of gastro-enteritis.

5th. Mares, I believe, live as long as horses.

6th. By death from disease of the vital organs, not more than 2 per cent. per annum, except from epizootic diseases; but by lameness from disease, accidents, &c., rendering the animal useless, the amount of mortality is much increased.

7th. Enteritis, laryngitis, and bronchitis.

8th. Gastro-enteritis and tuberculated lungs.

9th. Inflammatory affections of the eyes, the diseases mentioned in answers to questions Nos. 7 and 8; to bursal enlargements about the joints, ligamentous thickenings, and ossific enlargements.

10th and 11th. Can only be speculated upon, and, in my opinion,

will in practice baffle all calculation. There is a horse which has been regularly shod at my forge more than 21 years, and is now as likely to live seven years longer as any horse I know. I have known a mare produce three good colts in successive years, after she was thirty years old: her owner then died, and she was sold by auction. I had left that part of England at the time of the sale, and lost sight of her from that hour.

Mr. LORD :—

The average Length of Horses' Lives, dividing them into the following Classes.		No. of Years.	Diseases to which each Class is most liable.	Remarks on each Class with respect to the Diseases, &c. &c.
No. 1	Agricultural horses.	30	Bowel affections.	
No. 2	Agricultural horses used sometimes for other purposes.	25	The same as Class 1, but with an increased tendency to pulmonary complaints.	For which reason I consider we should charge more for insuring agricultural horses occasionally put to quick work, as it may shorten their lives by making them more liable to *pulmonary complaints*.
No. 3	Carriage and riding horses.	20	Affections of the lungs.	Carriage-horses, from the way in which they are pampered, are liable to every sort of inflammatory disease; therefore I would charge more for insuring them than either Class 1 or 2.
No. 4	Hunters and stallions.	18	Asphyxia, chest affections, and hernia.	When I take into consideration the number of hunters I have known to die of asphyxia, and attacked with inflammation of the lungs after a hard day's run, I put down the average age as 18, but I have seen hunters 30 years old: it is probable, however, that they did not belong to bold riders.
No. 5	Mares of each class.	25		Were it not for the deaths caused by difficult parturition in brood mares, and the wear and tear that breeding causes to the system, I would not charge more for insuring them than horses.

The most prevalent diseases are pulmonary; and I think they destroy more horses than all other complaints put together (leaving farcy and glanders out of the list).

I would not insure horses under *six*, or over twenty-five, without a large per centage.

Mr. Percivall gives the following brief but interesting account of the treatment of the cavalry horse :—

1st. What is the average length of life in horses ?

This must of course depend on the *uses* they are put to, the *hazards* they are exposed to, and the *regimen* they are subjected to. I do not know that *breed* or *species*, in the abstract, has much influence. The ages of the horses of my regiment run from 3 to 22 years, and our average of age is 8 years. It is a rare occurrence, even with us, for horses to die of old age ; and a still rarer one, perhaps, in general or ordinary employ. The great majority of horses die prematurely ; most of them from disease ; many from accidental causes ; and many from various causes are slaughtered.

7th Question.—What are the most prevalent diseases ?

Among *young* horses, diseases of the *air-passages and lungs.*

Among *adult* horses, diseases of the *bowels.*

Among *aged* horses, diseases of the *brain.*

8th Question.—What are the most fatal ones ?

Certain diseases of the lungs, bowels, and brain, which may be named.

9th Query —To what diseases are young horses particularly subject ?

To catarrh, strangles, bronchitis, pneumonia, pleurisy, hydrothorax (and Paraplegia ?)

10th.—Under or above what ages should we not insure for ?

The most critical period of a horse's lifetime is from 3 to 5.

Mr. Pritchard gives the following brief account of the treatment of horses in his practice :—

1. Horses used for agriculture are generally disposed of in their old age. An average of their life would be about 17 years, consequently their mortality must be 1 in 17 annually ; but, for the purpose of your inquiry, I should say the loss of horses to the farmer is not more on an average than 1 in 30, where veterinary surgeons are employed; shoeing-smiths, however, and all kinds of horse-doctors, attend upon and destroy the horses of the farmers.

2. Horses employed in draught upon the roads, and such purposes as canal boats, I find, from a calculation taken annually for several years from 163 horses, that the average period they can work is 15 years; that the waggon horses annually diminish in value £5..10s. per head, and the boat horses £7..10s., and that lameness principally removes them from their employment.

3, 4, 5. Carriage-horses and hunters are in their prime from 7 to 12. These horses are generally incapacitated by lameness, and are found finishing their labours in the coach, omnibus, or other employment of draught, where they continue together 3 or 4 years on an average. Far the greater number are destroyed by the knacker, and not by disease: were it not for various accidents,

the hunter would average a life of 20 or 25, and 1 in this number would be the annual death.

7. The most prevalent diseases are inflammation of the respiratory passages and inflamed lungs, with pleurisy and diseases of the bowels.

8. The most fatal, inflamed lungs, with pleurisy.

9. The diseases of young horses are strangles and inflammation of the respiratory passages; the latter the most fatal.

9 and 10, Can readily be deduced from the above answers.

I should say the proprietors of horses will not feel much disposed to insure their lives, the greater number being rendered useless by accidents and lameness.

Mr. BEESON requests us to correct our report of his answers, inserted in the last Number; and in reply to the 6th query, thus writes:—"I said that, in addition to the rate of mortality I had previously stated, and which died under my treatment, an allowance must be made for some that may have died suddenly, and without any treatment; and also for others that may have been slaughtered, and of which, of course, I could give no account."

In reply to the 10th, "As to the proper age to insure our horses he mentioned the instance of the foal, to shew that an insurance at an early age is necessary to secure the farmer against loss."

AN ESSAY ON FAT AND MUSCLE.

By Mr. W. F. KARKEEK, *Veterinary Surgeon, Truro.*

[Continued from page 605.]

As we proceed with our subject, it will be found that some of those characteristics are in a great measure dependent on internal organization; and accordingly experience has proved that animals possessing small lungs, small livers, and small spleens, indeed "small offal" of every description, have a greater disposition to fatten and to lay that fat on proper places, which we consider to be a fair proportion of fat and lean, than coarse-bred ill-proportioned animals, which will be found to possess larger offal than well-bred animals in proportion to their size and growth. We can clearly understand the reason of this, since we now know that the less quantity of oxygen an animal consumes, the fatter it becomes; for small lungs cannot decarbonize as much blood as large lungs, nor can a small liver secrete as much bile as a large liver, bile being formed in the herbivora from the non-nitrogenized materials of their food; hence a larger quantity of carbon is used in the

production of fat. Many physiologists conceive that the secretion of bile is by no means the sole function performed by the liver, and look upon it as a supplementary organ of the lungs, assisting that organ in the depuration of the blood, and, like it, eliminating from the blood its superfluous hydrogen and carbon. The same will apply also to the spleen, its functions being, we believe, also subsidiary to the lungs as a purifier of the blood. It is a very common occurrence to find stall-fed animals with diseased livers, and yet this does not interfere with the power of accumulating fat; on the contrary, if our theory be correct, it must materially assist in accelerating this process. We have witnessed the same in the livers of horses in many instances. The animals will continue to do fair ordinary work in either coaching or posting, and always look healthy, when, should they be attacked with some prevailing epidemic or a severe catarrhal affection, the veterinary practitioner, and especially the young one, will be surprised to find that the remedies that, in similar cases, had proved successful, may fail here; and he does not get at the truth until a post-mortem examination reveals to him that there are extensive lesions of the structure of the liver, it having the same appearance as if it had been boiled.

Professor Playfair was the first who directed the public attention to the fact just related, that an animal having small offal was more disposed to fatten, and to come quicker to maturity, than an animal with large lungs, liver, &c. We believe we are correct in stating that this discovery was never brought before the public until he delivered his two lectures before the Royal Agricultural Society on December 27, 1842; and it was in consequence of some inquiries which we made to ascertain the truth of the Professor's statement, that we also became acquainted with another singular and important fact,—*that in proportion as an animal fattened, so in proportion did the organs which are chiefly connected with nutrition become diminished in size.* This fact we shall find to be intimately connected with the *breeding*, *rearing*, and *feeding of animals.* We draw our conclusions from examining a great number of stall-fed animals, chiefly of the Devon breed, averaging from 5 cwt. to 9 cwt. of meat. We have seen them slaughtered at all stages of feeding, from the comparatively lean to the fatted ox; and the result of our observations has been, that in proportion as the fattening process went on, the lungs, stomachs, intestines, liver, &c., were reducing in size. It has already been stated that a constant change of particles is going on in the tissues of the living body; and it has been computed by physiologists that the human body, including the skeleton, is taken down and rebuilt about every seven years: so that we may safely say that it is being taken down and rebuilt at the same time; and that the processes of destruction

and renovation, absorption and nutrition, are always being carried on concomitantly. Now, within certain limits it is observed that the greater the waste, the greater is the supply, as by constant exercise the muscles are increased instead of decreased, so that the effect of nutrition is not only to replace what was destroyed, but to supply a certain quantity more. And again, by the same law, an organ that was originally intended to perform a certain function, if that function be not fulfilled, will diminish in size and power. In the muscular arm of a blacksmith, and the delicate arm of a person not accustomed to labour, we have an excellent example. Now, whatever is true of the external parts, is likewise true of the internal parts of the body. If we take, for an example, the heart of a calf, which must increase in size as it increases in growth, it increases not only in its whole bulk, but also in the size of the cavities. If an addition were made only to the exterior of the heart, its whole bulk would be increased; but the size of the cavities would be proportionately small. We must therefore assume that substance is removed from the interior of the heart at the same time, though perhaps not exactly in the same quantity, that substance is added to the exterior. In like manner, when the heart of a man diminishes in size, as it does in consumption, materials must be abstracted from the exterior, and added in rather a less proportion to the interior. It is upon this principle that in proportion as animals fatten, particularly stall-fed ones, their internal organs become smaller—the lungs adapt their size to the volume of oxygen consumed, and the liver becomes smaller as the secretion of bile is diminished; the kidneys, stomach, and intestines, are also considerably smaller in extremely fat animals than in lean ones of the same age and breed. In the intestines this is particularly observable—the circumference of the tripe is considerably reduced, but it is thicker and richer. This change appears to take place more rapidly during the latter stages of fattening; and it is rather a remarkable coincidence that the fatter an animal becomes at this period, the less food it consumes. When the animal arrives at this last stage of fattening, the arterial action is much slower than before; a sluggish action appears to prevail throughout the whole vascular system, and the arterial exhalents appear to be engaged chiefly in manufacturing fat. If the animal be bled at this time, which is usually the case on the evening previous to its being slaughtered, very little blood can be drawn before it faints.

The breeder may learn a very important lesson from these remarks; for if it be true *(and time and observation will prove them to be so)* that in proportion as an animal increases in fat will the organs of nutrition become diminished in size, it follows that, by pursuing the system of breeding from fatted animals, or from those

having a great tendency to fatten, *function* must react on *organization*, and at last those qualities become not only increased, but fixed in the race. By function reacting on organization, is meant —when an organ, as the lungs for instance, becomes diminished in consequence of not performing its natural function, and the disposition to accumulate fat is thereby produced—the diminished structure is very likely to be reproduced in the progeny of an animal so affected; hence *the reaction:* and if the same system be pursued, particularly in breeding from the nearest affinities, this effect will be more speedily produced. It is in this manner that the greatest improvements have been made in our native breeds from time to time—in the short-horns and improved long-horns—in the improved Herefords and Devons. The history of those different breeds sufficiently proves this. The dam of Hubback, the sire of the short-horned race, became so fat that she soon ceased to breed; and her son, having the same tendency, was useful as a bull but for a very short period. This was also the case with Bolingbroke, and several of Mr. Colling's best bulls. The two cows of Mr. Tomkins, *Mottle* and *Pigeon*, the originators of the improved Herefords, were selected in consequence of their extraordinary tendency to become fat; and the whole secret of Bakewell, as to the method which he pursued to establish the long-horned cattle and new Leicester sheep, lay here.

There is a delicacy of form and a refinement of tone which characterize animals bred in this manner, and they acquire early maturity; their bone and muscle are more quickly developed, and are soon ripe, because they sooner become old. In a wild state, and without reference to the wants of man, we should consider these qualities as a progress towards deterioration; and so they are, since the animals suffer by the exchange—but man gains an improvement. It will be shewn, however, before we conclude, that by carrying this system of breeding too far, in many instances man also has become a very considerable loser. The very opposite system to this has been established in the *breeding of the race-horse*, and, accordingly, there have been produced opposite results. The object being here to develop a structure capable of great speed with powers of endurance, to attain these qualities, animals were selected with large lungs; and the system pursued in training them has tended to develop a still more powerful structure of those organs. The object in training the race-horse is to increase what is commonly called the *wind;* and the regular gallops which are given for this purpose increase the power of the lungs; and the breathing becomes accordingly freer and deeper, and the capability of exertion is increased. We have an example here also of the effect of function reacting on organization; for the

constant breeding of animals in this manner (other objects of course being attended to) would to a certainty develop those desirable qualities in a greater degree than was possessed by the founders of the race. It is no argument to the contrary that the present race of horses on the turf are not capable of running such long distances and carrying such heavy weights as the *olden racers* were, since the system adopted in rearing, training, and racing, has been very considerably altered within the last half century. Our blood stock were formerly shorter in the leg, and more compact and muscular animals, seldom running until four years old, and frequently not until *five years*. But they now run at *two years old*, carrying light weights and running short distances, where bottom and stoutness are not so necessary; and it is this difference in the style of racing which has altered their former character.

There are certain *external signs or tokens* which are used as indications of early maturity, and of the determination of the animal frame to produce fat or muscle in an eminent degree. We will proceed to consider some of them. The first token which a grazier will make use of, for the purpose of ascertaining the feeding properties of an ox, is technically called *the touch*—a criterion second to none, inasmuch as a thick, hard, unyielding hide indicates a bad feeder and an unprofitable animal. A thin papery-feeling hide, covered with thin hair, indicates the very reverse of the former, as such an animal will speedily fatten, but will not carry much muscle; at the same time it indicates a delicate constitution. This quality is produced in animals by great refinement in breeding, and especially by breeding from animals near of blood; in doing so, we should remember that we are deviating from the natural characters in a point connected with hardiness of constitution. The perfect touch in a feeding animal will be found with a thick loose skin, floating as it were on a layer of soft fat, yielding to the least pressure, and springing back to the touch of the finger, like a piece of thick chamois leather. This token indicates hardiness of constitution and capability of carrying plenty of muscle, as well as a sufficiency of fat. The physiological history of these tokens is as follows:—The cutis, or true skin, is that portion of the external integuments from which leather is manufactured, and is much more dense and elastic in some breeds than in others. Its external surface lies in contact with a layer of cellular tissue which intervenes between it and the muscle. This cellular tissue contains a larger or smaller amount of fat cells; and the mellow feel which is found in some animals arises from the resiliency or springing back of the cellular tissue in which the fat is deposited on being touched. Where there is much "mellowness" in a lean animal, it arises from the free circulation of the bloodvessels through the

meshwork; and where there is a hard feel, it arises from the cellular membrane participating in the hardness of the hide, and therefore being less capable of dilatation by the interstitial deposit.

Smallness of bone is another indication of early maturity, since it must be evident that a breed of animals that will attain their full size of bone at an early age will be a much more profitable breed to the grazier than one of slower growth.

The *size of the head* of an ox affords another indication of a capacity to carry fat in an eminent degree. When the head of a bull approaches to the narrow elongated form of the female, he will be extremely docile, but will have lost much of his masculine character: his stock will be certain to fatten readily, but will not carry much muscle.

The *ears* should be thin, coarse ears being a certain sign of a coarse breed.

The *horns* should be fine, a coarse and thick horn being an indication of an ill-bred animal. Wherever there is a tendency in a breed to thick and coarse hides, the horns are generally found coarse and thick also. The horns, hoofs, hair, and cuticle, seem to be intimately connected: they resemble each other in their chemical composition, differing only in their degree of hardness and condensation.

These products are remotely connected with the vital actions of the systems with which they are associated; and however they may differ in form, uses, and external appearance, they are all produced by the same kind of vascular structure; and though variously arranged to suit the particular circumstances in each case, yet the mode of their development and growth is essentially the same.

A *thin neck* is another indication of a delicate breed, either in bulls or rams; a thin neck, on the contrary, indicating large muscles and a good constitution. *Proportion* is another sign or token by which to judge of the disposition of an animal to carry a fair proportion of muscle. There should always be a proportionate union of *length, depth,* and *thickness:* no matter what the weight or size of the animal may be, these three properties are indispensable, if the breeder's object is to obtain the greatest weight of meat on the most valuable points.

The immense difference in the size of the different breeds of cattle or horses is beyond our control, although man has produced wonders even in this respect. Generally speaking, they assume a certain character, dependent on the food which they obtain; for where food is abundant, they are found of a large size, and, where deficient, they are found of a diminutive breed. But this truth holds good only as it regards the different races, and not the in-

dividuals; for were we to breed the Shetland pony on the best Lincoln pastures, it would take many hundred successive generations before his race would approximate to the size of the breeds that are natural to this district.

But although the size of different breeds of animals is seemingly fixed, or dependent only on climate and soil, still much has been done by care and attention in breeding and rearing. Our attention here will chiefly be directed to the *rearing department*, where there is a great deal of mismanagement, even amongst our very best breeders. With some, it is a common practice in the rearing of a bull-calf to place the young animal, shortly after he is weaned, in a narrow stall, and to feed him with raw milk and oatmeal gruel, and afterwards with some of the artificial and natural grasses, hay and turnips, &c.—the breeder feeling perfectly satisfied that his system is a right one, so long as the animal is looking plump and fat. The effect of this, as we have already shewn, would be without doubt to lessen the size of the lungs and other organs concerned in nutrition, and produce a breed that will carry immense masses of fat, come quickly to maturity, and also when they breed produce the same qualities in their offspring. But however desirable those qualities may be, depend on it there are others of an opposite character which are also to be attended to; these are, weight of muscle, strength of constitution, and the capability of propagating their race—to produce all which quite a different system must be adopted. There is a certain amount of exercise which muscles require to encourage their proper development and growth that never can possibly be obtained by a young animal confined in this manner. The degree of activity in the nutrition of muscles depends in a great measure upon the use that is made of them; and thus we find that any set of muscles in continual employment undergoes a great increase in size and vigour, whilst those that are disused lose their firmness and diminish in bulk. Cattle require not such exercise as would tend to harden the muscular fibre, but just so much as would keep the animal in a healthy state, and prevent those enormous accumulations of fat which so frequently disfigure and so materially injure our very best breeds of cattle. This was particularly observed in many of the short-horned milch cows that won the Society's prizes at Derby, that were better adapted, in consequence of their immense fatness, to compete for prizes offered for fatted stock, and many of which will be prevented from breeding for the future.

During the first two years, as long as the weather will permit, the young bull should be allowed to range in the meadows; and when the autumn advances, and it becomes necessary to house him, we would recommend that the house or shed should be attached

to a straw-yard, into which he may be occasionally turned during the mild dry days in the winter. We are aware of the trouble to be apprehended from grazing animals of this description during the second summer, but we know the plan is commonly practised in localities where the enclosures are conveniently small without any difficulty or danger.

