

LIVESTOCK
OF THE FARM





JOHN A. SEAVERNS



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LIVE STOCK
OF THE FARM



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JOHN, LORD SOMERVILLE
1765-1819

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LIVE STOCK OF THE FARM

BY MANY SPECIALISTS
UNDER THE EDITORSHIP OF
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the Board of Agriculture and Fisheries and
Chairman of the Welsh Agricultural Council

VOLUME III
HORSES

THE GRESHAM PUBLISHING COMPANY LTD.
66 Chandos Street, Covent Garden, London

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LIVE STOCK OF THE FARM

VOLUME III

CHAPTER I

BREEDS OF HORSES—I. HEAVY HORSES

Clydesdales

By ARCHIBALD MACNEILAGE

Scotland had a good breed of horses from a very early period. Of the early history of the Clydesdale breed it is difficult to speak with certainty. The writer has dealt at considerable length with this subject elsewhere, and it is hardly necessary here to say more, with respect to the place of origin of the breed, than that the districts of Clydesdale and Avondale would appear to have been the home of its ancestors, if a home is to be found for them anywhere. The draught horse as we know it, is obviously the creation of a much later period than that in which the early Stuart kings are said to have done something to improve the native breed. It is a type which was only evolved after the conditions of the country became favourable to the peaceful art of breeding, and the demand for such a horse arose. The peace following the Revolution settlement of 1689, the Union of 1707, the development of trade, and the making of roads, all these called for a horse that could pull as well as carry, and the type of horse required was produced by the farmers of Clydesdale. The foundation was already there; it is only a question of how this foundation was built upon. Tradition affirms that it was through the introduction of Flemish blood that improvement was first effected. Whether Flemish stallions were imported by John Paterson of Lochlyoch, or by the sixth Duke of Hamilton—and there is no reason why John Paterson should not have had a

Flemish stallion at Lochlyoch about 1715-20, and the sixth Duke of Hamilton another in Avondale from 1742-58—the probability is that the “nag” which served the upland farmer in the days of bridle paths was improved in quality as well as in size by the use of sires belonging to an alien race which was larger and stronger than the native breed. We know that an English horse named Blaze was introduced about 1780 by another of the Patersons of Lochlyoch, and this horse is spoken of as late as 1836 as “having founded the famous Clydesdale breed of horses”, truly a somewhat generous tribute to the influence of one horse. It must be borne in mind, however, that careful selection and treatment of the stock descended from him and the native Lanarkshire mares would, no doubt, bring about a wonderful amount of improvement.

There can be no doubt that in Clydesdale, Avondale, and Galloway, there was at the time when improvement in the modern sense began to take place, a native breed of thick, heavy, short-legged and active horses which served as an excellent foundation. It seems clear from the accounts that we possess that the development of the Clydesdale breed of to-day is due not so much to the influence of any one horse, but to the blending of the blood of several horses of the draught type with that of the native foundation stock, in which the distinctive characteristics of the modern Clydesdale can be clearly traced. The essential characteristics of the modern breed were in a great measure to be found in the native stock, and were not imposed on the breed by Blaze or any other horse.

Reference has already been made to Lochlyoch. The Lochlyoch mares had a high reputation in the early part of the nineteenth century, and a mare now famous as “the Lampits mare”, descended from the Lochlyoch stock if not actually bred at Lochlyoch, is credited by some with having been the dam of Thompson’s black horse Glancer (335). The writer, however, has given his reasons elsewhere for being doubtful as to the truth of this; and for taking the view that too much has perhaps been made of the supposed connection between “the Lampits mare” and the modern Clydesdale breed through Glancer (335).