We stated, at the commencement of this essay, that the living organism is incapable of producing an elementary body out of substances which do not contain it; a statement, in common parlance, meaning "that a horse which gets kicks instead of oats is not likely to maintain a working condition." In the rearing of young animals of all descriptions, it must be evident that substances rich in nitrogen are particularly required for the growth of the various parts of the body, since there is no part of an organ that contains less than 17 per cent. For the growth of bone, muscle, blood, membranes, skin, horn, hair, and cellular tissue, a certain amount of this substance is absolutely necessary. We have shewn that they do not obtain much, if any, of this substance from the air; it must, therefore, necessarily be supplied in the food. In the rearing of horses, where the object is to produce a great development of muscle, this is particularly required: hence it is the practice of intelligent breeders to supply the young stock with a proper allowance of oats, peas, beans, and shelter, during the winter; and it is from the want of those requisites that so many thousands of horses are yearly rendered worthless. The young animal is placed on our globe tolerably perfect from the hands of the Creator, but its degeneracy is frequently owing to the treatment pursued in the rearing. Only compare a yearling colt that has been well housed and well fed during the winter with one that has been turned out, and fed chiefly with hay, straw, and turnips—the food usually allowed by farmers to this kind of stock in the winter; and although equally fine and clean in their respective points when separated in the autumn, yet they bear no kind of comparison, either in size or beauty, in the spring. Again; pursue the same plan the following winter, and you fix the shape for life—the one a handsome, strong, muscular animal; the other a coarse and plain one. It is by proper feeding, and a proper degree of shelter given to the young stock, during the first three winters, that some horses are got to such perfection as we sometimes see, having clean limbs, large powerful muscles, and good action; for had those colts been kept hard, and exposed to the weather, they would never have attracted any attention.

In the rearing of store cattle, the same care is not required as we have recommended for breeding ones—the object of the feeder in this instance being to obtain as much profit as he can from the

food which the animals consume: hence their value must be determined by the profit which they yield to the breeder and feeder conjointly, from birth to maturity; but, even in this case, it may be worth the farmer's notice to be acquainted with the fact, that nearly the whole of the fleshy part of an animal, *which will afford any profit to him*, is assimilated chiefly during the period of its growth. When it has arrived at its full growth, the addition made to its bulk is chiefly an accumulation of fat, which surrounds and is intermingled with the substance of the muscle. Thus, the object of the farmer whose purpose is profit will be to force his stock on, during the period of their growth, by such kind of food as will produce the largest quantity of muscle at the least expense.

The farmer must now see the necessity of giving his growing stock peas, beans, and barley-meal, in conjunction with good hay, grass, and turnips, varied, of course, according to the seasons and other circumstances. Experience has proved that health and appetite are best promoted by a change of diet, rather than by limiting the quantity and quality. There should be no cessation in the rearing and feeding of cattle, for those that are stuffed and starved by turns are sure to prove unprofitable to the feeder; and there is no more certain rule in the rearing of young stock than this—that those that suffer a deprivation either in quantity or quality of food never become perfectly developed, either in bulk or proportions.

The farmer needs not to learn from this or any other table the importance of a turnip-crop, it being acknowledged by all that it is, indeed, the sheet-anchor of light-soil cultivation; for although the per centage of nutritious matter is trifling in the turnips, when compared with that of peas, beans, oats, or barley, yet the immense weight of these roots that can be grown—sometimes as much as forty or fifty tons per acre—gives so very large a quantity of nutritious matters, that Swede turnips may well be called the raw material for the manufacture of beef. The farmer will also see the peculiar adaptation of the carrot crop to the rearing and fattening of stock—the nutritious matters which they contain being greater than turnips, and being admirably fitted for the heavier description of soils, where turnips cannot be successfully cultivated. He will also see, from the immense weight of water contained in those roots, that it is desirable to give some dry provender to his sheep, such as oat or barley meal, oat-straw, hay, or pea-haulm, which would prevent the frequent scouring of those animals, the consequence of so much watery food; and, by occasioning the food to remain longer in their stomachs, a greater quantity of nourishment would probably be obtained than when eaten alone.

The *hay-crop* varies very considerably in its per centage of

nutritious matters—more so, we believe, than any other; the consequence of difference of soil and methods adopted in saving. In the blades and stems of the young grasses there is much sugar, which, as they grow up, is gradually changed, first into starch, and then into woody fibre; and the more completely the latter change is effected, the riper the plant becomes, and consequently the less soluble are the substances it contains. Both theory and experience, then, indicate to the farmer the necessity of cutting his hay before it has attained its full stage of ripeness. It is also very probable that, when exposed to dry in the sun and air after being cut, to a certain extent this change from starch to woody fibre takes place. Hence the more quickly the drying is effected, the less extensively will changes of this kind take place; and this shews the necessity of the hay being frequently turned during "saving," and being rapidly dried.

Great quantities of bean-meal are used in some districts in the feeding of bacon-hogs, but it is found to make the flesh too firm for delicate porkers, and in the last stage of their fattening barley-meal is substituted. The best kind of food for feeding pigs is a mixture of barley-meal, peas, and potatoes. Potatoes are frequently used by themselves for this purpose; but neither the fat nor muscle of pigs fed in this manner can be compared to corn and peas-fed pork—the fat having a tallowy appearance, and both fat and muscle shrinking, for want of firmness, when boiled. Potatoes will do very well for store pigs, but should never be depended on for the "feeding." Some feeders reject the grey pea, from an idea that it partakes in a degree of the nature of the bean in rendering the meat tough and hard. The same effect is produced, although in a more considerable degree, in the feeding of pigs on the acorn, which tends to render the meat firm and hard. This is owing to the astringent or tannin principle contained in the bean and acorn: vegetable astringents of all kinds are found to contract the muscular and vascular tissues, to diminish secretion, lessen irritability, and in many instances to impart strength or increased tone to an organ or part. It is the tannin principle contained in beans which renders them so valuable a food for hard-working horses. The nutritious elements of beans and peas are nearly the same, yet the former add more materially to the vigour of horses than the latter. Our Saxon ancestors used to feed their swine on acorns, and set great value on them for this purpose; and round the forests of England it is still customary to drive the pigs in at the proper season, that they may feed on the acorns and the various kernels which fall from the trees. In Westphalia, the pig is turned into the oak forest as soon as he is weaned, where he feeds, like the wild boar, upon acorns and roots of various vegetables: the con-

sequence of which is, the worms and slush of every description which he devours counteract the astringent or tannin principle of the acorn, and they thrive amazingly. When the farmers around the New Forest feed their swine with acorns in the sty, they invariably give other food mixed with them, such as wash, brewers' grains, potatoes, turnips, beet, and the refuse of the gardens, as they find that swine fed on acorns only seldom thrive.

Our essay is now brought to a close; and, from what has been stated, it must be evident that constant and progressive change appears to be one of the leading characteristics of life: the whole seems like one vast laboratory, where mechanism is subservient to chemistry—where chemistry is the agent of the higher powers of vitality. In considering the digestive functions of animals, we have seen the manner in which vegetable food is assimilated into blood and tissues; we see that the materials have to pass through a great number of intermediate stages before they can attain their final state. We can perceive all these; but still we have as yet a very imperfect knowledge of the nature of the vital agents concerned in producing those chemical changes which the food must necessarily undergo during its assimilation. The living principle, whether of a vegetable or animal, is so adapted that it can elaborate its body out of the materials which are around it; but neither can create out of nothing that matter of which its organization, during its appointed time, is composed. These materials, but few in number, are first elaborated from the air, the earth, and the waters, into the substance of plants, for the food of herbivorous and graminivorous animals, which, in their turn, are eaten by carnivorous animals; and when, after a time, the spirit has left its tenement, the organized body is resolved into its original inorganic substances—carbonic acid, water, and ammonia—these elements being either returned to the atmosphere, whence they were derived, or imbedded in the parent soil, again to constitute races of vegetables, and to contribute to the nourishment of organized beings. Even those portions of organic matter which, in course of decomposition, escape in form of gases, and are widely diffused through the atmosphere, are not wholly lost to living creatures; for, in the course of time, they also re-enter into the vegetable kingdom, resuming the solid form, and re-appearing in organic products, destined again to pass through the same never-ending cycle of vicissitudes and transmutations. This is the most important page in the whole book of material nature, for thus is grass changed into mutton and beef, which afterwards are changed into the flesh of man.

THE VETERINARIAN, NOVEMBER 1, 1844.

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

THE VETERINARY PROFESSION—THE CHARTER.

By our Number of last month our readers have been fully put into possession of the transactions of that party of the profession who have been mainly instrumental in obtaining the Royal Charter of Incorporation, and of a party, out of the profession, whose object has been to subvert or nullify that Charter. The information was conveyed to them in authenticated statements sent to us for publication, with a request that they should be inserted by us in our Journal, without comment of any kind. Nor was a syllable of comment appended to them; nor did they require it. They spoke for themselves. The parties at issue proved to be the governors of the Royal Veterinary College on the one hand, and the veterinary profession on the other. It is no new thing to find these parties at variance; indeed, they have ever been so within our recollection. We (members) have, on more than one occasion, been refused favour — nay, recognition, even — by these high and mighty "Governors." We have been refused to be admitted simply as subscribers to their institution; notwithstanding we saw enrolled among "the noblemen and gentlemen, subscribers to the institution," the names of horse-dealers and omnibus proprietors. No wonder, therefore, we repeat, the Governors should still be at issue with us.

But what is the question at present on which they are disagreed with us?—No less a one than THE ROYAL CHARTER OF INCORPORATION! That Charter which has cost the Committee so many hours of labour and anxiety to obtain; and which, when once obtained, we all fondly hoped would prove an honour and a blessing to us; but which, if the Governors can have their way, seems likely to turn out something like a curse to us.

The Charter was obtained in March 1844; and on the 1st July following, "a humble petition" was sent by the Governors and

Subscribers of the Veterinary College to the Secretary of State, shewing—after some preamble, very questionable in its tenor—their "surprise" that "Her Majesty should have been induced, in accordance to the petition of certain veterinary surgeons, founded entirely on the public advantages which have arisen from this (their) College, to grant a Charter," &c. &c. Now, with all due submission to the concoctor of the said petition, it strikes us, the "surprise" must have been caused by our being enabled to make such a representation of our necessities to our Most Gracious Majesty as induced her, in her wisdom, to grant our prayer; and *not* by the kind and most proper act itself of our best of Sovereigns. But the burden of their (the Governors') complaint is, that the Charter was obtained "without the knowledge or consent" of the said Governors; and although it was signed by the three Professors of the Institution, yet "*the full draft* of such instrument *never was submitted to them*, previous to its ultimate presentation;" and further, now that the Charter is obtained, that the Royal Veterinary College is thereby "rendered subservient to the corporation," in consequence of the latter being vested with the power of appointing a Board of Examiners, granting Diplomas, making By-laws, &c. To which gratuitous charge of the Charter having been clandestinely obtained, what is the reply of the Committee, as contained in the President's letter to the Secretary of State:—"The aspersions made in the two petitions are *entirely groundless!*" And the Committee (since become the Council) has proved them to be so by documents sent (with the letter) to the Home Secretary, and published in the last Number of THE VETERINARIAN.

Annexed to the two petitions it will be remembered there is a "Prayer," beseeching Her Majesty, that, should it prove "inconsistent with the spirit and intention of the Charter" to make such "insertions and alterations" in it as shall suit the Governors' purpose, the Royal Veterinary College may be "altogether *withdrawn* from the operations of the said Charter," and "be permitted to re-assume the same *independent position* it has hitherto held."

Most certainly, so far as has regarded the profession, the College has shewn sufficient independence: our *alma* or rather DURA *mater* has cared as little for her children as her children, when they came to know her want of regard for them, cared for her.

But, how a *College* can think of prospering without the support of her members, we can no more make out than we can that a tree can flourish without roots: it may go on very well as a private establishment or a public infirmary for horses, &c.; but as *a school*, surely it must require the support of the Profession; or, at all events, once let that support go into another quarter, and another school will soon become established.

Professor Sewell has played a most extraordinary part in these transactions. At the outset he refused to listen to any project for obtaining a Charter. Afterwards, on being waited on by two deputations from the Committee, and counselled by the College Solicitor, he not merely sanctioned but aided the project. And no sooner was the Charter obtained, than, with surprising liberality, he threw down upon the table of the committee-room *two hundred pounds* towards defraying the cost of the Charter! And, what has he done since? Why, he has signed the petitions against the Charter, and also signed the prayer that the College may be withdrawn from the influence of the Charter.

EFFECTS OF MEDICINE ON HORSES.

By Mr. W. PERCIVALL.

MANGANESE.

THE metallic substance, vulgarly known as the Black Oxide of Manganese, and which has of late received the stricter chemical appellation of *Binoxide*, was, by way of experiment, administered by me to a horse so long back as 1813.

On the 7th of February of that year, a bay horse, five years old, rather low in condition, was admitted into the infirmary on account of ulceration appearing in his off nostril, accompanied by tumefaction of the submaxillary lymphatic gland of the same side. There was, however, no appearance of farcy, nor any very evident derangement of his health. He fed well, and was in good spirits, and his bowels acted regularly. Let him take half an ounce of the binoxide of manganese made into a ball with treacle, daily.

8*th.*—Give him the ball twice to-day.

9*th.*—Let him take the ball thrice, it having no effect.

10*th.*—Make the dose an ounce, and give it thrice a-day.

11*th.*—He has refused his corn ; so give the ball but twice.

12*th.*—During the past night he has eaten scarcely any thing, according to the man's report: this morning, however, he appears to have regained his appetite. Reduce the dose to half an ounce, and let him take it twice to-day. At night his pulse had risen to 55, and was beating with considerable force : there was also some increase of respiration.

13*th.*—His dung falls *en masse*, and his appetite is delicate. Reduce the dose to two drachms twice a-day.

14*th.*—Diarrhœa has set in, and his appetite has failed, and his pulse is 60. Discontinue the medicine.

15*th.*—His fever has abated, and he has much recovered his appetite and spirits. The purgation has also ceased. Let him take, morning and evening, ʒij of the binoxide in combination with a scruple of opium, and rub some infus. lyttæ upon his tumefied glands under the throat.

17*th.*—This prescription seems to agree very well with him. But the ulceration within the nose has sadly spread over and eroded the membrane: indeed, in places the septal cartilage is laid bare through it. An injection of a solution of bichloride of mercury has been used, and seems to have the effect of smoothing down the sharp jagged edges of the ulcers.

18*th.*—His nose has taken to swell, seemingly in consequence of the injection. Let a fomentation be used to it.

19*th.*—He has quite recovered his appetite, but in point of disease is growing worse daily. Let him take the two drachms twice a-day, and have his nose syringed with a weak solution of sulphate of copper.

22*d.*—Increase his dose to three drachms twice a-day. Ulceration has appeared in the left nostril, and the correspondent lymphatic gland is swollen.

24*th.*—Give five drachms of manganese twice a-day. Upon the off side the septal cartilage is laid quite bare from ulceration, and on the near side the membrane is rapidly being consumed. On both sides exist considerable enlargements of the submaxillary glands.

It not being thought worth while to push the medicine further, the horse was shot.

On the 7th of March of the same year (1813) a horse was admitted into the infirmary for an attack of periodic ophthalmia in the near eye. The eye, it appears, has been "weak" for three or four days. At present the lids are closed, the light being too much to be borne; and when they are separated by force, the cornea is found too muddy to admit of any observation of the state of the internal parts. Some blood was drawn from the angular vein, and half an ounce of the binoxide of manganese given twice a-day, nothing being used to the eye.

On the 12th the eye was better; and, as the patient had nowise lost his appetite, the half-ounce ball was ordered thrice a-day.

On the 13th, the dose was doubled; and on the 14th it was again doubled, making two ounces taken thrice a-day. This was persevered in up to the 18th; on which day, and the day following (the 19th), the enormous doses of ℥iv were given three times, making twenty-four ounces in the two days, without taking any perceptible effect.

Why the former horse should have been affected by the manganese in much smaller doses, I could assign no other reason than that of his system being contaminated by the virus of glanders.

Sulphur.

Sulphur—commonly called *Brimstone*—one of the earliest-used substances in medicine, has always enjoyed, and continues to enjoy, considerable reputation, both in human and veterinary pharmacy, and no less as an external than as an internal remedy. In man, it is said to loosen the belly and promote the insensible perspiration; indeed, so to permeate the system, as actually to transpire through the pores of the skin in the form of the vapour of hydro-sulphuric acid, tainting not only the sweat, but the urine and other secretions as well, and having a stimulant operation also upon the mucous membranes of the body—upon the membrane of the rectum, and upon the bronchial membrane; which accounts for the good sulphur has in times heretofore been said to have worked in pulmonary affections: indeed, so beneficial was considered to be its power over asthmatic and similar affections, that it was called, by way of eminence, "the BALSAM of the lungs. And since," says Solleysell, "sulphur is the balsam of the lungs, the *tincture* must certainly be a very effectual remedy in this case." For the making of which valuable "tincture" Solleysell gives very full and particular directions; adding, that if such gentlemen as may "complain of the tediousness of the preparation can find a remedy to cure their horses with less trouble," he "promises them not to be offended at the happiness of their invention*."

Sublimed Sulphur was administered by my father, in conjunction with Professor Coleman, to three horses at the same time, with a view of ascertaining its medicinal properties, in ounce doses, for four days, without any visible alteration in either of them. During the four following days their doses were doubled, and yet no effect produced. For the five successive days each horse took four ounces daily, and still no effect—not even a lax-

* The Compleat Horseman, Part II, page 191. Hope's Translation, 2d edit.

ative operation. One of the horses, while taking the sulphur, passed a number of long white worms (*lumbrici*, probably): how far the sulphur might have promoted their discharge, my father, from this single case, could offer no opinion.

If horses can take four ounces of the flowers of sulphur a-day without effect, the quantity we are in the habit in our practice of giving, one would think, cannot do much good nor any harm. My own formula for diuretic mass is a compound of sulphur and common turpentine: I have never, however, attributed much if any virtue to the former ingredient, but rather regarded it simply as a vehicle for the latter; and the two amalgamate very well.

REVIEW.

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

"Let the galled jade *not* wince."

New-Invented Hames, *by* Mr. Bencraft.

Saddles and bridles, and harness apparel, are things the public in general expect veterinary surgeons to be able to give sound and scientific opinions on: and perhaps there is nothing unreasonable in such an expectation—veterinary practitioners riding and driving about as much as most persons, and possessing that knowledge of animal structure and economy that ought to make them capable of judging of the fitting, and setting, and working of such like furniture and trappings, better than men who are mere horsemen are likely to be able to do.

When first these "newly-invented hames" were mentioned to us, we must confess, in our mind's eye, we saw little or nothing to induce us to make any further inquiry concerning them: trial of them, however—that stern reprover of theory—has convinced us they do possess advantages, and of no very mean account, over the old hames. The hames, as everybody knows, consist of two metallic curved bars which encircle the harness-collar, linked togegether at bottom by a chain, and at top by a strap. These bars being inflexible, it appeared to us that it mattered little or nothing whether the draft of the trace came but from a single one, or from many points, the operation of the pull necessarily being upon the entire shaft of the hames; when, however, we came to see

the horse working in harness with the improved hames, we found that the *embrace* the collar received from the draft coming from *three* points instead of from one, tended materially to confine it against the shoulder; and to prevent that injurious rocking of the one on the other which is the cause of the wringing and excoriation of so many shoulders where the collar does not happen to sit close at every part: to say nothing about the comparative steadiness and evenness of pull the horse derives from such spread and multiplication of the points of draft. While the pull is made but from one point alone, as in the common hames, it requires great nicety to adjust the situation of it, so that the collar shall not *tilt* upon the shoulder, either forwards or backwards: with the improved hames it cannot tilt; and, moreover, the draft may be so regulated by the three adjusting straps, coming from the eyes of the tugs, that the stress may be thrown either upwards or downwards, according as desired; and in this manner any sore or galled place upon the shoulder may be in a measure relieved from the pressure of the main pull.