There can be no question as to the influence of the black horse Glancer (335) himself on the breed; it is unquestionable that some of the most noteworthy tribes in the Clydesdale world are descended from this horse. The line of descent is through Broomfield Champion (95). This great horse left a lasting impression on the breed in Clydesdale. He has been identified also with a horse known as Aberdeen Champion in the North of Scotland. His most notable

descendant was Clyde *alias* Glancer (153), known as "Fulton's Ruptured Horse", probably rather a coarse horse if judged by the present standard, but a most impressive sire. His best-known sons were Clyde *alias* Prince of Wales (155), a first-prize winner at the Highland and Agricultural Society's show; Farmer *alias* Sproulston (290), which made history in Bute and Wigtownshire; Erskine's Farmer's Fancy (298), which secured high honours at the national shows, and left a strong impression on the Clydesdales of Kintyre; Muircock (550), a great horse of strong individuality which travelled in Renfrewshire and north Ayrshire; Prince Charlie (625), a grey horse which travelled for many a day in the lower district or Machars of Wigtownshire; Barr's Prince Royal (647), a phenomenally successful show horse, and sire of show winners in Renfrewshire; and Baasay (21), not a show horse, but evidently a horse of great individuality which bred useful stock in Renfrewshire. These seven stallions made the Clydesdale breed in the West of Scotland. Their influence was all-pervading there, and even beyond, although other sires share the honours with them in the south, west, and north.

As the writer has indicated in another article on this subject, the modern era in Clydesdale breeding in Galloway is connected with the names of several gentlemen more or less closely identified with Lanarkshire. The family of the Muirs went from Sornfallo, on the slopes of Tinto, to the Stewartry in 1840, and took with them horses and mares of the true Clydesdale stamp. These were mated with the native stocks referred to in an earlier part of this article, and the combination gave the world the Clydesdale of the closing half of the nineteenth century. Lanarkshire horses, however, had been imported into Galloway before 1840. The system of hiring seems to have begun very early in that part of the country. Samson (1288), a Lanarkshire horse, foaled 1827 or 1828, and his grandsire, a horse named Smiler, which must have been foaled very early in the century, both travelled in the district. John Muir came from Sornfallo to the Banks about 1840; his brother James had a few years earlier come from Sornfallo to Maidland, Wigtown. Both brought Clydesdales in their train, and to this fact may be traced the breeding of one of the epoch-making horses, Lochfergus Champion (449). The Rhins of Galloway was the scene of the early rivalry of Colonel M'Douall of Logan, and Mr. Robert Anderson, Drumore, for the Clydesdale supremacy. In 1835 the latter introduced Old Farmer (576), and a black mare, Old Tibbie, and her neighbour from Lanarkshire and Renfrewshire. But the Lanarkshire foundation had been drawn upon at an even earlier

date. Agnew's Farmer (292), from Balscalloch, Stranraer, won a £30 premium at the Highland and Agricultural Society's show at Dumfries in 1830, and his sire was a horse named Clydeside, which could hardly have borne that name unless he had come from the valley of the Clyde.

The Clydesdales of the peninsula of Kintyre are clearly descended from the Lanarkshire centre, and the subsequent history of the race is linked with that of the mainland, and in particular of the Rhins of Galloway, through Rob Roy (714), a very notable horse, which travelled both in Kintyre and Wigtownshire. The first improvement from the native Highland garron is credited to a black horse or black horses brought into the peninsula by the laird of Lee in Lanarkshire, who then also owned land in Kintyre. Its subsequent development during the years under review is closely associated with the horses Farmer's Fancy (298), of the main trunk line from Broomfield Champion (95); Rob Roy (714), whose "pedigree" in the usual acceptance of that term is doubtful; Largs Jock (444), which belongs to the same Ayrshire race as the celebrated Sir Walter Scott (797), the champion at the Royal International Show at Battersea in 1862; and Lorne (499), a horse which lived long and left many foals.

The connection between the North of Scotland and the North of England as Clydesdale breeding areas and the home of the Clydesdale can easily be traced, but the original elements were not the same as in the districts north of the Tweed and Solway, to which reference has been made. Shire horses undoubtedly travelled in both localities, and left their mark on the produce. In Aberdeenshire there is evidence that the laird of Pitfour imported what he called Suffolk stallions, although from the descriptions of these horses it may fairly be doubted whether they were of the race of the famous sorrels or chestnuts so long bred in East Anglia. It is more than probable that the Pitfour stallions came from East Anglia, but the roughness of their legs suggests the Fen country as their home, and the old English Cart Horse as their ancestor. There were, however, Suffolk stallions in Buchan, and one of them was quite well remembered by farmers thirty years ago. Cumberland and Westmorland, although aiming at Clydesdales, must acknowledge some indebtedness to Shires. As cart horses no class of Clydesdales are more valuable than those bred in these districts.

The main connecting link between Lanarkshire and Cumberland is Pringle's Young Clyde (949), bred in 1826 near Hyndford Bridge, Lanarkshire. The other lines of breeding there are all more or less closely identified with the Clydesdale centres. Blyth (79), a horse



Photo. Read

CLYDESDALE STALLION—"BARONET OF BALLINDALLOCH"



Photo. Reid

CLYDESDALE FILLY — "NANNIE."

with coaching blood in his veins, was bred in West Lothian, and related on the sire's side to Broomfield Champion (95). He founded a grey line, which colour has been strikingly displayed in Cumberland families of the highest reputation. His son, Young Blyth (923), was also grey, and travelled both in Cumberland and Aberdeenshire. The grey Glenelgs (357) were descended from Young Clyde (949), and had a similar record. Both Blyths and Glenelg were prizewinners at the Highland and Agricultural Society shows in the 'forties and 'fifties. The most famous of all the Cumberland greys was Merry Tom (532), which won first at Glasgow in 1852 when four years old. His breeding analyses in much the same fashion as the pedigrees already referred to. The main lines are of Lanarkshire descent, but the foundation was a mixed race of heavy cart horses with a dash of the blood of the Coach Horse. Two notable Shire horses in Cumberland were Farmer's Glory, owned by John Robinson, Wallace Field (known for two seasons in Ayrshire as Andrew Hendrie's Farmer's Glory), and Nichol's Topsman.

The history of the introduction of the Lanarkshire horse into Aberdeenshire begins with Young Glancer, which in 1823 came to the county. He is believed to have been a son of Glancer (335), Thompson's black horse. He was not a high horse, his height being given as rather under 16 hands. Young Champion of Clyde, foaled in 1840, came from the West of Scotland, and was at Mill of Ardlethen, Udny, for several years. Mr. Barclay of Ury introduced Clydesdales, as he introduced Teeswater cattle, and had good success with both. A little later came the famous Comet race, the best of which was the grey Comet (192), a winner at the Highland and Agricultural Society show in 1856, and Lord Haddo (486), a very notable horse, of the same line of breeding on the sire's side as Largs Jock (444) and Sir Walter Scott (797). These gave a certain stamp of Clydesdale character to the northern draught horse. About thirty years afterwards this work was renewed with vigour, so that at the present time it may safely be said that no district in the country produces a larger proportion of genuine Clydesdales of the highest class than Aberdeenshire, Morayshire, and the counties between and adjacent.

The historical outline here given undoubtedly goes to show that the Clydesdale is largely a composite breed. There has been close adherence to one type and one family of horses. Lanarkshire or Clydesdale provided the home of these animals, which, however, came to be more successfully bred away from the original headquarters. In various localities, from time to time, horses which

would now be called Shires were in use, and undoubtedly contributed something to modification of type, but that may have been less than might have been expected. And for this reason. It is matter of history that during the latter part of the eighteenth and the opening quarter of the nineteenth centuries a large number of Clydesdales were purchased at Rutherglen, Lanark, and Biggar fairs, and taken in droves to England. These young colts and fillies were driven south in "mobs", and distributed over the Midland counties by dealers who made this their business. No doubt this explains why Shire horses were brought north possessing many of the best characteristics of the Clydesdale. The late Alexander Galbraith, Croy-Cunningham, Killearn, owned several such horses, and notably one named Tintock, which won second prize at the Highland and Agricultural Society show at Glasgow in 1867. This horse, like Hendrie's Farmer's Glory, left a large number of very superior fillies which developed into highly-successful brood mares. These were spasmodic efforts, but about the year 1870, and until 1884, when he died, the late Lawrence Drew, who was tenant of the farm of Merryton, near Hamilton, made systematic efforts to blend the northern and the southern breeds. He stoutly resisted the proposal to have two stud books, maintaining to the last that Clydesdales and Shires were not two distinct breeds, but, like Booth's and Bates's Shorthorns, two distinct strains or tribes of one breed. He owned the Clydesdale stallion Prince of Wales (673) (foaled 1866, died 1888), one of the grandest draught stallions ever foaled, and purchased mares in England expressly selected for the purpose of mating them with that horse. From the combination Mr. Drew bred a remarkable succession of first-class animals, which won the highest honours. But in spite of the admitted merits of the produce, Mr. Drew failed to convince his countrymen that he was right, and when he died in March, 1884, it may be said that the effective opposition to the Clydesdale Stud Book movement also expired.