Mr. Bencraft, in his prospectus, in our opinion, has run into the common and, perhaps, veniable error of inventors, in stating so much as he has done: if he would take our advice, he would revise the said manifesto, and shape it more in accordance with matter of fact and the results of experience. We have praised his invention on three accounts, and they are important ones: viz. 1st. The embrace of the collar, and the consequent prevention of its rocking upon the shoulder during the action of the shoulder-blades and shoulder-bones. 2dly. The equalization of the pressure of the collar against every part of the shoulder, and consequent less liability to injure any particular spot. 3dly. The regulation of the pressure in that manner that it may be thrown most either upon the upper or upon the lower part of the shoulder. Against these advantages may be set the disadvantages of the comparative *weightiness* of the patent hames, and the liability of the metallic buckles about them to excoriate the horse's shoulder behind the collar, as has been done to our own horse; on which account we much desire that some contrivance could be substituted for the naked buckles, and then we should decidedly prefer the patent hames to the common ones.

A CASE OF COLIC IN A HORSE.

By Mr. JAMES COTTEE, *Great Totham, near Witham, Essex.*

Sir,—BEING a reader of your valuable Journal, I take the liberty of sending you the following case. Some of your readers may have witnessed similar cases. It was rather determined practice which I pursued, but it was successful.

Aug. 13, 1841.—I was called upon to attend a chestnut horse, eight years old. I found him rolling about very much, and he looked wildly at his flanks—the pulse was small and quick, exceeding 100 in a minute—the legs and ears were cold; and the animal seemed to be in constant pain, expressed by pawing and striking his belly. The breathing was quick, and the bowels costive. I bled him to the extent of seven quarts, and gave one ounce of nitre, one of opium, and six drachms of aloes, in a quart of warm water.

Three hours after taking the above, and no relief being obtained, I subtracted three quarts more of blood. The pulse was then rounder and fuller. I gave one ounce of tincture of opium and six drachms of sulphuric ether in a pint of linseed oil. Two hours after taking this last mixture, and relief being in some measure obtained, I ordered him to be clothed up well, to have bran-mashes to eat, and left him for the night.

14*th.*—I saw him this morning. There was a great deal of fever about him. I gave him in the course of that day three fever-balls.

15*th.*—Much better to-day. I gave a cordial-ball twice in the day for two days.

17*th.*—He still continues mending. He was put into a pasture close at hand, where he gradually improved; and on the 20th he recommenced his work.

AN ACCOUNT OF A SINGULAR FOAL.

By Mr. J. MURPHY, *V.S., Drogheda.*

HAVING been a constant reader of your valuable Journal, I am anxious to contribute my mite; and if you think an account of the following rarity worthy of insertion in your periodical, it is at your service.

On Tuesday, the 27th of August, a brown pony, the property of C. G. French, Esq. of Malahide, dropped a male foal, deficient in the anterior extremities, or fore legs; and, when placed on the posterior extremities, or hind legs, standing seven hands high in a parallel line with the lateral lumbar vertebræ. I consider it to be of the hybrid or mule species.

She laboured under a protracted and difficult parturition, chiefly in consequence of the smallness of the dam, and the monstrosity of the fœtus. I did not see the animal until the 1st inst., and was then informed that it had fed, and had done well. It died, however, on the following morning. In consequence of the deficiency of structure it lay on its side, and, occasionally, on its sternum, or breast-bone, which caused an excoriation of the inferior extremities of each humerus. The animal had also to be supported during the operation of lactation.

As to its sire, no account could be given, but that the dam strayed from the concern eleven months previous to the birth of the fœtus; and the fœtus, being separated from its dam, was fed on milk, gruel, &c. This did not, however, appear to agree with it, and it speedily died. It was purchased and taken away a little before my arrival, and I was deprived of a post-mortem examination.

A CASE OF PUERPERAL FEVER.

By Mr. G. H. DARWELL, *Vet. Student, Pendleton.*

A COW in good condition, the property of John Coates, Esq., of Seedby print works, Pendleton, calved on Thursday, Oct. 3, and seemed, to all appearance, to be doing well, until the afternoon of the following day, when she was perceived by the cow-man to have a staggering gait, and a continual lifting up of her hind legs. The breathing was also accelerated.

Oct. 4th, six P. M.—My father was immediately sent for. To his surprise he found the following alarming symptoms:—

A small, quick pulse, about 80—the eyes having a glassy appearance, and being sunk in their orbits—the breathing accelerated—a frequent, pitiful moaning—her head towards her side—total cessation of the secretion of milk: had been bled previous to her calving. She was immediately freely bled by us, and a powerful purgative was administered, with frequent doses of spt. nit. æth. We also applied a stimulating liniment along the whole length of the spine, and a small portion of strong blister was

rubbed between the ears, as her brain seemed to be affected. We then injected a soap clyster, which was followed by a quantity of fæces, covered by a transparent mucus. We ordered her bag to be frequently drawn.

She continued in the same state until 10 P.M., when she got up and voided her urine. We then hand-rubbed her legs, but she went down again in about ten minutes, seeming, however, to be considerably easier.

5*th.*—She continues in the same state. There was no desire for any food. She made frequent attempts to get up during the night.

4 P.M.—We were summoned to attend as quickly as possible; for, as the man said, her calf-bed was coming down. We immediately went, and found her, as he had stated, straining very much. We pressed the uterus back, and inserted a few stitches in the lips of the vulva, ordering another injection to be given.

6 P.M.—Apparently somewhat better. She has drunk a little warm water—the breathing more tranquil, and the bowels open. Give her sem. carui ℥ij, zingib. pulv. ℥iss, sulph. magnes. ℥ij, in a little warm gruel.

6*th.*—She is considerably better, but still down, making frequent efforts to rise. She holds her head up. The appetite is returning, she having eaten a little moist bran.

4 P.M.—Evident improvement: her eyes are brighter—the pulse is more natural—she gives her milk more freely, but is still unable to rise.

7*th.*—In the same state. Give her a carminative drench.

5 P.M.—She was wound up with ropes, but her legs dangled about as if they did not belong to her. She was then well hand-rubbed, and stood up until 7 P.M.

8*th.*—She can raise herself with some difficulty: her appetite has returned—the secretion of milk more plentiful.

9*th.*—Rapid improvement. Give her another carminative drench.

10*th.*—Convalescent. Rumination perfectly restored.

A CASE OF NASAL DISCHARGE IN A HORSE.

By Mr. JOS. WOODGER, *Market-street, Paddington.*

Sir,—PERHAPS the case which I am about to detail may not be uninteresting to the readers of THE VETERINARIAN. The subject was an aged grey horse belonging to Mr Webb, omnibus pro-

prietor, at Fulham. He had had a thick fœtid discharge, confined to the off nostril, during six months. I examined him, and believe it to have proceeded from a diseased state of the turbinated bones or from a carious tooth.

The owner requested my opinion as to whether I considered it to be contagious or a case of glanders. I told him that I did not consider it to be contagious, nor yet a case of glanders; for, in my opinion, a case of true glanders is not, generally speaking, accompanied by any fœtid odour; and I would remark that there was not here any enlargement of the submaxillary gland. Other horses had been standing by him the whole of the time, and had not exhibited any symptoms of it.

The discharge would sometimes cease for several days, and at other times it would be expelled in large quantities, and of such a character, that, to use the coachman's words, "the stench was such as to render it almost impossible to sit upon the box." He always fed well, and appeared lively and did his work well to the very last.

Treatment:—I recommended trephining him, but the owner would not consent to it: I therefore gave him tonic medicine, and ordered a dilute solution of chlorinated lime to be injected up his nostril. He continued to work until September 17th, 1844, and then returned home at about eleven o'clock at night. He had not been in the stable more than half an hour, when he was suddenly attacked, in the owner's opinion, with gripes. A farrier was called in, who administered to him some of his gripe medicine; but the horse died within an hour from the attack.

I had not an opportunity of seeing him myself while in that state; but, from what I could learn, the symptoms resembled those attending a case of apoplexy. He violently plunged about from the time of his attack until death terminated his sufferings.

I happened to be accidentally passing that way on the following morning, and saw them opening him. They told me that there was not a diseased tooth or disease of any kind in the head. I, however, examined the head myself, and convinced them of their error, for the turbinated bones in the off nostril were completely blocked up by a thick purulent matter; and also an abscess had formed itself immediately over the foramina laceri, which had burst itself through upon the brain, and, as I think, accounted for those violent symptoms prior to death. The dura mater was also diseased, and emitted a fœtor similar to that from the nostril. I have seen many similar cases, with the exception of the abscess, that had broke through upon the brain.

KENNEL LAMENESS.

It will be remembered by our sporting readers, that during the hunting season of 1842-43, and also during the past season (though in a somewhat less degree), the Royal buckhounds were seriously attacked by what is called "kennel lameness;" a disorder, the origin of which, as well as the means of the cure, has puzzled the most experienced huntsmen and managers of hounds throughout the kingdom. It was the opinion of Mr. Davis, her Majesty's huntsman, as well as of several scientific gentlemen who were consulted on the subject, that this disorder was caused by the water which supplied the kennel passing through a considerable length of leaden pipe, and taking up, in its progress from the spring on Ascot-heath, a portion of lead, the deleterious effects of which are so well known when taken inwardly by either man or beast. It was then determined by the Commissioners of Woods and Forests that the water should be analyzed, in order to ascertain if any lead was the cause of the lameness that was then so general throughout the pack. The necessary experiments to be made were confided to Mr. Philips, the well-known chemist, who discovered, upon analysis, that the water was so impregnated with lead, as not only to render it extremely injurious to the human system, but that it contained the poison in sufficient quantities to produce paralysis upon those persons who were in the constant habit of drinking it. The commissioners, upon receiving this report from Mr. Philips, immediately ordered the whole of the leaden pipes through which the water passed from the spring to the kennel to be removed, and earthen pipes substituted; and it now remains to be seen, at the approaching hunting season, whether it may be fairly presumed that the lead detected in the water under the old plan of supplying the kennel was or was not the occasion of lameness in the Royal pack. The water from the source of the spring, and before its coming into contact with the old leaden leaden pipes, was analyzed by Dr. Ryan, but it was not found to contain one particle of carbonate of lead. Another examination of the water, after it had passed through the pipes on to the Royal kennel, was afterwards made by Dr. Ryan, when, upon an imperial pint of this water being evaporated to dryness, it was found to yield two grains of solid matter, viz.—

	Grains.
Carbonate of lead	.164
Organic matter, and traces of chlorides of sodium and magnesium and sulphate of lime	.038
	.202
Excess in the course of analysis	.002

From the results of this experiment, it has been calculated that 1.312 grains of carbonate of lead were taken up by every imperial gallon of water (in its passage through the pipes) used at the kennel. There are now in the Royal pack twelve couples of young hounds, which have not tasted any portion of the water rendered impure by its passing through the old leaden pipes. They will be hunted during the approaching season. Should they escape the attacks of lameness to which the old hounds have been periodically subjected, it will be clearly and satisfactorily proved that the water, under the former system of supplying the kennel, rendered impure by the quantity of carbonate of lead it contained, was the chief if not the only cause of kennel lameness amongst the Royal buckhounds.

ON THE DISEASES OF DOGS.

MALADIE: COUGH, COLD, GLANDERS, CATARRH, CORYZA, AND GASTRO-BRONCHITIS.

By the late M. HURTREL D'ARBOVAL.

From Le Dictionnaire de Médécine Vétérinaire.

YOUNG dogs are very subject to a disease usually severe, and often fatal, which attacks whole kennels at once. It is usually general, and not unfrequently commits great ravages among the dogs that are to be found in a very considerable extent of country. This disease, in its course, the causes by which it is produced, and the phenomena by which it is attended, greatly resemble nasal catarrh, as seen in the human being and other animals; but it is almost invariably accompanied by other complications, and especially by chorea, ophthalmia, and gastritis—complications which are chiefly, and in most cases only, met with in dogs affected by the *distemper*. This disease is as yet but very imperfectly known, and even the best veterinary works give an unsatisfactory account of it; and for this reason, that its characteristics, when it exists simply and alone, have never been clearly described by any author, but all those phenomena which arise from various complications, or from sympathetic causes, have been mixed up and confounded with them.

Paulet gives the name of malignant fever to this disease. Pilger, a German author, considers it to be fever accompanied by in-

flammation of the respiratory organs, and that its principal seat is in the lymphatic system. Desmars, who had published a letter on the mortality among dogs in the neighbourhood of Boulogne-sur-Mer, imagined that this disease was induced by the cold dry weather that prevailed in the autumn and winter of 1762 and the spring of 1763, which prevented the animal from purging off the excrementitial matter.

In 1763-4 it prevailed throughout Paris and its environs; and in 1769-70 committed great ravages among the dogs belonging to the king's kennel, to the chief noblemen, and those in the principal cities, and especially Lyons and Paris. Duhamel observed it in 1763-4-5, and attributed it to a humour, which fermented in the blood, and corrupted it. Barriere, who published an essay on the diseases of dogs, observed, that in his district (Chartres) a great number of these animals died of it during the years 1762-3-4. He regards it as humoral. "The biliary duct," says he, "appears to contain the cause of all this disorder." It is very much enlarged, the bile is often concrete, and a superabundance of bile and its accidental qualities is doubtless the primary cause of this affection. It is, probably, the authority of this author, and the conclusions which he draws from several post-mortem examinations, that has caused this affection to be classed under the head of fevers, and to be considered as a serious bilious fever, often complicated with ataxy.

Many authors, on the other hand, have considered it to be a species of gourme, a cleansing depuratory process, or the result of a salutary action or crisis, whereby nature is relieved; they have therefore compared it to the gourme in solipedes, and the small-pox in the human being. So far has this opinion prevailed that even inoculation has been had recourse to in order to render the disease milder; and some medical men, among whom is Sacco, have gone so far as to assert, that inoculation with the vaccine matter will effectually prevent the development of this disease. They support their opinion by the fact, that it is chiefly young dogs that suffer—that those who have once had it are rarely attacked a second time, and those which have not had it are always liable to contract it, from its being so contagious. Some authors have compared it to the croup in children, but, without specifying wherein the resemblance between the two diseases consists. Arquinet observed this disease in dogs at Pézenas, in July 1786, and complains of the dreadful ravages that had existed among dogs in that neighbourhood for upwards of twenty years. Chabert gives an account of its prevalence at Paris, and round its environs, during the years 1799 and 1800. In Lyons and its environs it is usually to be met with, but during the years 1818 and 1819 it was

unusually prevalent; and it is asserted by those who had the opportunity of observing it, that the rarefaction and heat of the atmosphere rendered it unusually malignant.

According to some authors, this disease has not long been known in Europe, and, in fact, it was never observed before the middle of the last century. Some maintain that it was imported into France from England in 1769, whereas, it is well known that in March 1714 it reigned as an epizootic in all our western provinces, and was then complicated with gangrenous angina. Probably they have been mistaken, and meant to say that it was introduced into England from the Continent about that time: such, at least, is the opinion of the celebrated Jenner.

Many have conjectured that the *maladie* in dogs was a disease not unknown to the ancients, and they termed it *angina;* but if we attentively examine the symptoms as they are detailed by Aristotle, Elien, and other authors who have bequeathed to us their observations on the canine race, we shall readily perceive that the *maladie*, or the disease known to us by that name, was unknown to them, or at least is never mentioned.

This disease has occupied the attention of several distinguished authors. It has been treated of in sporting, agricultural, and veterinary works. Several physicians have mentioned it, among whom are some in England. Dr. Jenner, in the first volume of his Treatise on Medicine and Surgery, has traced out a table relative to this affection, sufficiently clear for general description, but far too limited to become of any practical utility. This celebrated author was induced to notice the subject, from his belief that vaccination would preserve dogs from *la maladie*, in the same way that it guarantees the human being against the small-pox. Unfortunately, experience has proved that his hopes were without foundation. Inoculation will not preserve dogs from *la maladie*, or cattle from *le clavelée.*

This disease, either under the form of an epizootic or an enzootic, commits great ravages among dogs in towns and cities, while those in country places usually escape. Sometimes it is found to be most prevalent during certain seasons, or under certain forms, and with peculiar complications. When in its simple state it is not so severe or dangerous, and some dogs are but slightly affected by it. Those that suffer most are the dogs most valued, petted, and nursed, or, in other words, those the farthest removed from a state of nature.

A general survey of "La maladie."—From the various opinions and imperfect data which alone we have to guide us, it is impossible to form any very exact idea of the actual nature of this disease in dogs; but several of the Professors at our veterinary schools

who have observed it more closely and under more varied forms than any other persons, generally agree in designating it "nasal catarrh," a name which appears to us more applicable to it than any other; for it is usually accompanied by all the symptoms of actual coryza, and is always more or less catarrhal in its simple and primary state, becoming gradually, and by some undiscovered train of sympathies, complicated with nervous affections which bring on paralysis of the lumbar column, emaciation, and, eventually, death.

Causes.—These are but little known, and those alleged are at best but suppositious. It has been attributed to the voracity natural to dogs—to their lasciviousness—to their frequently devouring carrion, &c. &c. Chabert has attributed it to their being fed on unnatural and unwholesome food, and especially on a kind of soup made of coarse bread and grease.

From the circumstance of the dog being carnivorous, swallowing his food almost without mastication, and in a larger portion than his stomach can digest, and gnawing bones with considerable pleasure, it has been inferred that all other kinds of diet are contrary to nature and predispose him to contract disease. This supposition, however, is not supported by experience, but rather proves that young dogs who have been bred up in-doors, nursed, petted and kept warm, and fed almost entirely on cooked meat and bones, are far more liable to take on disease generally, and this disease especially, than the shepherd's dogs that are exposed to all weathers, and rarely get any thing but vegetables and bread to eat. An experiment made at the Veterinary School at Alfort confirms this. A bitch having littered, half of her pups were fed on cooked meat and bones, and the other half on milk and bread, or vegetable soup. The former caught *la maladie*, and became so bad that St. Vitus's dance ensued: the latter, with one exception, grew up fine healthy dogs, and that one was attacked very slightly. It has also been observed, that this disease chiefly, but not exclusively, attacks young animals from three or four months to two years and a half old—that it is peculiar to no particular season, and is usually most prevalent in dry seasons, when it rages during the summer and autumn.

Some persons assert that a particular pathological substance, a white, opaque, vermicular body will be found under the tongue of all dogs attacked by this disease, and that it is a great cause, if not the determinate one, of all the symptoms and sufferings which supervene. This, however, is altogether wrong.

Contagion.—Some persons still entertain the old belief, that nasal catarrh in the dog is contagious, and they found their belief on these facts,—that it rarely attacks the same animal twice—that it attacks all, or nearly all the dogs, in a certain town, pack,

or kennel, at once or successively; and that, when once it has appeared in any place where there are many of these animals, it is seldom that any one escapes being affected by it. Nay, more; if, some time after the disease has apparently disappeared from a certain kennel or locality, one or more fresh young dogs are brought there, they are inevitably attacked by it, whatever precautions may have been taken to cleanse the place: it is ordinarily about the second or third day after their arrival that they fall ill. We cannot help thinking that these believers in contagion exaggerate a little, for the disease cannot resist the agency of those disinfectant matters which are efficacious under all other circumstances. In 1815 we made the following experiment:—By means of fumigations of chlorine, accompanied by all proper precautions, we purified several stables that had for some time been inhabited by cattle affected with a contagious epizootic which then prevailed, and subsequently brought other cattle there, who, as we anticipated, continued quite healthy. Why, then, should it be otherwise with regard to *la maladie* in dogs? Why should not a disinfectant agent be as powerful in one case as in the other? On one point all are agreed; viz., that an animal that has once had this disease does not contract it a second time, even though surrounded by all the accessory circumstances which usually tend to develope it. An English author, however, Delabere Blaine, is an exception to this; for he says that he has seen it once, twice, and even three times in the same individual.