The chief credit of founding the Clydesdale Horse Society and the Clydesdale Stud Book belongs to two gentlemen—the late Earl of Dunmore, who died in September, 1907, and Mr. John M. Martin, in 1877 farming Auchendennan, Alexandria, and Hawthornhill, Cardross, in Dumbartonshire. The labours of these gentlemen and their associates were splendidly seconded and their policy carried out by Mr. Thomas Dykes, the first secretary of the Society (1877-1880).

It may be said that the work of the Glasgow Agricultural Society, which for more than half a century has organized and

carried on a spring show of Clydesdale stallions, has been scarcely less influential in furthering the interests of the breed than that of the Clydesdale Stud Book. Shows of a like nature were formerly held all over the country, at which stallions competed for premiums offered locally to encourage owners to place their horses in these districts. The expense of holding numerous small stallion shows was very great, and about the year 1870 or thereby all of the local events were given up, and one great show and hiring fair held in the Glasgow Cattle Market. This event usually took place in February, and up to 1882 no district horse-breeding society thought of hiring a horse until the stallion show. The Glasgow Society undertook all the risk of organizing the event, and contributed two £100 premiums for two horses, the stipulation being that these should travel in the Glasgow district. Any contract previously made with another society was nullified should the selected horse be chosen for Glasgow. The deputations representing the local societies received tickets of admission to the show, and a separate enclosure was set apart for them in the judging area, whence they had a good view of the horses shown in both rings. In 1882 this arrangement sustained a severe shock when an Aberdeenshire society that had engaged beforehand Lord Erskine (1744), then an unknown three-year-old horse, had to surrender him to the Glasgow Society. In the autumn of that year the same society engaged him for 1883, and from that date onwards the system of hiring privately has become increasingly prevalent. For several years past, a greater number of horses have been hired for the ensuing season at the Highland and Agricultural Society's show in July than at the spring stallion show. As a hiring fair it has almost ceased to have any importance, but as an exhibition of Clydesdale entire horses it is unrivalled.

A few words may here be said concerning some of the outstanding Clydesdale sires of modern times. From 1878 to 1885 the most important possibly were Drumflower Farmer (286) and Lord Lyon (489). Darnley (222) was slowly but surely coming to his own, but a considerable change had to come over the popular view of the highest merit in a Clydesdale before the Darnley type assumed supremacy. From 1886 to 1892 the leading Clydesdale sires were either of the two races named or of the Darnley (222), Drew's Prince of Wales (673), Lord Erskine (1744), or Old Times (579) tribes. Prince of Wales (673) was foaled in 1866, and after a very distinguished show career, his reputation as a sire began to assert itself about the year 1871. Very grand mares and fillies after him were exhibited, including Knox's black mare Rosie, dam