This affection cannot be said to be peculiar to the dog: it may rather be regarded as common to all carnivora; for it has been seen in the cat, the wolf, and the fox, and has been known to be communicated from a wolf to some young dogs.

On the Nature of La Maladie in Dogs.—This is, and has been, very much a matter of dispute, the symptoms which accompany the disease are so varied, and the accidental circumstances so numerous, even when its commencement is not always alike. By far the greater part of the authors who have treated of it regard it as a catarrhal affection; M. Huzard, jun., however, ranks it among nervous diseases. M. Delaguette, who has treated a great number of *maladie* dogs, avoids deciding on the question altogether; nevertheless, he seems inclined to view this disease as a general inflammation of the mucous membranes, complicated, in most cases, with nervous affections. He says that we need not be astonished at the sympathy which the nervous system acquires with this disease, since it generally affects young dogs during the period of dentition, and of their most active growth.

Symptoms.—In order to be enabled to establish the veritable characteristics of nasal catarrh in dogs, it appears to us necessary,

in the first place, to expose all the phenomena of this disease when considered under its most simple form, and, afterwards, to endeavour to define all the various complications that are found united with it.

At first the animal appears dull and lazy—follows his master carelessly—is less obedient—his appetite decreases and becomes depraved—he becomes weak—lies on one side—no longer heeds what is said to him—the head is heavy, the eyes animated, the muzzle warm, the nasal membrane painful and dry—he coughs at intervals, and appears as if endeavouring to get something from his throat, and clear his nostrils of the matter that hangs about them, which he attempts by shaking his head, endeavouring to sneeze or snort, and rubbing his nose with his paws—the thirst is insatiable—nothing gratifies him more than the sight of water, and the temperature of his body is often considerably elevated. Among these primary symptoms may be reckoned as one of the most common a dry, hacking cough, which comes on chiefly when the animal goes out into the air. In some cases this cough is never considerable, but in others it augments until it becomes wearying and incessant, producing, by its irritation, suffocation and fruitless efforts to vomit.

After about the seventh or eighth day the second epoch of the disease commences. This is first distinguished by an increase of cough which becomes thick and frequent, and by still more decided flux from the nose and greater irritation. A quantity of mucus flows from the nostrils, and often the mouth also, which is at first limpid and of a greyish white, but which daily becomes thicker and assumes a green or yellow colour, and sometimes obstructs the nostrils to such a degree as to impede respiration. This matter, which is generally destitute of smell, adheres to the orifices of these parts, and when it escapes from the eyes, which about this time become bleared, it soon glues the lids together. If the chest is sounded it clearly echoes; but through the medium of auscultation a mucous rattle may be detected in the trachea and bronchial tubes. There is sometimes a slight diarrhœa, which, by its continuation, exhausts the patient. During this epoch the animal suffers from nausea and sickness, and makes vain efforts to throw off the nasal mucus. It becomes weaker and weaker, totters when it attempts to move, and has no power in its hinder parts. This state sometimes lasts from eight to ten days, and occasionally extends to fifteen or more.

During the third epoch the symptoms are varied according to the termination towards which the disease tends. If it does not incline favourably, the eyes become glassy, vague, and full of tears, and a repugnance towards every kind of food manifests

itself more than ever. The urine exhales a fœtid odour—a sticky frothy matter dribbles from the mouth, and convulsions of the face and limbs occur. The animal is now constipated, and now tormented with diarrhœa; its pulse is very irregular, and accelerated in proportion to the period the disease has lasted. If, however, a favourable termination is to be hoped for, the flow of matter from the nostrils diminishes and becomes whiter and clearer, the eyes get better, the appetite returns, new vigour animates the animal, he becomes more attentive to the voice of his master, more obedient, more lively, and, ere long, is completely recovered. When the disease has once taken a favourable turn, from twenty-five to thirty days may be regarded as the average period which the system requires to throw it entirely off. If we regard these symptoms, we shall see that they all appertain to coryza, and that, at the commencement, the disease is actually coryza.

Complications.—One of the most frequent complications is, symptomatic ophthalmia, which manifests itself during the course of the second epoch. It occurs in those dogs whose eyes become bleared and sore, and the lids glued together by the exuded matter. The lids become tumefied—the conjunctiva irritated—the eyes red and filled with tears—the cornea obscured—the humours of the eyes clouded, and small albuginous patches, and red and white spots, are observable on them. Subsequently, little ulcerations appear which present small cavities at first scarcely large enough to receive the head of a pin, but which extend and penetrate into the cornea. The aqueous humour then escapes, and the eye becomes atrophied and lost. At other times this ophthalmia is accompanied by a species of amaurosis.

Another frequent complication is, sympathetic inflammation of the bronchial tubes and the lungs, and this presents all the phenomena of pleuro-pneumonitis. It is then that the dog suffers from an incessant and fatiguing cough. It sometimes happens that the inflammation extends to the liver, and then the emaciation and weakness become more apparent, and increase more rapidly. In such cases the interior of the mouth, the white of the eyes, and every part where the skin is visible, is tinged with yellow; the urine is also of the same hue, and the dog appears to suffer whenever the belly is pressed.

Another and very important complication, although one of which little notice has hitherto been taken, is that of irritation of the mucous membranes of the respiratory passages, and, frequently of, the urinary apparatus. The first of these is generally observed when the disease appears primarily in the head or air-passages, or in both at once. An obstinate diarrhœa then frequently supervenes, which brings on marasmus and ends in death. The complication with

affections of the mucous membranes of the respiratory passages may be recognized by the general heat of the skin in the neighbourhood of these parts, by the whitish fur which covers the surface of the tongue, and the redness of the edges and the point of this latter organ; also, by the fœtidity of the breath, the nausea, a distaste for every kind of food, and sometimes absolute sickness. When the irritation is extended to the internal intestinal membrane and becomes very intense, *miliary* eruptions appear on various parts of the body, particularly where the skin is thinnest, as under the legs and thighs.

These complications with gastritis and entero-gastritis may be dependent on the action of the cause which induced the disease, or on a sympathetic participation of the mucous membranes of the former passages in a morbid state, or on the inconsiderate use of exciting medicines.

Where irritation of the gastro-intestinal passages exists, it is not uncommon to see the animals troubled with worms. It will then withdraw itself from notice, seek quiet and obscurity, appear dull and peevish, bite on the slightest provocation, and, in short, offer all those symptoms which are described by most authors as appertaining to *dumb* madness.

A complication with irritation of the urinary passages is indicated by all these signs, which usually announce a catarrhal state of those parts, and also by the appearance of the urine, which becomes yellow, and exhales an unpleasant, infectious smell.

Nasal catarrh in dogs, and especially in young animals, is often complicated with cerebral affection, when a sanguineous congestion of the brain not unfrequently results. In this case the animal appears in a species of coma; he is dull, stupid, lazy, inattentive, and lies down almost constantly; his senses appear obtuse; occasional shiverings are observable, and the skin is very hot. Sometimes the animal is excited almost to vertigo—it appears strangely uneasy; it runs about without aim or end, backwards and forwards; the pupil is dilated, it neither sees, hears, nor understands. This state soon becomes aggravated, and the sufferings acute. The animal cries almost incessantly, lies down, is restless, convulsed, and dies on the fourth or fifth day, without having vomited at all, or had more than a very slight flow of matter from the nose.

[To be continued.]

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THE HISTORY OF GLANDERS,

FROM THE EARLIEST TIMES DOWN TO THE PRESENT; WITH THE OPINIONS OF AUTHORS CONCERNING ITS SEAT AND NATURE.

By WILLIAM PERCIVALL, *M. R. C. S., Veterinary Surgeon First Life Guards.*

LAFOSSE (senior) in his "Preface" to his "Treatise upon the true Seat of Glanders in Horses," states, that "great was his surprise, when he found that such distemper was not only *unknown to the ancients*, but that it was altogether *a new disorder*, and did not appear in Europe till about the year 1494."—"Twas at the siege of Naples, after the arrival of the Spaniards from their discoveries in America, that glanders in horses appeared for the first time."

"PARAZZER is the first author who has mentioned it,—he himself was at the siege; and the Spanish authors are the first who have given us the history of this disease, which they term MUORMO*."

Dupuy, however, in his prefatory history — "partie historique"—contradicts this account on the authority of MM. Masse and Jourdain, two French veterinary writers who have been at the pains to translate the writings of the Greek hippiatrists, and from whom, he says, we learn that the father of medicine himself, Hippocrates, was acquainted with the disease, and has, in its confirmed stage, pronounced the malady incurable.

VEGETIUS, who wrote in the fourth century, has described one disorder he has called *morbus humidus*, and another he has named

* A TREATISE upon the TRUE SEAT OF GLANDERS in HORSES, together with the METHOD OF CURE, &c. with cuts. By M. De La Fosse, master farrier of Paris, and farrier to the King's Stables, 1751.

morbus farciminosus, the former of which some of his veterinary interpreters have said was *glanders*, the latter *farcy*. His descriptions, however, to say the least about them, are very vague and indefinite, at one time seeming to mean something more, at another something less than glanders and farcy.

"The humid disease (*morbus humidus*) is when from a horse's nostrils, instead of snot, there flows a stinking and thick humour, of a pale colour. A horse thus affected has a great heaviness in his head, and hangs it down. The tears fall from his eyes, and there is a whizzing noise in his breast. He becomes thin and meagre, with his hair standing on end, and of sad aspect. This disease the ancients called the ATTICAN FLUX, or running at the nose. But whensoever a bloody humour or like to saffron begins to flow from the nostrils, then he is incurable, and near death's door*."

LEONARD MASCAL, 1587, our earliest writer, like the ancients, had no correct notions of glanders as a disease by itself. He tells us, "glanders are kernels under the jawes, and when they be ripe, they will run at the nose and there break out†."

BLUNDEVILLE, 1609, writing in the reign of Queen Elizabeth, the next authority we have, I believe, extant on the subject before us, appears to have made some progress in the knowledge of the fluxes or humid diseases of the ancients, for he instituted distinctions between *glaunders* and *stranguillion*, though he treated them both alike. He imbibed Theomnestris' notion, that *difference of colour* in the nasal discharges constituted a *difference in the disease itself*. He thought "glaunders" originated in *cold*, and that "last of all" came "mourning of the chine‡."

GERVAISE MARKHAM, 1630, was equally in the dark. He imagined the difference between strangles and glanders to consist in one breaking *outwardlie*, the other *inwardlie*§.

DE GREY, or DE LA GREY, 1740, adopted Solleysell's notion of glanders proceeding from neglected cold, distinguishing the disease "by the inflamed kernels or knots which may be felt under the *chaul* of the horse." He, however, continued in the old errror, of fancying that "the thinne rheume ascendeth up to the head

* Vegetius Renatus, of the Distempers of Horses, translated into English by the author of Columella. London, 1748.

† The Government of Cattel, divided into three Bookes. Gathered by Leonard Mascal. London, 1620.

‡ The Four chiefest Offices belonging to Horsemanship: that is to say, The Office of the Breeder, of the Rider, of the Keeper, and of the Ferrer. By Master Blundeville, of Newton Flotman, in Norfolke, 1608.

§ CAVELARICE; or that Part of the Arte wherein is contained the Knowledge or Office of the Horse-Farrier, with the Signes and Demonstrations of all Manner of Infirmities, and the most Approved Cure for the same. The Seaventh Booke, 1607-1676 (numerous editions).

and settleth neere to the brain, and so venteth itself at the nose:" the cold gradually getting worse and ending in glanders*.

SOLLEYSELL, 1669, a French writer of this period, of excellent repute, still considered glanders as related to catarrh, though he did not suffer himself to be misled by the difference of colour the nasal discharges assumed. Neither did he think—as those before him had imagined—that the discharges proceeded from the brain, but from the lungs, liver, and spleen. He thought glanders was "caused and fermented by an ulcer in the lungs;" which, increasing, consumed those organs, and at length killed the horse†.

LAFOSSE, in 1749, presented to the (French) Royal Academy of Sciences "A MEMOIR OF THE GLANDERS IN HORSES, relating to the SEAT of that Disease‡;" wherein, after exposing the errors of those who had written before him, in supposing the viscera—the lungs, heart, liver, spleen, kidneys, &c.—to be the seat of the disease, he informs the Academy that he had found the frontal and maxillary sinuses filled with matter, and "the pituitary membrane inflamed; and, consequently, much augmented in thickness," and "affected with *sanious ulcers:* which, in some cases, had corroded through the substance of it to the very bones. That, when horses discharged matter from both nostrils, both sides of the membrane were affected; and that when they only ran at one nostril, that side only of the membrane was found distempered."

"In like manner he (Lafosse) constantly observed an agreement between *the obstruction of the sublingual glands*, or glands under the jaws, and the affection of the aforesaid membrane; that is to say, if one of these glands only was obstructed, then the horse discharged matter only by one of his nostrils; but, on the contrary, if both the glands were affected, matter should be discharged from both nostrils."—"One may (therefore) reasonably conclude with M. Lafosse," remark the Academicians, "that the glanders does not depend upon *a general distemperature of the blood*, but is really and truly A SIMPLE AND LOCAL MALADY."

In 1752, Lafosse presented the Royal Academy with "A New Memoir," "improving and bringing to perfection his discovery." Herein "he distinguishes *seven kinds of discharges* which may come from the nostrils of horses."—"He, also, makes it evident that the true glanders has its characteristics, which essentially distinguish it from every other disease that has been called by the same name."—"And, in order to prove that a great inflammation of the pituitary membrane is always the cause of glanders, he has at-

* The Compleat Horseman and Expert Ferrier. By ————, 1740. In one place the author's name appears as De Grey, in another as De *la* Grey.

† The Compleat Horseman: Hope's Translation, second edition, 1717.

‡ The MEMOIR is appended to his work, published two years after.

tempted to bring on an inflammation upon the same membrane *by a corrosive injection;* and, when the injection was only made on one side, the maxillary lymphatic glands were swelled on the same side, and that nostril only produced the discharge. But, on the other hand, when both nostrils were injected, these symptoms appeared on both sides."—" The first Memoir presented by Sieur Lafosse was confined to a bare description of the disease, and only a proposal of a method of cure by way of project; but, in this, he certifies that *he has cured several glandered horses* by means of his injections and fumigations thrown into the nostrils*."

LAFOSSE, JUNIOR, 1775, strongly advocating his father's doctrines, contended that the most conclusive and satisfactory evidence of their truth was afforded by repeated autopsies, and by the well-known experiment so often made by his father, as well as by himself, of throwing corrosive injections upon the pituitary membranes of horses, and of so turning them glandered. He shaped his father's pathology to the improvements medical science had in the interval undergone, and made some alterations in the divisions of glanders, calling them *proper* and *improper—primitive and secondary—incipient, confirmed, and inveterate—simple and compound.* He would not admit that the lungs participated in glanders, save from the supervention of pulmonic disease during its existence. But he allowed that the *frontal* and, occasionally, the *maxillary sinuses,* together with *the cornets and alæ of the nose,* partook of it. It was some time, however, before he discovered that the tumours under the jaw were *not salivary,* but *lymphatic* glands†.

MALOUIN, 1761, appears amongst the earliest dissentients to the generally-received doctrine of Lafosse. He presented the French Academy with the results of his own observations, tending to shew that *other parts,* besides the pituitary membrane, became involved in disease; and that the longer the duration of glanders the greater the number of other tissues found affected by the disease‡.

GIBSON, 1754, describes glanders to consist in " a malignant ulcer formed in the inside of the nose of the horse"—" generally accompanied by a swelling of the kernels under the jaws. The matter discharged is, for the most part, either yellow or greenish, or tinged with blood; and, when horses have been long glandered, that the bones and gristles are grown foul, the matter turns to a blackish colour, and becomes very fetid and stinking. And this is

* Observations and Discoveries made upon Horses, &c. By Sieur La Fosse, Farrier to the King of France, 1755.

† Dictionnaire Raisonnée d'Hippiatrique, &c. Par. M. Lafosse (junior). Paris, 1775.

‡ L'Abbé Rozier's " Dictionnaire d'Agriculture Pratique."

what usually passes for *the mourning of the chine*, from a mistaken notion of corruption and putrefaction of the brain and spinal marrow."—" But the most common and usual kind (of glanders) does not proceed from any of these causes, but from *a bad disposition in the blood;* which, perhaps, continuing for a considerable time unperceived, at last shews itself by a swelling of the glands under the jaw-bones, and a running at the nose, *without any other visible sign of sickness or disease;* and this is "*what properly constitutes the glanders* in the horse, and is either of the scrophulous kind, the same with the evil, or else cancerous; both which I have met with in practice, and may be either *hereditary*, or the effect of *hard labour* and *bad keeping**."

REEVES, a farrier at Ringwood, Hants, who about this time, 1763, published a veterinary work† under the eye of a physician, looked upon glanders, as Lafosse did, as " properly an inflammation of the pituitary membrane;" running into the same errors about the "kinds" of glanders Lafosse did, and adopting his mode of cure by injection.

BRACKEN, 1769, assures us, he " cannot describe the glanders better than Mr. Gibson has done; to wit, 'that it is a flux or running of corrupt matter from the nose of a horse, which matter is of different colours; as white, yellow, green, or black, according to the degree of malignancy, or according as the distemper has been of long or short continuance.'—" I know but of one *inseparable* sign of glanders, and that is inflammation or swelling of the glands about the throat or *behind the ears.* And as to what Solleysell, Blundeville, and others, write about *the mourning of the chine* or consumption of the brain and spinal marrow, &c., it is a pack of nonsense."—" I take Mr. Snape's account of the glanders not to be very defective; only I cannot agree with him in one thing, that is, *in this distemper being contagious or infectious;* for he might as well say that *we catch colds, consumptions, &c.*, by infection‡."

BARTLET, 1773, a surgeon, who wrote a veterinary work about the same period, became another of Lafosse's proselytes. "A new light," he tells us, " having been thrown on this whole affair by the study of M. Lafosse, the King of France's farrier, who has been at the pains to trace out and discover, by dissections, the source and cause of this disorder; we hope the method he has proposed, with

* A New Treatise on the Diseases of Horses. By Wm. Gibson, Surgeon, 1754, 2d edit.

† The Art of Farriery, both in Theory and Practice, &c. &c. By Mr. John Reeves, Farrier at Ringwood, Hants. The whole revised, corrected, and enlarged, by a Physician. Second edition, 1763.

‡ Farriery Improved. By Henry Bracken, M.D., 1769.

some farther experiments and improvements, will soon bring to a certainty the cure*," &c. &c.

BOURGELAT, 1765, the great founder of the French Veterinary School, saw reason to secede from the notions, concerning the *locality* of glanders, of Lafosse, which, in his day, had firm hold of public opinion. He believed glanders to have its source in *the corruption of the blood* and humours of the body, and thought there was great analogy between the ulceration of glanders and venereal chancres.

PAULET, however, as we learn from Hurtrel D'Arbovalt, was the French writer who especially drew attention to the similarity there existed between glanders and syphilis. "The two viruses," he says, "exert their action in a similar manner: in both diseases, the lymph, contaminated through the presence of the virus, in its turn infects the gland in the neighbourhood to which it has been taken. In one case it happens to the glands in the groin, in another to those in the throat; both performing the same office. The two viruses, acrid and irritating in their nature, having reached, in one instance the urethral canal of man, in the other the cavities of the head of the horse, lined by the pituitary membrane, and being there dissolved and decomposed, occasion by their presence irritation, inflammation, burning, speedily followed by purulent flux, together with augmentation of the natural mucous secretion."

GILBERT, another French veterinary writer, regarded the knowledge of the means of *preventing* glanders as hardly less in importance to the discovery of the cure for the disease. His notions, like Solleysell's, were that both strangles and bastard-strangles frequently ended in glanders; in fact, that the two diseases were alike, glanders being but an imperfect evacuation of the strangles. But *farcy* being the disease which, of all others, most frequently terminates in glanders, it has received from farriers the appellation of its *cousin German*. Ordinarily, in horses, the disease is *of a chronic nature:* but on occasions it assumes the acute form. In mules and asses *it is constantly acute* ‡.

VITET, 1783, describes glanders to consist in a discharge from the nose of a virulent and contagious humour, in the first stages unaccompanied by fever or cough, or loss of appetite or spirits. The horse, mule, and ass, are the only animals obnoxious to it. The disease commonly commences in one nostril. Its course is very uncertain. The horse may survive one, or two, or even three years. Some regard the *pituitary membrane*, others the *lungs*, as

* The Gentleman's Farriery, by T. Bartlet, Surgeon, 8th edit. 1773.
† Dictionnaire de Médécine, de Chirurgie, et de Hygèine Vétérinaires, 1838.
‡ Observations sur les Causes de la Morve, &c. &c.

the seat of glanders. For my own part, I willingly class myself with those who think both the *head* and the *chest* the seat of the disease. Those who have considered glanders to be a local disease have essayed by injections to accomplish a cure; while the advocates for its being a pulmonary disease have made use of detersions, such as the terebinthinates and balsams; while those who have regarded as its seats both the pituitary membrane and lungs have been as fond of employing internal as external remedies*.

VOLPI, the Italian professor of veterinary medicine, suspects strong identity in nature between glanders and syphilis. Glanders is so frequently associated with farcy, that many assert they are the same disease. Farcy, however, is much more easily cured than glanders. Glanders is only curable while recent: after it has long existed, the organic lesions occasioned by it render all our remedies of no avail, these said lesions proving the disease to be of an inflammatory nature. It is absurd to consider the submaxillary tumefied glands as the focus of the disease, and to imagine that extirpation of them will tend to its removal.

SNAPE condemns the operation of trepanning, as insufficient to cure the glanders; sagaciously asking, "can success be expected from the irrational procedure of attempting to remove the defects, previous to subduing the original cause, *which is seated in the blood*, where it is introduced by various means?" This author seems to have had an impression that glanders and farcy were but the same disease; for he says, "the first stage of glanders is *farcy in the head*, and the last stage of a farcy in the head is *a confirmed glanders*†."

TAPLIN, 1791, after, in his own peculiar happy vein of irony, holding Lafosse, and "his trumpeter, Bartlett," up to ridicule for the notions of "the seven different kinds of glanders," and "the cures almost incredible," through trepanning, syringing, &c., that were said to be performed, gliding from the eminence of satire "gently into the vale of reason," informs us, as his own opinion on the subject, "that any corrosive matter discharged from the nostrils, and suffered to continue for a length of time, so as to constitute ulcerations and corrode the bones, will degenerate into, and constitute, the disease generally understood by the appellation of glanders: every stagnant, acrimonious, or putrid matter is possessed of this property, and more particularly when lodged (or by sinuses confined) upon any particular part"—"whether proceeding from an ulceration of the lungs, or the inveterate glandular dis-

* MEDECINE VETERINAIRE, par M. Vitet, vol. ii, 1783.

† A Practical Treatise on Farriery; from the management of the late Mr. Snape, farrier to their Majesties and to the second troop of Horse Guards.

charges from the head (where the case is of long standing, and the bone carious), they are equally *incurable**."

ST. BEL, 1792, the first Professor of the Veterinary College of London, adopted the opinions and practice of Lafosse on the subject of glanders; and so, his experiments at Lyons, detailed here after his death, exhibit a series of nasal injections, united with antimonial and mercurial preparations by the mouth, &c†.

COLEMAN, THE LATE PROFESSOR, made a division of glanders into *acute* and *chronic*. "That form or kind is acute which, like other acute diseases, proceeds regularly through its course and ends in death; that chronic, which, so long as it continues so, will not destroy the animal. This is illustrated by what happens in chancre, bubo, and (venereal) gonorrhœa: one requires the administration of mercury, the other will in time run itself dry."

"ACUTE GLANDERS may be defined to be, a *specific* inflammation and ulceration of the Schneiderian membrane, more particularly of that part of it covering the *septum*, that appearing to possess *a higher degree of sensibility*. It is generally accompanied by tumefaction of the submaxillary lymphatic glands, which glandular tumour or tumours is simply the consequence of irritation."

"By *specific* is meant, an inflammation not attended with the usual phenomena. If the inflammation could be as well recognised by any characteristic appearance as the ulceration is, then the horse ought to be pronounced glandered prior to the supervention of the ulcerative stage: to this there are analogous instances in the human subject. No surgeon decides on a case of syphilis before chancre makes its appearance, or on small-pox until pustules have formed. We may safely lay claim to two discoveries respecting glanders and farcy. One is, that the whole mass of blood has been found to be contaminated; the other, that both diseases may be, and are commonly, produced without the agency of contagion. Mr. HUNTER concluded that the blood was never in itself diseased, because he could inoculate with it in small-pox and syphilis without infecting the subject; whereas, if he made use of lymph, he produced the disease. This is no proof, however, that the blood contains no morbific matter; for the poison mixed with it may be, as we now know it to be, in too diluted a state to take any effect, though, in the purulent discharge, it appears to exist in a concentrated form. On the same principle, a person may drink a teacup-ful out of a pail-ful of water containing a certain quantity of arsenic, with impunity; but, should he take a quart or a gallon of

* The Gentleman's Stable Directory, by Wm. Taplin, Surgeon. 1791.

† This account is taken from Mr. Blaine's "Outlines of the Veterinary Art," fifth edition, 1841.

the same fluid, he may probably experience from it deleterious effects. Aloes itself is a poison exhibited in large doses. Another proof of the blood being diseased, is, that syphilitic infection will frequently create disease in the throat: how could the poison get there but through the medium of absorption and circulation? Be this explicable however as it may, we have proved the fact beyond all doubt and dispute by the test of direct experiment."

"Glanders is not so prevalent in the summer as in the winter season; and it has, in several instances, been known to be epizootic, particularly when horses brought from camp or other external situations have been returned into warm and unventilated quarters. If precautions were taken to properly ventilate stables, the disease might be altogether eradicated. In further proof of the disease originating without contagion, we have instances of glanders breaking out among horses that have been embarked in a perfectly healthy condition on board of ships entirely new. In the expedition to Quiberon, the horses had not been long on board of the transports before it became necessary to shut down the hatchways: the consequences of this were, that the horses were almost suffocated with heat, and that almost all of them disembarked either glandered or farcied. The malady which broke out among the men engaged in the Walcheren expedition attacked almost all of them, hence it was considered to be a contagious disease; afterwards, however, it proved not to be, nor was this assumption required to explain its endemic character, for they all (if the expression may be allowed) ate it, they all drank it, and they all breathed it. It is for want of reflection upon these points that people are so often differing about the contagious and non-contagious nature of diseases. It has been observed, that glanders is mostly present where grease is prevalent; indeed, this fact led SAINBEL to say, that grease was a cause of glanders: but, in truth, it is no more a cause than dung and urine are causes; it is simply operating as another source of atmospherical impurity. Under such circumstances, the fetor of grease will predominate, as the stench of a goat will, over the effluvia arising from the excretions and secretions; and it was the observance of this fact probably that gave origin to the vulgar notion of the salutary influence of goats kept in stables."

"The acute glanders is the same disease, in regard to the nature of the poison, as farcy and chronic glanders; I am, however, not so confirmed in my opinion concerning the affinity of the last as in respect to farcy. Acute glanders hardly ever proves fatal without farcy making its appearance before death: on the other hand, farcy rarely or never of itself puts an end to life, it being

superseded commonly by acute, sometimes by chronic glanders. Independently, however, of these practical observations, we have shewn their essential identity by direct experiment: we have produced farcy by inoculation with the poison of acute glanders, and acute glanders by inoculation with the matter of farcy: we do not always succeed, it is true, but one case proves as much as a thousand."

"CHRONIC GLANDERS commonly affects but one side of the head: if, therefore, a discharge makes its appearance from one nostril alone, that of itself is strong presumptive evidence of the presence of this disease. This partial flux cannot come from the lungs, for, if it did, the other nostril would discharge too: it must have its issue from some part anterior to the larynx; consequently it can have no other source but the membrane of the nose or that portion of it lining the sinuses. Should it come from the nose, the membrane, most likely, will have a redder aspect upon that side of the septum than upon the opposite, or there may be a disposition to, or actual ulceration. If the nasal discharge is considerable, and, at the same time, the animal to all appearance continues in the enjoyment of good constitutional health, such circumstances should serve to strengthen your suspicions. People cannot conceive how it is a horse can have glanders so long as he eats and drinks, and does his work like one in perfect health; this very fact, however, I repeat, is corroborative of an unfavourable prognosis. Another circumstance to be attended to is, that the nasal flux has little or no fetor; offensiveness of breath is pretty certain evidence that glanders is not present: not but what pneumonia and glanders may exist in the same subject, but, fetid breath commonly proceeding from the lungs, and this chronic discharge coming from the sinuses of the head, the one disease is not in any way necessarily connected with the other. In glanders, the nostrils are contracted and gummed with inspissated discharge; but the flux is not offensive, or, at least, to the same degree as pulmonary fetor is. Again; in glanders, generally speaking, there is, on the same side from which the discharge comes, a defined swelling of the submaxillary lymphatic glands, which is attached closely and immoveably to the side of the jaw: if it is a tumour of considerable size, one that is diffused and extends inwardly, or one that is very moveable under the fingers, most likely it is not lymphatic, and therefore not connected with this disease. So far as my observation has gone, no such glandular swelling happens in common inflammation."

"In chronic glanders, then, the general health, appetite, spirits, &c. remain unimpaired. There is simply a discharge from one

nostril, unaccompanied by fetor, with a circumscribed immoveable tumour under the jaw on the same side. In some cases, however, the flux comes from both nostrils: here, commonly, both sets of glands are tumefied, the nature of which swellings will serve to direct the diagnosis; in addition to which, most probably, the animal's health continues good, and the discharge is not offensive. But, if cough be present with such a discharge, the submaxillary tumefaction uniformly diffused between the sides of the jaw, and there are feverish symptoms and evident impairment of the general health, the lungs are probably in this case the seat of disease. Still, in order that we may be certain about the existence of chronic glanders, we have no occasion to implicitly rely even upon these signs, for we may at once decide the point by the test of practical investigation. We have only to perforate (with a spill-gimlet) the frontal sinuses, and inject some clean tepid water into them: should the sinuses be healthy interiorly, the fluid will run from the nose either limpid as it was thrown in, or merely be tinged with blood; whereas, in a case of disease there, the water will carry down with it the matter lodged in the cavities. It is not uncommon, in chronic glanders, to observe a horse discharging profusely for several days, and then suddenly to cease running altogether. This arises either from inspissation of the matter collected, or from the effusion of adhesive matter within the sinus, which settles at the bottom of the cavity, and plugs up the aperture by which it communicates with the chamber of the nose. During the interval of suspension no sign of disease remains but the submaxillary tumefaction; there is no discharge, and consequently there can be no source of contagion; but, the collection of matter continually augmenting, at length the plug is forced out, and the flux returns with more virulence than ever. In Smithfield, it used to be a common cheat to sell a horse having this disease for a sound one; the trick consisting in stopping up the nostril of the affected side with a piece of sponge, which, of course, received and imbibed the discharge."

"Though we have no specific remedy for chronic glanders, no more than we have for acute, the Professor has seen more cases of recovery from this than from the latter disease. When the discharge early in this affection becomes profuse, and continues long so, it will end, every now and then, in a spontaneous cure, as is the case so often with gonorrhœa: at other times, the flux will persist and run for years, and the horse, so long as the disease continues chronic, maintain his full health. Many horses of this description are to be found in various parts of the country working in road waggons, brick carts, farmers' establishments, &c. Notwithstanding that the disease is not only incurable, but is contagious. The matter emitted from the nose of a horse having

chronic glanders has the property of propagating, through contact, either acute or chronic glanders, or even both*."

FERON, 1803, in discarding the notions of Lafosse, gives a very imperfect outline of such as were entertained, in his day, by Coleman. He tells us, "the disorder may be divided into two states, the one chronic, and the other acute. The first is easily distinguished from the other, as the running at the nose is but trifling, and of a very transparent colour, and no ulcers at the nose are yet observable; whilst in the second case, or in the acute stage, the running and the ulcers in the nose have a very offensive smell," &c. The *earliest* stage of the disease "I call *chronic*†."

SHIPP, 1808, among his "Cases in Farriery" relates but one of glanders; and that occurred in a horse "belonging to a glazier of Doncaster;" from which solitary instance we are led to infer, either that glanders was unknown in his own regiments, or that he had kept no records of any military occurrences of the kind. The case itself is only worthy of mention as shewing the author's belief that the horse "might live *many years* with the disease, and in that time contaminate a great number of (other) *good* horses," &c‡.

PEALL, the Irish veterinary Professor, 1814, imbibing the more correct pathological views of glanders and farcy which had been formed by Coleman, surprises us when we find him saying, that, "in a practical point of view, it is not very material to inquire whether the farcy and glanders (which he regarded as the same disease) originate *in the arterial or the lymphatic system*§!"

SMITH, Veterinary Surgeon to the 2d Dragoon Guards, published in 1818 the results of his observations, in his regiment, on glanders‖, which, as we have already seen, are chiefly interesting to us on account of the pertinacity with which he, on the strength of the facts and cases he adduces, argues the great improbability and irreconcileableness of the doctrine of the spread of glanders through contagion. He places glanders "either in the nasal, frontal, or maxillary sinuses; as a discharge from the lungs, trachea, or fauces, through the nostrils, does not constitute a real case of glanders."—Although "it frequently happens that only one of the nostrils, or one of the frontal sinuses, is diseased;" Mr. S. has

* Percivall's Lectures on the Veterinary Art, vol. iii.

† A New System of Farriery, by John Feron, veterinary surgeon 13th Light Dragoons. 1803.

‡ Cases in Farriery, by John Shipp, veterinary surgeon 23d Light Dragoons. 1808.

§ Observations on the Diseases of the Horse, by Thos. Peall, Veterinary Professor to the Dublin Society, &c. Cork, 1814.

‖ The Horse Owner's Guide: containing Valuable Information on the Management and Cure of Diseases incident to Horses; more particularly that very fatal Disease called GLANDERS. By Thos. Smith, late V.S. 2d Dragoon Guards.

never seen either of the maxillary sinuses diseased unless the frontal sinuses were also affected." Mr. Smith, like Lafosse and Coleman, regards glanders as "inflammation, increased secretion, and ulceration of the mucous membrane lining the nostrils and the other cavities of the head." He has seen but "eight cases in which death was occasioned by suffocation."—"In several cases he has seen the mucous membrane ulcerated, and the bones affected, without any enlargement between the maxillary bones." He feels it "scarcely possible," from the "various shapes" glanders assumes, to give such an account as will "enable a person who has not been in the habit of investigating the symptoms, to determine with certainty whether a horse be really glandered or not:" he has "seen many horses pronounced glandered where no indication of the disease could be found to exist in the head after death."—Following Coleman, he reckons but "two species of glanders,—*acute* and *chronic*."—"The acute disease is situated in the *nasal sinuses*, and is frequently a primary disease, as well as a sequel of other diseases previously existing in the system, particularly *farcy*, which has probably occasioned them to have been mistaken for the same disorder. But, notwithstanding they are produced by the same cause, and appear in the same subject, *they are nevertheless distinct diseases, having no other affinity than there is between a primary and a secondary disease.*" Mr. Smith has "seen glanders without farcy produced by diseased liver"—and "both farcy and glanders are the consequence of diseased mesentery"—also farcy by itself and glanders by itself from the same.—"When glanders is a concomitant of farcy, it is generally in consequence of that disease having extended to the mesentery;"—this membrane "falls into decay, and then glanders appears, generally, a few days before death; not because it is the same disease, but because the nostrils, being an extreme part, and their living power diminished, the mucous membrane becomes susceptible of inflammation, which is probably excited and increased by the ingress and egress of the air in respiration:" &c. Mr. Smith has "never seen death occasioned by the acute glanders, except by suffocation or *hæmorrhage*. If it was a constitutional disease, would it not affect the system, and produce death in a variety of other shapes? In the chronic state, glanders does not produce any other disease in the system"—"nor occasion death, *except by destroying the orbitary processes of the os frontis, and affecting the brain.*" In one subject he has "seen death occasioned by a morbid affection of the brain." In another, "matter compressing that organ so as to occasion lethargy."

AYGALENQ, a French physician, in a pamphlet, published in 1809, entitled, "Aperçu General sur la Perfectibilité de la Me-

decine Vétérinaire," in proposing to adopt names derived from human medicine for our veterinary ones in ordinary use, suggested for glanders that of "affection contagieuse du systême lymphatique;" plainly shewing from this what his views were in regard to the pathology of glanders.

DUPUY, 1817, whose celebrated work on TUBERCULOUS DISEASE, commonly called *glanders, consumption, strangles, farcy, &c.*, I was the first to introduce to the notice of my brother veterinarians in this country, occupies one of the highest stations in our present historical catalogue, as being the author of an entire new doctrine on the pathology of glanders, farcy, &c. Holding in little estimation the opinions of his predecessors, looking upon them as altogether insufficient to account for the phenomena exhibited in glanders and farcy, and resolved, if possible, to discover "the source of the evil," he traced the origin of both these diseases, as well as that of several others, not of horses only, but of dogs, cats, monkeys, and domestic fowls as well, to the existence and development of *tubercle* in some part or other of the body, and, accordingly, he ranged all these several disorders of the animals mentioned under the generic appellation of "TUBERCULOUS AFFECTION."

"Tubercles, which appear as little, firm, grey, hard bodies, are organic productions, originating from causes unknown, existing at first in small numbers, and interfering but little with the functions of the parts generating them. In this, their incipient state, the animal enjoys perfect health, and continues in the preservation of it up to the period of the disorganization of the tubercle, those changes in its interior which end in its mortification and ulceration. In time, they increase in number, and the result is a discharge commonly from one nostril, which, at its commencement, is regarded as *catarrh* or *strangles*. This stage may occupy a term of five or six years* In the second stage the tubercles grow soft, break, and become converted into ulcers. There are varieties of tubercles; the most common are the *miliary;* and these are the precursors of that species of ulceration which I have described (at page 169) as resembling worm-eaten wood. They are found in greatest numbers in the course of the large veins upon the septum. They are also found within the duplicature of the *ala nasi*, and upon the turbinated bones, pursuing the course of the large bloodvessels. They may even exist within the substance of the cartilage of the septum, and thus assist in its destruction. The membrane lining the sinuses is rarely found tuberculated. Tubercles have, however, been observed in the lungs, lymphatic glands, cellular membrane,

* Dupuy cannot exactly say how long: once developed, however, resolution is hopeless.

skin, testicles, lining membrane of the alimentary canal, &c. Should glanders be complicated with a tuberculous affection of the lungs, the animal coughs frequently, tires soon, perspires readily: latterly he loses his vigour and energy, becomes washy, soft, and lazy; subject to catarrh, ophthalmia, cutaneous eruptions, farcy, œdema, &c. And now, soon, glanders becomes complicated with farcy. *Farcy buds are nothing else but scrofulous tubercles:* they grow, develop, and decline, the same as pulmonary tubercles. *Glanders bears, therefore, the closest analogy to phthisis in man.* The phthisis of the pituitary membrane will sometimes turn of a cancerous nature; at other times it has been known to become typhoid."