of Dunmore Prince Charlie (634), which was wellnigh invincible, and several daughters of the fine old show mare London Maggie (84). Colts out of selected Shire mares, and bred by Mr. Drew at Merryton, were frequently in the first place at the leading shows. These were characterized by great substance, and always carried plenty feather. An outstanding characteristic in all, however, was action. The old horse himself was a specially gay mover, and his stock, as a rule, inherited this property. So successful had Prince of Wales (673) become, that for several years up to 1884 his terms to the public were £40 at service. At the Merryton dispersion sale on 17th April, 1884, he passed into the hands of Mr. David Riddell at 900 gs., being then eighteen years old. He lived until the close of 1888, when he died after two most successful seasons' work in the Rhins of Galloway. Much dispute has been waged regarding the breeding of this very remarkable horse. His sire was General (322), and his dam Darling, by Samson *alias* Logan's Twin (741). Both sire and dam were first-prize winners at the Highland and Agricultural Society's show at Inverness in 1865, where they were mated, and the produce was Prince of Wales (673) in 1866. The dams of both General and Darling were grey mares, and came from south of the Border. The opinion of the writer of this article, based on evidence which he has elsewhere detailed, is that the sire of the dam of General (322) was Merry Tom (532), and the sire of the dam of Darling may have been Blyth (79). Others say they were English, that is Shire mares. They certainly were English in respect that they came from south of the Solway to Dumfries market, where they were bought by a West of Scotland dealer. That they were Shires there is no proof.

Darnley (222) up to his death was the most successful breeding stallion known in Clydesdale history. He was a less showy horse than Prince of Wales (673), and there is no doubt as to the Clydesdale or old Lanarkshire origin of all the lines in his pedigree but one. His sire Conqueror (199) was a son of Lochfergus Champion (449), and his dam was Keir Peggy (187), a daughter of Samson (741), while her dam was a daughter of Farmer's Fancy (298). The one unknown strain in Darnley's ancestry is the grand dam of Samson (741). She was a chestnut mare, bought in Falkirk tryst by Mr. Jack, Balcunnoch, Campsie, and nothing is known of her breeding. Darnley was bred at Keir, Dunblane, by Sir William Stirling Maxwell, Bart., and from 1875, when he was three years old, until the autumn of 1886, when he died, he was owned by Mr. David Riddell. He won the highest honours both of the Highland and Agricultural Society in 1877, 1878, and 1884, and

the Glasgow stallion show in 1876 and 1877. He was a horse of great character, brown or dark dappled bay in colour, with a white mark on forehead and one white hind leg. He had a first-rate well-shapen foot, of the best material, pasterns set at the right angle, good hard bones and clean limbs, a splendid neck and well-laid oblique shoulders, with high withers, and good barrel. His head was inclined to the pony shape, and his quarters were short and drooping. He was a splendid walker, moving with a long, swinging, cart-horse stride; but his trotting action was defective, especially in front. In respect of trotting action he was distinctly inferior to Prince of Wales (673), but as a sire of breeding stallions and mares he was in his time without a peer. From about 1880 to 1890 the produce of Darnley and his sons, Macgregor (1487), Top Gallant (1850), Sanquhar (2393), Flashwood (3604), and others, dominated the showyards and fixed the fashionable Clydesdale type. Prince of Wales followed Darnley in the Rhins of Galloway in 1887 and 1888, and among the large crops of foals left by him in these two seasons out of young mares got by Darnley were some of the choicest specimens of the breed ever exhibited. They sold as foals for unprecedented prices—one, Prince Alexander (8899), making as high as £1200 before one year old, while £500 was a common enough price for both colts and fillies got in the way indicated.

In spite of their fine quality and beautiful action and symmetry, there can be no doubt that animals of the Prince of Wales-Darnley cross were frequently lacking in cart-horse character. The reputation of the breed in this particular was saved largely by a new combination of the same strains of blood in a later generation.

Sir Everard (5353) was undoubtedly the sire which saved the situation. He was got by Top Gallant (1850), a son of Darnley (222), and himself a Glasgow champion horse in 1880, out of a mare by London Prince (472), a son of Prince of Wales (673) and the renowned champion mare London Maggie (84). Sir Everard's pedigree traces back for several generations on the female side to the old Lanarkshire fountain-head. He was a masculine horse of weight and substance. He was bred by Mrs. Lamont, Killellan, Toward. Foaled in 1885, in March, 1891, he stood fully 17.1 hands high, girthed when in ordinary condition 8 ft., and weighed 20¾ cwt., or 2324 lb. He measured 26 in. round the upper muscles of the forearm, 17 in. round the knee, had 11 in. bone below the knee, and 12 in. bone below the hock. He was a horse of great depth of rib, with a short back and splendid quarters and thighs. The formation of his hind leg was faultless, and in front he stood well up at the