FARCY, Dupuy regards as the same "tubercular affection" as glanders, notwithstanding it is "often *local* and an *original* affection;" and on this account "it admits of being cured, while glanders has resisted every remedial means hitherto used." When we find one veterinarian declaring farcy to be curable, another incurable, "the probability is, they have been treating different varieties of the same disease: in one case the farcy may have been *local*, in the other *constitutional*."

OF THE PULMONARY TUBERCLE, Dupuy has observed "three varieties, the *miliary*, the *pisiform*, and the *unciform*. Each tubercle is composed of an envelope or cyst, and of a whitish substance easily crushed between the fingers, which Messrs. Dulong and Labillardière have found to resemble osseous matter. Very considerable depositions of this bony substance are occasionally seen in the proper pulmonary tissue, especially in the ox species. When the tubercles are of the large kind their number is limited; but the *miliary* species are innumerable. While forming, they are firm, organized, and *always found in the course of the blood-vessels*, whose caliber is singularly augmented. They grow and become developed like any other organized bodies, without our being able to offer any rationale of the process, or of the space of time they continue organic, prior to their mollification and degeneration. They commonly end in ulceration and destruction of the pulmonary tissue. The lungs present *vomicæ* or cysts of various sizes, containing thick reddish matter, or else a more liquid cheese-like matter."

Dupuy has likewise discovered miliary tubercles within the parenchyma of the liver and kidney; but much oftener than in either of these bodies, within the testicles. Even the epidydymis has contained them.

Dupuy agrees with Gilbert in regarding strangles as so far "identical in its nature with glanders;" — "that strangles and bastard-strangles as well as farcy, grease, and ophthalmia, are

frequently the results of one and the same specific cause;" that cause being "the tuberculous affection."—"Glanders itself," he adds, "*is a specific disease*, and not a termination of strangles, bastard-strangles, cynanche maligna, farcy, watery farcy, catarrh, &c. When the lungs are affected, *it is a sequel of the tuberculous disposition*, and not a termination of pneumonia. On the contrary, pneumonic affections are very often consequences of the tuberculous affection." And in another place—"observation has shewn that puriform matter coming from the bronchiæ, which is discharged by the nose, *does not cause glanders in passing over the nasal membrane*, as veterinarians have imagined."

Dupuy informs us that glanders may exist in that "latent" form, that it may not by the most acute observation be discoverable during life. "Tubercles will exist not merely in the first, but even in the second degree of development in the internal viscera, without deranging their functions, and particularly in the lungs." Or the disease may, after having made its appearance, subside for a time, and afterwards re-appear, without any ostensible reasons.

Speaking of what in France is called *acute glanders*, Dupuy tells us "it is a disease of another order. *It must not be confounded with the tuberculous affection;* rather, it has analogies with the typhus of cattle or with the great epizootics which at different periods have ravaged France and Europe."—"All I am desirous," adds Dupuy, "of impressing, is, that *this disease cannot be considered as glanders.*" It is consequently one concerning which, for the present at least, we need take no account*.

Morel, 1823, denies the specificity of glanders, regarding the disease as no more than the natural consequence of chronic inflammation of the mucous lining of the aërial passages†.

Gerard, 1827, asserts the identity of glanders and farcy. "Glanders," he says, "is no more than *farcy in the nose.* And the farcy-buds and pimples observable upon the pituitary membrane constitute lesions of the same description, in both instances succeeded by ulceration‡."

Rodet, 1830, the Veterinary Professor at Toulouse, adopted the Dupuy theory, but with such important modifications as gave it a more regular and systematic form. Admitting tubercles to constitute the especial and proximate cause of glanders, he—not leaving us, as Dupuy has, in doubt—ascribes their origin to a constitutional influence, dependent upon a lymphatic temperament, vicious conformation, hereditary disposition, or upon accidental

* De l'Affection Tuberculeuse, vulgairement appelée, *Morve*, &c. &c. 1817.

† Traité Raisonnée de la Morve, 1813.

‡ Remarques et Observations sur l'Identité de la Morve et du Farcin. Recueil de Med. Vet., tom. iv, p. 269. 1827.

causes, such as the relapse and chronic prolongation of diseases at first acute and of a different nature; from which it follows that glanders may be either constitutional or acquired. The former will be primitive or secondary, according as the tuberculous affection has its seat exclusively or at least originally in the pituitary, or as that membrane becomes affected through extension of the disease from the lungs; the latter—or acquired disease—will be the result and producer of phlegmasial irritations, repeated or more or less protracted, sometimes in the pituitary alone, but oftener, if not always, in the mucous membrane lining the air-passages, a circumstance which, at the time that the degeneration (of tubercles) exists nowhere but in the nose, goes far to shew that glanders is an affection purely consecutive to these same irritations."—In fine, according to Rodet, glanders is no more than a symptomatic disorder—"a morbid state ever consequent upon other disease*."

BENARD, in some researches he made into the nature of the blood in glandered horses, discovered albumen to be predominant in it according to the length of time the disease had existed, and that any amelioration that took place of the patient under its influence was attended by a correspondent diminution of the quantity of albumen. In some horses virulently glandered, albumen constituted seven-eighths of the mass of blood. And this excess of albumen in the blood, Benard ascribes rather to disease of those excretories of the body which give issue to albuminous secretions, than to irritation or modification of the vitality of organs whose function it is to renovate the circulating fluid†.

BARTHELEMY, in discussion before the Royal Academy of Medicine, wished to be understood that he had never pronounced glanders to be a *local* disease. Acute glanders cannot be considered as a local affection, from the circumstance of its being accompanied by an eruption all over the body: it is a *constitutional* malady, whose principal, essential, characteristic effects shew themselves in the nasal cavities. Nevertheless, some facts lead him to believe that the particular affection, denominated *chronic glanders*, is a local disease†.

DELAFOND thinks that glanders is often bred in the system. So far from imagining that the disease originates *always* in the pituitary membrane, he affirms that in an immense majority of cases its seat is *in the lymphatic system;* and that its nature consists in an alteration, about which we know little, of the *lymph* as well as of the vessels conveying it†.

HURTREL D'ARBOVAL sums up the ancient as well as modern doctrines on glanders, and concludes his interesting summary with

* Recherches sur la Nature et les Causes de la Morve, 1830.
† D'Arboval's Dictionary, article "morve."

his own notions on the subject :—" Lafosse appears to us to have been the first to have hit upon the true seat of glanders. In shewing glanders to be a local malady, confined to the cavities of the nose, to the sinuses connected with it, and to other parts of the nasal membrane, he has established a fact which to us appears indisputable, one that is actually admitted—as, indeed, it ought to be—by all candid persons, by all such as make it their rule to found their medical observations upon pathological anatomy and physiology."—" If we have been thus fortunate in our discovery of the true seat of glanders, it only remains for us to agree concerning its nature. To how many hypotheses, founded upon analogies more or less erroneous, has not this point given origin? and what are we to think about a disease whose nature has given rise to so much diversity of opinion? Let us leave to the accurate observations of minds unbiassed and guided by truth alone the important task of discovering and unveiling to us the veritable, the intimate nature of glanders; and, while these researches are making, forming our opinion from such phenomena as are already within our knowledge, let us be content with viewing the disease as *a specific inflammation of the pituitary membrane; acute* in its *incipient* stage, however short that stage may be—*chronic* in its other stages, possibly so from the beginning; and, like every other *phlegmasia*, susceptible of re-acting upon other organs with which they are connected through sympathy, through reciprocity of relation connecting one with the other, and rendering them reciprocally dependent one upon the other. In the actual state of our knowledge we must not expect to be able to explain what we mean by the inflammation being *specific;* in what it differs from other inflammations of the same tissue; why it should be contagious and hitherto prove incurable; why, as it resembles catarrh at its outset, it does not terminate in the same manner, but, on the contrary, assumes specific characters, distinguishing it from *coryza, angina*, and what is called *strangles.* When we shall have thoroughly examined and probed this question, when we shall have sufficiently studied all the points bearing upon its unravelment, perhaps we shall find fewer difficulties standing in the way of its solution;—perhaps we shall discover that glanders does not differ so much as we had imagined from *coryza*,—perhaps we shall find out that it is nothing more than a modification of *coryza.* It may be, that glanders differs from nasal catarrh in nothing beyond its being obstinate and tardy in its progress; that it is analogous to an habitual and chronic coryza—or nasal gleet—which may, the same as glanders, entail serious consequences; may be, in spreading by degrees to the lungs; may be, in giving rise to ulcerations and excrescences upon the pituitary membrane. Besides, do we not know that, in highly

acute coryza, the nasal discharge, especially while it continues clear and limpid, is acrid to that degree that it irritates and even excoriates the skin, clothing the doubling of the nostrils over which it flows? The facility with which horses, standing together in the same stable, *catch the same catarrhal disorder*, might lead us to presume that the discharge, at least up to a certain period, harboured some contagious property. After all, these are but hints that we have thrown out; and so far are we ourselves from regarding them as infallible, that now we are going to offer some further considerations apparently of a contradictory character."

"Nevertheless, before we conclude, we shall frankly give our own opinion on the subject. According to our notions, *glanders is a disease of the pituitary membrane*—an abnormal secretory irritation of it—either arising spontaneously or caused by contagion. The idiopathic disease may be primitive or consecutive to the internal change, be it of the entire economy or of one of the principal systems, especially the respiratory. As for the different forms or modifications under which glanders appears, *chronic* and *acute*, *pustulous* and *ulcerative*, *ecchymotic* and *gangrenous*, these are but phases of endless variety, consequent on the conditions of individuals and on extrinsic causes*."

PROFESSOR SEWELL'S opinions on glanders—as they stood at least so far back as the year 1827-8—will be found in an Introductory Lecture delivered by him for that sessional year, at the Royal Veterinary College; which was by myself taken down in short hand, and afterwards published in the first volume of THE VETERINARIAN. I here transcribe them, with some slight alterations of wording and arrangement† :—

The Professor believes the *lungs* to be the *original seat* of glanders, and the affection of the nose to be *secondary*. He agrees with Dupuy in thinking that *miliary tubercles constitute the original disease :* and that these suppurate, and by coalescence form considerable abscesses in the lungs, the contents of which become discharged through the nose, and thus constitute glanders. *In the early stage*, even in this (tuberculous) condition of lung, Professor Sewell believes that many horses are *recoverable*. He has ascertained that matter taken from these suppurated tubercles *(vomicæ)* will by inoculation produce glanders as surely as one (planted) potatoe will produce another. Asses inoculated with

* Dictionnaire de Médécine, de Chirurgie, et de Hygèine Vétérinaires, 1838.

† In reply to a letter I wrote to the Professor in March 1844, submitting to him the statement I now introduce here, and requesting to be informed if this coincided with his present views, I received for answer—"that he (the Professor) is confirmed by time and experience in his opinions and views which he expressed on the subject of glanders in his Introductory Lecture for 1827-8."

such matter have had tubercles produced in their lungs *in the space of five days;* and what renders this experiment more satisfactory, is, the fact of asses *rarely* having (from other causes) tubercles in their lungs.

YOUATT regards glanders as "inflammation of the Schneiderian membrane, *strictly local for awhile,* and during its insidious state; and even when the discharge becomes gluey, and some time after chancres have appeared, the horse is apparently well."—"I cannot say," continues Mr. Youatt, "that glanders, like the rot, improves the condition; but I have seen that often, and for a long while, for months and even for years—it does no injury to the general health. The inflammation is purely local, and is only recognized by that invariable accompaniment of inflammation,—increased secretion. Although that secretion is poisonous, and its neighbours fall victims to it, it affects not the animal whence it came. But this continued inflammation at length tells, or other circumstances increase its power and its effect, and the vitality of the tissue is destroyed and suppuration succeeds; but not that of a healthy character—not that which is connected with reproduction; —it is malignant and destructive from the beginning; and soon another process commences, salutary or destructive, according to circumstances. There are absorbents on every surface; they are found on the surface of the chancres which are beginning to appear; and they take up the fluid which is secreted from the ulcers, and they soon feel its poisonous influence. The absorbents become inflamed and tumid, and, where the virus rests, as it were, viz. at the valves, destruction of the part ensues, and the chancres spread in every direction."—"Some portion of the venom passes on, and is carried into the circulation and mixes with the blood, and vitiates the blood."—"Then comes the constitutional affection. The membranes of the neighbourhood, and those most susceptible of irritation, first yield. Chancres proceed down the pharynx and larynx, and gradually the ulcers spread over the frame. The acrimonious fluid, mingling with the blood everywhere, begins everywhere to attack that tissue which is most susceptible of its influence, viz. the lining membrane of the absorbents and by degrees, and in most distant parts of the frame—the hind extremities are a favourite situation—the absorbents become chorded, and tumours appear in the situation of the valves, and ulcerations ensue. First, the superficial absorbents are affected; then the deeper-seated become involved: the whole frame is empoisoned; farcy is established in its most horrible form, and death speedily closes the scene*."

VINES, 1833, deserves the thanks of the profession for the pains he has taken in the practical investigation of a subject, some of the

* Mr. Youatt's Veterinary Lectures in THE VETERINARIAN for 1832.

main doctrines concerning which he has had the boldness to question the validity of, and in their place has introduced others, if not altogether novel in their character, at least, original in this country; which I shall, by quotation, endeavour to put my reader fully in the possession of. That opinion on which Coleman and his followers grounded their theory of the nature of glanders—the existence of *a poison in the blood* of glandered and farcied horses—Mr. Vines denounces as "great error" (p. 2): he believes neither in *specific disease*, nor in *specific poison*, nor in *specific effects**. "All the symptoms of disease which constitute glanders and farcy," he avers, "invariably depend upon *the unhealthy state of the system*, into which it is reduced or brought, and not, as is generally supposed, from (upon?) *a specific poison* contained in the blood" (p. 2).—"In common inflammatory diseases, the system is always in a more or less healthy state; but, on the contrary, when those symptoms of disease which constitute glanders or farcy occur, the system is always in a more or less unhealthy state; and in proof of this I may advance, that the diseases of a common inflammatory nature, such as *strangles, colds, inflammation of the lungs, grease, injuries*, &c., from neglect or improper treatment, frequently degenerate into what is commonly termed glanders or farcy" (pp. 6-7): so that—putting *poison* and *specification* altogether out of the question—glanders and farcy are nothing more than "unhealthy disease" of the "mucous membrane which lines the nose, the substance of the lungs, the skin, and the cellular membrane underneath" (p. 4). This constitutes the groundwork of Mr. Vines' doctrine.—On the subject of *pulmonary glanders*, Mr. Vines assures us that "there are cases, both of glanders and farcy, where no alteration or disorganization of these parts (the lungs), or any disease of the lungs, are to be found" (p. 11).—"Glanders and farcy have hitherto been most commonly described and treated as distinct and separate diseases; whereas they are, if properly considered, *only the unhealthy, and, not infrequently, the latter stages of common inflammatory diseases of certain parts of the body, generally of the mucous membrane of the nostrils, cellular tissue, or substance of the lungs, the skin, or the connecting cellular membrane underneath;* and the inflammatory diseases which glanders and farcy most frequently follow are those termed *strangles, true* and *false; common colds; distemper; acute and subacute inflammation of the lungs; general or local dropsy (anasarca or œdema);* and the latter whether it occurs from general or local debility, conjointly with *grease*, or *injuries* of different parts of the body or not; as, for instance, when a horse has been for a time labouring under one or other of these common inflammatory diseases, from the effect of

* So far, coinciding in opinion with Morel.

which, or by improper treatment, the system has been brought into an unhealthy state. When such changes as these take place, and the discharge and ulcerations become unhealthy, the disease with which the animal was before afflicted is now altered from its original character; and, under these circumstances, the animal is usually considered to have become *glandered* or *farcied*. Glanders and farcy not only follow such diseases as have been just mentioned, but also appear sometimes *in unhealthy and debilitated animals from over-exertion and other causes*, and without being preceded by any of the former named diseases of a common inflammatory character: *and this is occasioned by the system being reduced to an unhealthy state, from the same causes as those which, in more healthy and vigorous animals, would be found to produce strangles, common colds, inflammation of the lungs*," &c. (pp. 12-13). In cases of glanders following colds, &c., Mr. Vines does not consider them, strictly speaking, as glanders, "until the discharge or matter from the nostrils *is capable of producing similar effects*," &c. (p. 167). Mr. Vines makes a division of glanders according as it is confined to the head, or as the head and lungs are both diseased:—"In order to enable those who may be disposed the better to comprehend the subject, I shall divide the symptoms which constitute glanders into two classes, beginning with those which are confined to the head." Here follows "Sect. I," treating of "Glanders when confined to the mucous membrane lining the nose and cavities of the head;" and, "Sect. II," "Glanders, when the head and lungs are both diseased*."

BLAINE has always "felt convinced of the *specific nature* of this affection (glanders), which, for variety in its mode of production, continuation, and termination, has no parallel; and to which only we can attribute the unsettled state of the opinions concerning it, but which do nothing to unsettle its claim to the character of a *direct and peculiar poison* which can always beget its like, and its like only. If the matter of farcy and the matter of glanders could produce at one time grease or strangles, and at another mild catarrh, I might doubt," says Mr. Blaine; "but when I find nothing but the same type of disease follow from the infection, I can only consider such an infection as one *sui generis*†."

SPOONER, 1842, the able Editor of White, has, in one of his interpolatory paragraphs, favoured us with his own opinions on the nature of glanders "These views (Dupuy's) are deserving of great weight, but we cannot altogether coincide with them; for,

* A Practical Treatise on the most important Diseases incidental to Horses, more particularly Glanders and Farcy. By Richard Vines, V.S., &c., 1833.

† Outlines of the Veterinary Art, fifth edition, 1841.

although perhaps in the majority of cases tubercles are found in the lungs of glandered horses, yet there are instances in which there are none to be found there or elsewhere. The particular seat of glanders is certainly *the membrane lining the nostrils and chambers of the head,* although in a great number of cases the lungs are involved. We cannot say whether in all cases the constitution is affected, or whether in some instances the disease is entirely local; but, in the subject chosen by Professor Coleman for experiment, it was clearly proved that the blood was infected. There is evidently a much greater predisposition in some horses to receive the disease, either from infection or otherwise*," &c.

TARDIEU†, bringing our literary history up to 1843, has made a systematic arrangement of the several important questions touching glanders and farcy, and with considerable clearness and ability has respectively examined them :—

1st. He considers the identity of glanders and farcy, in respect to their production—to their being allied by the same specific virus —as a point settled; but he asks, are we thence to conclude, as other writers have done, that their *pathology* is identical? This grave question, involving no less than the knowledge of the *nature* of glanders and farcy, he confesses himself unable to decide, further than that the diseases differ in their nosological characters.

2d. Glanders he regards as essentially consisting in *lesion of the nasal fossæ :* all cases not shewing this belong to farcy; and this applies to men as well as to solipedes.

3d. That farcy, in the chronic stage, may present different phenomena in men and animals without losing their specific relation to each other. These constitute his " Considerations Préliminaires." The work itself is devoted to the consideration of what he denominates " chronic" farcy and glanders in man.

TWO CASES OF ABSCESS IN THE UMBILICAL ARTERIES OF THE BLADDER, OR ROUND LIGAMENTS; AND A CASE OF DOUBLE BLADDER, IN CALVES.

By Mr. W. A. CARTWRIGHT, *V.S., Whitchurch, Salop.*

CASE I.—On Monday, 3d April, 1826, I accidentally met with a butcher who was going to kill a fat calf that was unwell, at the House of Industry in this town; I therefore accompanied him.

* White's Compendium of the Veterinary Art, edited by W. C. Spooner, V.S., &c. 1842.

† De la Morve et du Farcin Chroniques, chez l'homme et chez les Solipèdes, par Ambroise Tardieu, Docteur en Médicine, 1843.

The calf had been poorly from the Saturday preceding, and nothing had been done to it. Pulse and respiration were a little increased. He could not get up, and had nearly lost the use of his posterior extremities, but could stand when lifted up. Would not suck.

Post-mortem appearances.—About each hock there was effusion of serum and lymph. The *spleen* was as large again as usual, and its peritoneal covering was highly inflamed. Externally, at the umbilicus, there was a round tumour, the size of a small egg, and, on cutting into which, it was found that an abscess had formed in each of the umbilical arteries, or, more anatomically speaking, in the round ligaments of the bladder. The abscesses were surrounded by a strong white substance, almost similar to cartilage.

About an inch farther along, and closely united to the bladder, was another single abscess, filled with pus of a thin consistence, in the coats of which its ligaments could be seen terminating, but a little farther along they were again visible, and contained a little coagulated blood.

Case II.—On the 8th October, 1844, I examined a fat calf, five weeks old, that was killed by a butcher. It was a good one, but not very fat on its loins, and the butcher was inclined to think that the following disease would in time have caused its death.

Examination.—Attached to the fundus of the bladder was an abscess as large as one's fist, containing white pus, and which abscess was also attached, by a short thin peduncle, to the umbilicus. The bladder was natural, and inflated with air. The two round ligaments terminated near the fundus of the bladder in the sides of the sac of the abscess, but on the sides of the bladder they again made their appearance.

DIVISION OR DOUBLE BLADDER IN A CALF.

On the 30th May, 1844, Mr. Allen, butcher in this town, killed a fat calf, about five weeks old. After removing the bladder, it was found that the water could not be extracted from it. The specimen was therefore sent to me for examination.

It was of a circular shape, and had the appearance of a highly distended small bladder, containing about twenty ounces of fluid of an amber colour. The centre of its apex was slightly attached to the umbilicus, and the opposite end to the true bladder, which was, I think, smaller than usual. On laying open the neck of the true bladder I could plainly see that there was a distinct division between its fundus and the sac below. The coats of the true bladder were four times as thick as those of the other, but were normal.

The coats of the other were very thin, and divisible, to all appearance, into two parts—a peritoneal and an internal one, with but

little cellular membrane between them, and not having within any of that villous covering which the other had, nor did it shew the appearance of the strong muscular tissue that the other did.

The division between the two bladders had more the appearance of the coats of the false one, as it was thinner; but the true one within was nearly covered with the villous coat, leaving only a spot, the size of the end of one's finger, uncovered, in the centre of which there was a small opening, partially covered with a flap of membrane that would admit a probe, and, we thought, led to the false bladder; but this idea was not realized, nor could we force the least portion through it.

I am inclined to believe that this distended portion must have been a part of the urachus or bladder, and that, from some cause, inflammation of its mucous membrane must have taken place, causing the union of its sides, and thus the division; but how it came to be so greatly distended I cannot say. Was the serum secreted by its lining membrane? Or was there a valvular opening, admitting the urine, but not allowing of its escape?

It had not the least appearance of an hydatid.

CATTLE AND HORSE INSURANCE.

[Continued from page 670.]

Mr. BOWLES says, "I have for some years past been employed in the iron works, &c., consequently have had an opportunity of judging the difficulty that may arise for carrying out your object. In the first place, the horses belonging to the iron-masters are highly fed, varying from a peck and a half to two pecks of oats daily, and from 20 to 25lbs. of cut hay each horse, and in a great many instances not particular as to quality.

The great quantity of food for each horse may appear unreasonable, but the severe exertion they have to undergo and size of the animal account for it: I have known it in many instances not sufficient.

The great changes of temperature, most of them going under ground in the morning at six o'clock, and returning at night, having a mile or more to travel, and being exposed to the severe weather which is so prevalent upon the hills; and others going under ground half a mile or more, then coming out perhaps ten or twelve times a-day, have a very great tendency to disease.

Accidents, again, are of frequent occurrence, from falls of the levels and various other causes.

One great evil is this, that the boys, being put to drive so soon, are not able to manage the horses, a great number of the boys not being more than from ten to thirteen years of age. The narrow roads they have to travel, accidents by fire, &c., have a great tendency to increase the difficulty of forming a correct estimate.

The following is a List of the Number of Horses employed at the Blanaron Works, with the Number of Deaths, and Causes,

Commencing June, 1838; Number of Horses, 295: to Christmas 1838; Number of Horses. 286.

Broken back	1
Open joints	2
Broken leg	1
Enteritis	1
Glandered and farcy	2
Killed at work	2
Introsusception	1
Worn out, not worth keep	3
Diseased Tendon	1
Total	14

You will perceive that a great number of horses were purchased. Fresh horses are much more liable to accident and disease than old ones: some of the horses live to a very great age.

Christmas 1838; Number of Horses	286	Christmas 1839; Number of Horses	305
To Christmas 1839; Number of Horses	305	To Christmas 1840	279

Killed, aged and worn out	6	Glandered	4
Broken back	2	Killed, or obliged through infirmity	8
Diseased tendons and feet	4	Aged and worn out	12
Pneumonia	2	Diseased heart	1
Farcy and glanders	5	Introsusception	2
Burnt	2	Dis^{d}, feet, 4; Pneumonia, 2	6
Broken legs	2	Ruptured colon, 1; Open Joint, 1	2
Enteritis	2	Broken leg, 1; Mange, 2	3
Open joint	1	Diseased liver	1
Ruptured colon	2	Ruptured stomach, 1; Inflamed lamina, 1	2
Diseased liver, 1; Drowned, 1	2	Influenza	10
Total	30	Total	51

Christmas 1840; Number of Horses, 279. Midsummer, 1840.

Ruptured tendon	1
Glanders	1
Killed at work	3
Worn out	4
Ruptured stomach	1
Foot lameness	1
Enteritis	1
Ruptured bloodvessel	1
Total	13

I have sent you the account of three years' destruction, so that you may have an idea of the loss of horses at such places.

In 1840, a great part of the horses were attacked with influenza; I had as many as one hundred at twenty in the stable with it at the same time. And, although the number of deaths may appear large in that year, there are other establishments where there are not any thing like the number of horses that the deaths have been greater.

The sort of horses employed are of the heavy cart kind, in value from about £20, £25, to £30 each.

1. *Glanders* the most prevailing disease.

2. *Foot Lameness*, treading upon pieces of iron, nails, and miserable shoeing, generally speaking.

3. *Mange*, a most troublesome disease amongst the iron-works. Indeed, I might enumerate many other causes of complaint, but, my paper having extended to some length, I must conclude by wishing you every success in your undertaking, and believe me

Your's very truly.

Mr. CARLISLE, of Wigton, furnishes the accompanying account.

	Length of Life.	Most prevailing Diseases.	Average Rate of Mortality.	Proper rate per Cent. for Insurance of different Classes of Horses.	Diseases—Radical, Hereditary, and Incidental to young Horses.
1. Horses used for agriculture exclusively.	From nine to fifteen years.	Indigestion and diseases supervening, *viz.* spasmodic affections of the digestive organs, gastritis, enteritis, hepatitis, nephritis, diabetes, congestion of the brain, sleepy staggers, vertigo, &c. &c. Enteritis most fatal.	Taking the diseases in general, four to the hundred, value £20 each.	Classes 1, 2, 3, and 5, say £25..15s. per cent.; stallions, hunters, and horses under the age of four years and above eight, 10s. per cent. extra.	Strangles, epidemics, catarrh, ophthalmia, dentitis difficilis, spavins, splents, ring-bones, curbs, tetanus supervening docking and castration, accidents attending domestication, &c. &c.
2. The agriculturist and gentleman's job horses.	From nine to seventeen years.	Catarrh, chronic cough, broken wind, diseases of the liver, obstruction of the urinary passages, anasarca of the extremities, &c. &c.	Three to the hundred, value £25 each.		
3. Carriage and saddle horses.	From eleven to eighteen.	Pneumonia, bronchitis, laryngitis, laminitis, roaring, and navicular disease.	Three to the hundred, value £35 each.		
4. Hunters and stallions.	From ten to twenty.	Plethora, congestion, pneumonia, roaring, indigestion, sympathy, phrenitis, diseases of the heart, urinary calculi, nephritis, wounds, punctures and lacerations, tetanus, and diseases supervening over-exertion.	Four to the hundred, value £80. The proper age for insuring is from 4 to 8 years.		
5. Mares of the same Classes.	From nine to twenty.	Pneumonia, indigestion, abortion, spasmodic affection of the digestive organs during utero-gestation, protracted parturition, inversion of the uterus, and diseases attending over-exertion.	Four to the hundred, value £30.		

The next account is from Mr. ROBERT READ, of Crediton.

1st. Horses for agriculture exclusively, from 15 to 20 years.
2d. Farmers' hacks, 12 to 16 years.
3d. Gentlemen's carriage horses, from 16 to 20 or 22 years.
4th. Hunters and stallions, from 10 to 15 years.
5th. Mares; I know no difference.
6th. I have the care of about 200 farms, with, probably, 3 horses, at least, on each farm: the horses for agriculture live about 15 years.

Carriage horses and hacks. About 4 horses out of 16, every 10 years.

7th. Gripes, indigestion, enteritis, and pneumonia.
8th. Most fatal are the enteritis, gripes, with ingestion of colon, and pneumonia.
9th. Strangles and quinsy, with tympanitis, when turned into juicy food.
10th. The best and most profitable time for insurance is from the age of 6 to 16 years.
11th. I cannot answer.
12th. On the farm and slow carriage work until 23 or 25 years old.

Next we have the valuable account of Mr. JOHN TOMBS, of Pershore:—

Reply to
1st question. Sixteen years.
2d. Ditto.
3d. Eighteen years.
4th. Fifteen years.
5th. Sixteen years, if not brood mares.
6th. Ten in a hundred annually, barring epidemics.
7th. Pneumonia and enteritis. Cart horses are particularly liable to the latter.
8th. Enteritis and pneumonia.
9th. Ophthalmia, pneumonia, laryngitis, bronchitis, and particularly strangles. The latter is often dangerous, as it terminates in diseased lungs, internal abscesses, and, sometimes, farcy.
10th. Horses insured previous to arriving at maturity ought to pay a greater rate per cent. than those past the meridian, viz. six to twelve years.
11th. The reply to this requires too much consideration to be hastily given, therefore I must excuse myself, although I cer-

tainly should be guided to a considerable degree by the reply to the sixth question.

Mr. J. WOODGER says,

1st. In my opinion, the average length of the life of horses used for agricultural purposes exclusively, aided by careful treatment, may be taken from 14 to 18 years.

2d. Horses used for agriculture, and occasionally other purposes, excluding posting, omnibus, and cab work, &c., may be taken at the same average rate.

3d. Horses for riding, and carriage horses, &c., not including posters, hired hacks, butchers' horses, &c., may be estimated at rather a lower average rate, say from 12 to 16 years.

4th. Hunters and stallions are a class of horses which has not come much under my notice; but I should consider the average length of life of hunters to be under the above class.

5th. In regard to the different classes of mares, I must confess my observations would not warrant me in making any considerable distinction (as a general rule) between the lives of mares and geldings.

6th. The average rate of mortality amongst the above-mentioned classes of horses, if I understand the question correctly, is all the horses that die prior to their average period of life, which I think may be taken from 15 to 20 per cent.

7th. The most prevalent diseases that have occurred in my practice are bronchitis, catarrhal fever, pleurisy, farcy, tetanus, and glanders.

8th. The diseases I look to, considering the most fatal, are those of hydrothorax, farcy, tetanus, and glanders.

9th. I consider young horses to be more subject to bronchitis, pleurisy, and inflammation of the lungs.

10th. If there is a period in the life of the horse in which we ought to pay more care and attention than at others, I believe it to be a little previous and a little succeeding to five years of age; for it really appears from observation that horses from three years old, and up to rising five years, will perform their physical exertions with a less amount of fatigue to themselves, and are less predisposed to illness, than they can at and about five years old (not that I would be understood to recommend horses to perform much physical exertion at such an early period of life—quite the contrary), at least such has been the result of my observation.

11th. At the rate per cent. we might insure the life of a horse depends much upon the time of life he is insured, as well as the nature of work he is destined to perform.

From Mr. MOGFORD, of Guernsey, relative to certain queries respecting Cattle and Horse Insurance:—

In Guernsey, horses used for agricultural purposes, for carriages, for riding, or for stallions, &c., frequently attain from 30 to 35, and sometimes to 42 years. A mare, aged 42, had, as I was credibly informed, a foal not long since. There are few hunters; and with respect to mares, there is no difference.

The general duration of life varies from 25 to 30, but many die or are killed from extreme old age.

The most prevalent diseases are cholic, indigestion, lodgments in the cæcum from taking in too much sand, owing to the horses being pinned, and eating the grass too near the roots. Bronchial diseases, strangles, scrofula of the mesenteric glands, in which a quantity of worms are frequently found, together with epidemical diseases, coughs, running at the nostrils, &c. Glands and farcy *were* rife, the infection having been taken from horses imported from England and France; but, since the Royal Court of Guernsey ordered that all glandered horses should be destroyed, the disease has been rare. In Jersey there is no order of this kind; the consequence has been, that a few years ago a man lost his life, and from 30 to 40 horses either died or were destroyed.

The most prevalent disease is inflammation of the bowels.

The most fatal is scrofula of the glands and strangles; but these, if properly attended to, are not dangerous.

The rate of insurance may be based on the longevity of horses, as before stated, which, perhaps, is greater in this island than in England.

ON THE HOOVE IN CATTLE.

By Mr. J. H. SHENTON, *Pendleton, Manchester.*

IN reading over some of the early numbers of your useful and interesting Journal, I find there is a great deal written on those two very troublesome and common, but too often fatal diseases, hoove and what is sometimes called the mephitic indigestion of horned cattle. Not seeing, however, much communicated on these diseases of late, and having had within a short time a great number of cases of both diseases under my superintendence, I am induced to relate one or two, together with a few cursory remarks on these troublesome complaints.

The first of these diseases, hoove, hoven, or blown, is, in my

opinion, caused by cows, &c. being supplied with too great a quantity of artificial food, and too small a quantity of good natural food and water, especially in or near large towns, where natural food, good water, and exercise are scarce, and consequently their owners are obliged to have recourse to great quantities of potatoes, boiled and steamed, turnips, carrots, mangel wurzel, linseed oil cake, chopped hay or straw, bean, pea, or oat meal, grains from the ale or porter breweries, crushed or ground oats, oatmeal porridge, and several other valuable articles of food.

A mixture of some of the above kinds, and given in large quantities at a time, proves too heavy for the peculiarly constructed stomach of a ruminating animal to digest, and, consequently, this combined vegetable matter is retained for an unnatural length of time in the rumen or paunch, and thereby becomes heated and sour. Vinous fermentation ensues—carburetted hydrogen gas is generated—the rumen is distended or inflated to an enormous size, which consequently presses that great organ against the diaphragm, and thus mechanically impedes the free action of the lungs. The tongue becomes swelled, and hangs out of the mouth—the eyes are haggard—the ears pendulous—the breast covered with profuse perspiration—every limb trembles—the pulse is in some cases scarcely perceptible—there is an incessant short cough—small quantities of fæces are voided frequently—a continual gurgling of wind in the throat is heard—a considerable discharge of saliva runs from the mouth—the head and neck are extended—and if relief is not quickly obtained, the beast falls down, turns on its side, stretches out its head and legs, groans dreadfully, and discharges a quantity of froth from the mouth—sensation and voluntary motion are suspended—an involuntary discharge of excrement and urine takes place, and death closes the painful scene.

As an illustration of the disease, I will here relate a case which happened a fortnight ago. On the 21st of October last I was summoned in haste to attend a cow belonging to Mr. Thorpe of Pendleton. I immediately went, and found the animal labouring under great inflation of the rumen, caused, in my opinion, by the beast eating a great quantity of raw potatoes and oatmeal after feeding on grass the whole of the day before. I took a few pints of blood from her immediately, and then administered some chloride of lime, ʒiv, suspended in water.

I waited to see whether this would give relief; but upon visiting her again a short time afterwards, I found the rumen as largely distended as ever. I then had recourse to the trochar, with which I punctured the paunch, leaving in the orifice, a canula, through which an almost incredible quantity of gas, of a very fœtid odour, immediately escaped. I then administered a strong vegetable and

saline cathartic, combined with a vegetable carminative, and left her for the night.

October 22.—She is a little better this morning, but does not ruminate. The secretion of milk is very small—the eyes are somewhat brighter—the bowels are acted upon slightly. Repeat the medicine; give a little warm water, with a small quantity of sloppy bran mash, but no hay. There is still an escape of gas through the canula at intervals.

October 23.—Much better to-day in every respect—the eyes look bright and healthy—the appetite is good, and the secretion of milk increasing. She voids great quantities of sloppy fæces, which have a sadly fœtid smell. The rumen is reduced to its natural size. Take out the canula, and give a carminative drink, to which add creta prep. ℥j; feed with bran mash and a little good hay. Give some exercise in the field, and let her drink oatmeal and water.

October 24.—Quite recovered—ruminates freely—looks lively—the coat lies smooth—the appetite good—the fæces are natural—the milk is given freely, and she looks quite well. Cease to administer medicine. Give her usual food, but take care in future not to overload her stomach with too great a quantity of potatoes and meal. Discharged cured.

In regard to the second disease, viz. mephitic indigestion, I will merely remark that the symptoms, in their first stage, are generally similar to hoove, but may be distinguished from it by moving the canula round in the paunch when punctured for the escape of gas, of which, in this case only, a small portion of gas escapes if the rumen is punctured.

The disease does not come on so suddenly as hoove. The canula, when inserted into the paunch, suddenly becomes stopped up by the undigested food collected in it.

As an illustration of this disease, I will relate the following cases:—

A few months ago I was desired to attend a cow belonging to Mr. T. Jackson, of the Wallness Farm, near Manchester. I went immediately, and found that she was about seven months gone in calf, and had been in a diseased state for several days, during which time her appetite had been tolerable, but in every other respect the symptoms had been what is generally seen in hoove or blown. The owner told me that, when the cow appeared to be ill, he did not consider it at first a serious case; he, however, administered, during three successive days, a favourite drench, purchased from a celebrated cowleech, to which he gives the name of swelling drinks, but which gave my patient no relief, the paunch being more and more distended every day.

When I arrived I found the following symptoms:—The paunch greatly distended, the extremities cold, the eyes dull, a continual short cough, pulse small and weak, bowels constipated, the frequent voiding of small quantities of urine, and many other symptoms of common hoove. I had recourse to the probang and the trochar, but to no avail. I then administered, in succession, the following medicaments, allowing a sufficient time to elapse between each in order to see how they would act:—

I first exhibited four scruples of the calcide of lime in water, but the size of the rumen was not at all reduced. I then gave liq. ammon. ℥ij, diluted with water, with the same success.