shoulders, his withers being high and well furnished with muscle. His neck was perhaps rather short, and his fore feet might have been stronger. Taken all in all he was a most massive and weighty cart horse. Sir Everard was owned by Mr. Wm. Taylor, Park Mains, Renfrew, and in 1888, 1889, and 1890 was awarded the Glasgow premium. Mated with daughters of Prince of Wales (673), he proved a most successful sire, and two of his sons, The Summit (9442) and Sir Morell Mackenzie (9614), like himself, were awarded the Glasgow premium. It was, however, when mated with a mare of Darnley descent that Sir Everard achieved his highest distinction, and in his son, Baron's Pride (9122), was found the most successful breeding stallion the Clydesdale breed has produced.

Baron's Pride was bred by Messrs. Findlay, Springhill, Bailleston, in 1890, and in 1893 was purchased by Messrs. A. & W. Montgomery, Kirkcudbright. In 1894 he was champion male Clydesdale at the Highland and Agricultural Society show at Aberdeen, and after 1896 he dominated the Clydesdale world. His stock led in the show ring almost regularly from that date, and in 1908 he again headed the list of winning sires, while among the first twenty of these sires many of his sons found a place. It is difficult to describe Baron's Pride, just because he was a horse of such evenly well-balanced merit. Having since 1894 until his death on 20th December, 1912, been kept in hard breeding condition, his measurements would not afford a fair comparison with those of horses fed and kept for showing. However, it may be said that he stood fully 17 hands high, and was very proportionately built. The quality of his bone, its breadth and thinness, with cleanness and hardness, were the thing wanted by Clydesdale breeders, while his feet and pasterns were respectively of the formation and "set" required. When taken to Kirkcudbright in 1894 he was mated with mares got by Macgregor (1487), and the combination proved successful to a degree. He also mated very successfully with animals of Prince of Wales descent, the most outstanding representative of which tribe in his time was the handsome and most successful show stallion Hiawatha (10067). The premier position among sires so long held by Baron's Pride (9122) was taken by his son, Baron of Buchlyvie (11263), which in December, 1911, was sold by public auction at the record price for a draught stallion of £9500.

The Clydesdale is in high favour with foreign and colonial buyers, as the following figures from the records of the Clydesdale Horse Society show:—

Number of Clydesdales exported in Year	Certificates issued.	Number of Clydesdales exported in Year	Certificates issued.
1884	500	1899	250
1885	514	1900	178
1886	600	1901	167
1887	920	1902	266
1888	1149	1903	411
1889	1040	1904	536
1890	554	1905	653
1891	349	1906	1317
1892	158	1907	1100
1893	110	1908	531
1894	21	1909	1349
1895	15	1910	1531
1896	56	1911	1617
1897	57	1912	1348
1898	132	1913	837

The ideal colour for Clydesdales is bay or brown, with a more or less defined white mark on the face, dark-coloured fore legs, and white hind shanks. Black is a little more common now than formerly, but chestnut is hardly ever seen.

The Clydesdale is a very active horse. The impression created by a thoroughly well-built typical specimen is that of strength and activity, with a minimum of superfluous tissue.

Shires

By WALTER CROSLAND

There is no doubt that Shire horse breeding is not only maintaining, but increasing, its popularity amongst the tenant farmers of this country, and the widespread interest taken in this most useful breed is abundantly shown by the liberal schedules and well-filled classes at the numerous shows, held in every county in England, and in several counties in the Principality of Wales.

It must be borne in mind, however, that the Shire breed is not by any means a new breed; on the contrary it is one of great antiquity, and has been in existence, according to some writers, although not in its present form, for over two thousand years. In this connection, the antiquity of the breed is clearly proved in a most interesting little work written by Sir Walter Gilbey, entitled the *Old English War Horse*, now known as the Shire, in which it is shown

that horses of great weight and size existed in Great Britain at the time of the Roman invasion, and moreover, that there existed, even so far back as the time of Henry VIII, three distinct breeds of horses, as the following extract from a work written by Sir Thomas Blundeville shows:—

“Some men have a breed of great horses meete for warre, and to serve in the field. Others have ambling horses of a meane stature for to journey and travel by the waie. Some again have a race of swift runners to run for wagers and to gallop the bucke, but plane countrymen have a breed only for draftes or burden.”