I next administered a strong dose of cathartic medicine, had the animal removed into a loose box with plenty of clean straw, and ordered a woollen cloth to be thrown over her, and left her.

I attended her early on the following morning, and not only found her no better, but still weaker, and, indeed, very ill. I repeated the cathartic medicine, and ordered her a little warm gruel.

I went on the following day, but still found the paunch larger, and every symptom of approaching suffocation. The medicine had not the slightest effect: the rumen was charged as full as it was possible for it to be with grass, hay, and sour grains, which the owner had procured from the brewery a few days previous, and of which the patient had eaten freely.

I now found that there was no other remedy but opening the paunch and emptying the contents with my hand. I therefore informed the owner that I had done all I could besides the operation just mentioned, of which I had told him on the preceding day. He was, however, still quite averse to it, for he was assured that the operation must certainly kill the cow, as she was so far gone in calf. He requested me to give her more medicine; I told him it was of no use and that I would do nothing more. I then left him.

On the next morning I was called upon again to visit the same cow. I attended, and found her in a miserable condition. Her extremities were deathy cold, her ears pendulous, the tongue hanging out of the mouth, a considerable discharge of frothy saliva, every breath a groan, the rumen as large as it well could be, and a slight discharge of gas oozing out of the incision I had previously made in her flank; in fact, there was every symptom of fast approaching death.

Mr. Jackson, the owner, then told me that I might act as I thought proper, for he was sure the beast would die in spite of every thing I could do. However, not discouraged by the very serious symptoms which had now appeared, I immediately made an opening into the flank and rumen about six inches long, and out

poured a great quantity of strongly smelling and undigested mixture of grass, hay, and brewers' grains. I then inserted my hand, and extracted by repeated handfuls the enormous quantity of seven good-sized stable baskets full of the above combined admixture of decomposing vegetable matter. I measured some of the pieces of hay which I got out of the rumen, and found them to be twelve inches long.

I then administered, through the orifice, a strong draught of carminative medicine, dissolved in warm ale. I covered the opening with a large strong plaster of pitch; ordered the patient to be kept warm, and to have plenty of warm ale-gruel every two hours until I saw her again.

I went to see her about twelve hours afterwards, and found her a little better. Her eyes were brighter—the breathing was not so laborious—the pulse was stronger—the extremities were warmer, and, on the whole, she looked better. I ordered her a mild cathartic, combined with a tonic and carminative—to have a little more gruel and be well covered with a woollen cloth; to have plenty of clean straw thrown upon her, and be left for the night.

When I called the day after, I found her much better. She had eaten a warm bran mash and a mouthful or two of hay, and drunk her gruel very heartily. She looks very bright and lively; the fæces are in considerable quantities, but rough and spongy, and smell very badly. The coat lies smoother; the pulse is more natural, the extremities are warm, and on the whole she is improving. Give her four table-spoonfuls of the following mixture night and morning, in a little warm ale:—

Nit. pot. ʒij
Ferri sulph. ʒis
Pulv. rad. zingib. ʒij
Pulv. rad. gent. ʒij
Creta preparata ʒvi
Pulv. semen. lini lb.iss

all ground finely together, and administered as above. Give the patient warm bran mashes and a little good hay; keep the pitch plaster on her flank over the orifice; and I will see her again in three days.

I accordingly made my appearance in three days afterwards, and found the cow much better. Her appetite was good, she ruminated freely, the fæces were natural, the breathing also was natural, and she would eat any thing in the shape of food.

I examined the orifice I had made in the flank; it was beginning to heal, and looked healthy. I ordered the wound to be washed with salt and water, and, when dry, a good plaster to be

put on of fresh melted pitch, which I directed should remain on until she was well.

I saw the cow a few weeks afterwards, and she looked very well. She afterwards calved, milked well, and is now about to be sold to the butcher for beef. She is quite fat.

ON THE PLEURA PNEUMONIA AMONG CATTLE.

By Mr. JOHN YOUNGHUSBAND, *Graystoke.*

IT is not without the greatest diffidence that I am induced to communicate the following course of treatment adopted by me in that direful disease, the prevailing epizootic, or pleura pneumonia of Mr. Barlow; but having seen numerous cases in different localities bordering on the edge of Cumberland and Westmoreland, I am induced to give a short outline of the same; and, as the symptoms, post-mortem appearances, &c., have been so clearly laid down by Mr. B. and others, I conceive it to be a waste of time, and a trespass upon the pages of your valuable Journal to repeat them. For the sake of regularity I divide the disease into an acute and a sub-acute inflammatory stage.

First stands the acute. When I am requested to visit a patient in this stage of the disorder (which I have termed acute for distinction's sake), and find him with all the symptoms of active inflammation, I immediately abstract blood until the pulse warns me to desist; then if, as is generally the case, the bowels are in a constipated state, I administer an active purgative, combined with a small dose of tincture of opium.

If, after this, the bowels do not respond freely to the medicine, I frequently administer small doses of ol. lini and pulv. opii until the desired effect is produced; if possible keeping from superpurgation, a circumstance to be feared at all times. After the alimentary canal is thus well cleared, and to abate any subsequent inflammatory symptoms, the tartarized antimony, digitalis, potas. nit., with hydr. submur. may be administered twice in the day, but from which I have not derived much benefit; because, if administered in large doses, or continued for a considerable length of time, they occasion a diarrhœa sometimes difficult to restrain.

In general, and lately extensively, I have used the liq. opii sedativus, and spt. of nitrous ether, in small doses; giving in the morning, and towards evening, a solution of the hydr. potass., and continuing the same morning and evening, until my patient

either gets convalescent, or other symptoms induce me to change the mode of treatment.

I would have my readers to understand that I do not confine myself to one bleeding; but, if the symptoms warrant it, (which I often find to take place two or three times during the disease), I subtract the vital fluid fearlessly, under the controul of that grand criterion, the pulse.

When I am called in to a patient in the sub-acute stage, and find him with the following symptoms, pulse weak and wavering—ears, horns, and legs cold,—with a general chilliness over the surface of the body—combined with a dull sunken state of the eye—a purging of dark-coloured fœtid dejections, attended with great debility, &c., offers to us that stage of fever denominated malignant typhus, so characteristic in the low fevers of cattle.

Treatment.—In this stage of the disease to bleed and purge would be unpardonable ignorance on the part of the medical attendant, and to the patient sure dissolution; but if, by any means, I can rouse the dormant powers of life into more active energy, get the pulse quicker and fuller, with other symptoms of *more active energy*, or acute disease—which I have many times done, to the no small gratification both of the owner and myself—by giving the spt. nit. ether. and tinct. opii in full doses, combined with ginger, gentian, carbonate of ammonia, &c. two or three times in the course of the day—in all these cases, if I can rouse the system to bear bleeding, my prognosis is favourable, more so than if I cannot attain that end. No doubt there are cattle that would recover without bleeding; but in my practice, when I have not been able to abstract blood freely, and particularly at the outset of the disease, my patients were either longer in getting convalescent, or never became convalescent at all.

After this, I pursue the treatment for the acute stage, taking care to vary my prescriptions according to the different symptoms that present themselves.

There are several states of this disease, and as many symptoms by which to judge of these states; but, as I have spun out my paper to a greater length than I intended, and these different stages have been so ably pointed out by Professor Dick, in his reply to Mr. Fulton, of Wigtoun, in THE VETERINARIAN for 1843, p. 277, to enlarge upon them would, on my part, be ridiculous; because I consider the advice there laid down is consistent with the best possible pathological reasoning, and I must leave the reader to peruse that essay, as being far superior to any thing I can point out; I shall therefore only ask leave to make a few short remarks.

First, then, in this disease, and in all diseases that I have had an opportunity of treating, I make it an invariable rule to visit my

patient as often as possible, consistent with a scrupulous regard to the pocket of my employer, so that I may have an opportunity of witnessing the various changes which the disease undergoes. In the prevailing epizootic I believe that I have traversed as wide a circle for the acquirement of knowledge, both for cattle owners and myself, as most practitioners who have had an opportunity of treating the disease.

In general, where the patients do not lie at too great a distance, I visit them once a-day,—others as often as time and opportunity permit, thereby seeing the various changes as they occur.

In this disease I am satisfied that, if the veterinary practitioner does not visit frequently, pay particular attention when he does visit, and is able to vary his treatment according to the changes in the disorder, he is only incurring a useless expense to the owner, gains no credit to himself, and had better refrain from attending.

But, on the other hand, no doubt, there are patients taken ill with this disease; and, at the time of the veterinarian being called in, the malady has made such progress and undermined the constitution so much, that any treatment, be it what it may, is useless, and the beast quickly falls a prey to that dire malady. Others, through the negligence of the owner, or, perhaps, from a want of paying particular attention to the deviation from health to disease, are not discovered to be ill until too late, and the aid of the practitioner is of no use.

PS.—In this disease I have always found the preparations of iodine and its compounds of the most essential service, and am positive that I have seen the best possible effects from their use.

THE VETERINARIAN, DECEMBER 1, 1844.

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

On the 4th of November the labours of the Veterinary School at St. Pancras commenced.

The Theatre was thronged to a degree which we had never before observed. This might be expected, considering the circumstances that had taken place at the close of the last session. Professor Morton opened the meeting with a long and luminous statement of Chemistry generally, and particularly its connexion with the veterinary art.

At its close, a beautiful bust was wheeled into the theatre. It bore the following inscription.

PRESENTED TO
CHARLES SPOONER, Esq.
PROFESSOR OF ANATOMY AND PHYSIOLOGY
AT THE ROYAL VETERINARY COLLEGE,
BY HIS PUPILS.

A TESTIMONIAL IN ADMIRATION OF HIS TALENTS,
A MARK OF THEIR ESTEEM AND REGARD,
AND A GRATEFUL ACKNOWLEDGMENT
OF HIS UNWEARIED ASSIDUITY.

SESSION 1843-4.

Mr. Robb was the spokesman. He felt his subject, and did justice to it, and the Professor warmly and kindly expressed *his* feelings.

In the early part of the evening, and after the Secretary had given a long account of the general proceedings, Professor Simonds arose, and entered on a long and interesting account of the different epidemics of cattle, and which was continued until the summons for dinner.

After this, a breakfast service of plate was presented to Mr. Morton, with the following inscription:

THIS SERVICE OF PLATE IS
PRESENTED TO
W. J. T. MORTON, Esq.
LECTURER ON CHEMISTRY AND THERAPEUTICS
IN THE ROYAL VETERINARY COLLEGE OF LONDON,
AS A TOKEN OF
REGARD AND ESTEEM,
AND AS A TESTIMONY OF THE TALENT AND ZEAL
WITH WHICH HE HAS PERFORMED THE
DUTIES OF EDITOR
OF THE
VETERINARY MEDICAL TRANSACTIONS,
BY THE SUBSCRIBERS TO THAT WORK.

1844.

A pleasant evening was afterwards spent; and while he who records this memorial remained at the festive board not one angry word or feeling had escaped.

Y.

We have since received another and interesting report of the proceedings of the Veterinary Medical Association on the 13th of November, of which we will give a short account.

The report of the last session was highly satisfactory, and exhibited a flourishing state of finance and affairs.

A silver medal was presented to Mr. T. K. Lord, for his Essay on the "Anatomy of the Fauces, and the Physiology of the Voice and Deglutition;" and certificates of merit to Mr. A. Lepper, for an Essay on Hepatitis; and Mr. H. Emms, for an Essay on Open Joints.

The Annual Oration was read by Mr. Simonds, and was unusually interesting, from the able dissertation which it embraced on the History of Bovine Epizootics to the present time. Among the more distinguished of the senior members of the profession who were present on that evening were Messrs. Field, Turner, and Youatt. Mr. Turner urged on the junior members the necessity of cultivating practical pathology, and pointed out the benefits that must arise to the profession by the prosecution of such pursuits by the junior members.

This meeting was rendered peculiarly interesting, by being the first that had been held since the grant of a charter to the veterinary profession. Mr. Erasmus Wilson trusted that the possession of that charter would be a main cause of the improvement of the profession, and the diffusion of veterinary science throughout every part of her Majesty's empire.

The Council would, doubtless, do their utmost to facilitate the admission of truly qualified practitioners into the profession. They would hold out the most powerful inducements and rewards for improvement. By these means they would elevate their own position, and displace the ignorant and contemptible quacks that shew themselves so numerously in every part of the country. You, gentlemen, said he, will hold the power which the charter now gives you as trustees of the honour and interests of your profession. The principles of justice and of honour will ever distinguish the Council of the veterinary profession. W.

REVIEW.

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

Mr. Bencraft's Patent Hames.

We have received a letter from Mr. Bencraft, in reply to our "Review" of his "New-invented Hames," wherein he says, "I have, for the last three weeks, been engaged in making an improvement that will reduce the *weight* of the hames *under* that of the old ones; and an alteration consequent on it (the improvement) in the construction of the buckle, will prevent the possibility of any galling from it." In verification of the above improvements—which Mr. B. must do us the justice, at least, to acknowledge were suggested by us—we have received a pair of the *light* hames, and, from the trials we have put them to, we feel no hesitation whatever in saying that the patentee has succeeded in completely removing both our objections. He has, by taking away altogether *the middle strap* connecting the hames with the trace—which was, indeed, of no use—and by a lighter and neater construction of the hames altogether, reduced their weight below even that of the common hames, and, at the same time, by an alteration and improvement in the buckles, he has removed all possibility of galling. And, therefore, now we can pass unqualified praise upon Mr. Bencraft's invention, and conscientiously and warmly recommend it to all lovers of the "whip" and handlers of the "ribbons," nothing doubting of the gratification they will receive from witnessing the comparative ease and pleasantness with which their tits work in the patent hames, and they will experience more than ordinary gratification at seeing the wheelers' shoulders free from any sort of wringing or galling, however laborious or irregular the draught. P.

A CASE OF TETANUS CURED BY CASTRATION.

Related by M. Prud'homme, *of the Clinical School of Alfort.*

Tetanus has long been a subject of investigation and study among veterinary surgeons. The following case of it was peculiarly interesting. M. Hezard, of Linas, had an entire horse six years old. About three weeks ago he was subjected to long-con-

tinued and cruel work; and on the last night he was brought home covered with sweat. Being taken into the stable, he refused his food, was considerably agitated, and bent almost every joint with considerable difficulty. This was naturally attributed to over-fatigue. The owner paid little attention to what was going forward, and pretended that the horse would be well enough in the morning. In the morning, however, it was sufficiently evident that the animal was seriously ill; and the proprietor, beginning to fear that he had used him sadly ill, sent for a veterinary surgeon without delay.

Bleeding was immediately effected—the animal was placed in a vapour-bath—no cold air was suffered to blow upon him, and he was covered with clothing. Half a feed of corn was placed before him the whole of which he slowly ate.

Eight days afterwards passed without any amelioration in the state of the patient. The stiffness of the muscles of the limbs had insensibly increased, as well as those of the croup and the chest; but the grinding of the teeth did not prevent the animal from seizing his food and masticating it.

The proprietor, impatient, no doubt, to obtain once more the service of the animal, conceived the idea of consulting a low fellow in the neighbourhood, who inserted four setons in the poor creature, two in the breast and two in the thighs, and ordered a mode of treatment so complicated that M. Hezard, feeling the impossibility of executing that which was desired, ordered him to be taken to the hospital at Alfort.

At the period of his being taken into the hospital there was more or less irregularity of the different parts of his frame. His walk was slow, difficult, and painful; there was scarcely any motion in any of the joints, but they were reduced by their inflexibility to the state of solid columns. The ears had a straightforward direction —the eyes were continually twinkling—the nostrils were dilated, and surmounted by a succession of small folds of the skin, which gave to the face a singular expression. The trismus was not sufficiently pronounced to prevent the play of the jaws, so that the animal experienced great difficulty in seizing and masticating the food that was given to it. The respiratory functions were accelerated—the thorax dilated—the pulse small and quick. The beatings of the heart were accelerated and tumultuous.

The prognosis is serious. There is no other hope of saving the animal than to administer two grains of opium in a mild electuary, and lavements, several times in the day, with a decoction of poppy heads. If on the following day there is any amelioration, two additional grains of the extract of opium are to be administered, opiate lavements also used, and dry frictions over the whole of the body.

22*d.*—The animal is lying on its right side, panting violently. He frequently tries to rise, but without the power of accomplishing his object. The respiration is sadly accelerated and difficult. The pulse can scarcely be felt. The eye is moving rapidly from one place to another—the body is covered with sweat, every part is agitated, and every symptom denotes the approach of death.

In despair we have recourse to castration by the clams, and this was immediately practised, by opening *les testicules découvertes.* This method, employed by some veterinary surgeons to remove tetanus, has been attended by the happiest of results.

Soon after the operation, during which the animal experienced violent spasms in every part, he raised himself, and his agitation was less violent than in the morning.

On the following day we placed a soft covering of wool on his back, and caused the animal to be walked gently about, giving him, from time to time, a quarter of an hour's rest, an emollient clyster, and a fourth part of his usual food.

On the 23d the limbs were not quite so stiffened; the respiration was less accelerated, but the pulse was still considerably quickened.

The animal, at different times, was led slowly about, and every care taken of him.

24*th.*—The poor beast is now in an apparently desperate state. He staggers about and has several times fallen, and he refuses every kind of nourishment. The envelopes of the testicles are in a state of considerable enlargement, and suppuration is established to a considerable extent. The weather has set in badly, and it is impossible to take the horse out of the stable. Injections are administered, and dry frictions on various parts.

25*th.*—The animal is better. He searched for something to eat during the night. He walks more easily. He has had five-hours' walk.

27*th.*—The patient continues to improve. He walks better every day. The trismus has almost completely disappeared. His breathing is scarcely more accelerated than in the normal state. The pulse is relieved. The membrana nictitans no longer covers the globe of the eye.

30*th.*—The lameness has nearly disappeared—the horse now trots in his walk—he feeds well, but rather slowly—the clams have fallen out of themselves. Care is taken of the wounds that have been left—the walks are not so long. The full feeding is allowed.

Oct. 1*st.*—The animal is considered to be well. He is become so mischievous that it is scarcely possible to restrain him. He has grown fat since he came from the hospital.

20*th.*—His health is perfectly re-established.

MISCELLANEA.

The Language of Sheep.

Sheep are represented by Count Buffon as the most stupid of all quadrupeds. This charge, however, seems not to be altogether just. In a state of subjection individuals seldom resist the attack of an enemy. But they soon learn that their protection lies in the shepherd and his dog; for when it is necessary to watch the flock, in order to prevent the assaults of wolves, foxes, or dogs, upon the first alarm the whole of them run with violence to the place where the watchman is stationed. On other occasions, they never choose to make a very near approach either to men or dogs; but the sense of immediate danger removes their natural timidity, and their sagacity teaches them where to seek protection. These associated movements are effected both by imitation and by peculiar *cries* or *bleatings*, expressive of alarm and of danger; for though a few individuals only perceive the common enemy, yet by motion or language the intimidating sentiment is in a moment communicated to the whole flock. When the female loses or is robbed of her lamb, she *cries* in a manner strongly expressive of the anguish she feels. In the eagerness of her search, the loudness of her complaints, and her desultory movements, her eyeballs seem to start from their sockets, and her irregular and distracted motions and distortions, joined to the violence and constancy of her bleatings, are evident indications of the most pungent grief. A young lamb, when it wanders from its mother in the midst of the more numerous flocks, runs precipitately about, and *cries* in pitiable tones. These *cries* the mother recognizes. She instantly joins the lamb, and their meeting is attended with mutual expressions of the greatest joy.—*Smellie's Philosophy of Natural History*, vol. ii, p. 420.

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