This clearly shows that at the period referred to, nearly five hundred years ago, the three present-day breeds of racehorse, hackney, and draught or Shire existed.

The continued success and popularity of the breed is due to many causes, but the Shire Horse Society and its annual London Show has been mostly instrumental in improving the breed, and in stimulating breeders to increased action throughout the country. The prize schedule of the London Show is a most liberal one, and the introduction of breeders' prizes, which was a very happy idea, has proved an additional incentive. No doubt, the gold and silver medals at provincial shows also have had the effect of widening the interest in the breed.

There is no more popular breed than the Shire, or more successful society than the Shire Horse Society. Its show is also admirably managed by a very practical council, which is elected by members of the society and consists of men who are themselves Shire breeders, so that the council is in touch and sympathy with, and has the confidence of, the large body of members of the society, which now numbers nearly four thousand, including nearly two hundred societies. This undoubtedly accounts in a large measure for the phenomenal success of the society, while the rigorous veterinary examination the animals have to undergo at the London Show has had the effect of largely improving the soundness of the breed. Nor can the value of the stud book be overlooked as an important element in this connection, for pedigree and purity of blood are very important factors in breeding. A reference to the prize winners at shows proves conclusively the truth of the adage that “like begets like”, and the subtle influence of prepotency is shown unmistakably. It is in this particular phase of breeding that the skill of the breeder is brought into play, for the surest road to success in breeding Shires, as with other kinds of stock, is in the judicious blending of those strains of blood which give the best results.



Photo. Parsons

SHIRE STALLION—"GAER CONQUEROR"

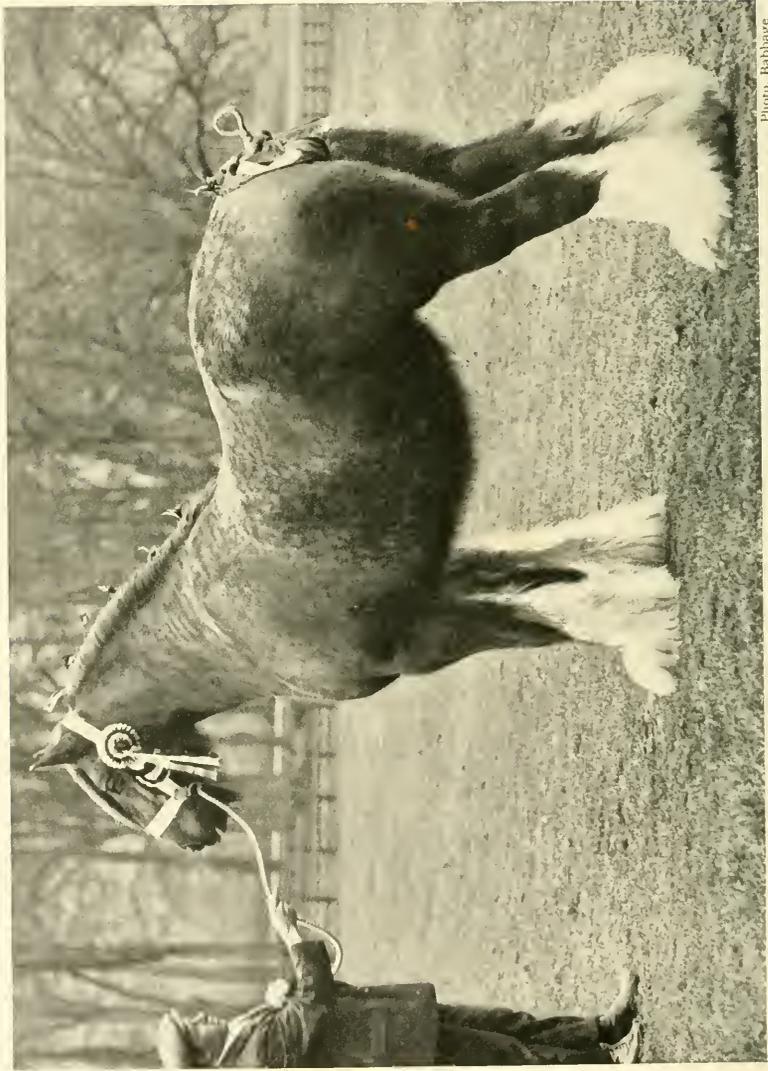


Photo. Babbeage

SHIRE MARE.—"DUNSMORE CHESSIE"

In addition to the stimulus given by the Shire Horse Society, great assistance and encouragement are given to breeders by the Royal, the Royal Counties, the Bath and West Societies, the various county shows, and last, but not by any means least, by the many admirable one-day shows throughout the country, which act as feeders to the larger shows. The foal shows also have done much to add to the interest and profit of Shire horse breeding. Hiring societies, which have increased in numbers in recent years, are doing a great deal to encourage the breeding of Shires throughout the country, because by co-operation amongst farmers and breeders a good sound typical Shire stallion can be secured. A really good horse in a district is of immense advantage, as it is not always convenient, for many reasons, for tenant farmers to send their mares away to a good stallion. This hiring system is much to be commended, as it can be carried out without much trouble or inconvenience to members. It means but small additional expense, and it is bound to bear good fruit, and add considerably to the profit of breeding. The Montgomeryshire Society in Wales is one of the best and most successful in the United Kingdom, and they have for some years acquired the services of the best stallions that money could obtain, with excellent results. While it is necessary to have a stallion of the very best type and breeding, it is equally essential that the mares should be of suitable type, and sound. Horse breeding is, under the most favourable circumstances, risky, and misfits will occur even when the animals used for breeding are the best of their kind; but it is only when the sires and dams possess the essential qualities for breeding the proper type, with sound feet and joints, flat flinty bone, with great substance and robust constitution, that the breeder has any prospect of success. For such animals there is always a good market.

Good Shire geldings are still in great demand in spite of the competition of motor traction, and there is a healthy tone in Shire horse sales which is reassuring for the continued success of the breed. As long as breeders continue to produce animals of the right type, there will always be buyers for them. It is well for breeders always to endeavour to breed the best, and to remember the old adage which sets forth some of the essential points of a typical Shire:

“Feet, joints, and feather;
Top may come, but bottoms never”.

This means that your typical stallion or mare should possess a

good set of feet, correct joints, and nice straight silky feather. A good foundation, or "good at the ground", and the top, or body, may be made sufficiently weighty by judicious feeding. This, however, is not all, for your ideal Shire stallion should also possess good breeding, great size (17 hands) and substance, big knees and hocks; he should be on a short leg, his body deep, ribs well sprung, and he should have strong, masculine character, a big strong head, and robust constitution. His joints should be nicely turned, and his pasterns set at the correct angle; he should have wide feet with open heels, and wide coronets, and should move well all round with a boldness and freedom of action in the walk and trot that denote soundness, power, and constitutional strength. He should also have a nice sloping shoulder, short back, and long quarters. Such a sire, if mated with suitable mares, is bound to leave his mark in any district in which he may be located.

Your typical Shire mare should be equally good on the ground as the stallion, that is, she should have good feet, joints, and legs. She should be long, low, and wide, and not under 16 hands high; she should have a sweet effeminate head, with a nice docile expression of face, and should, in all cases, have good and true action. In short, the typical Shire mare or stallion should have weight, size, and quality. While these attributes are essential in stallions and mares used for breeding purposes, it is important that buyers of breeding animals should make their choice of animals that are bred from good mares, that is, mares which, or whose dams, have proved themselves good breeders.

It may be asked what kind of soil is most suitable for breeding Shires. Good specimens are bred on almost every kind of soil throughout the country, from light land to heavy clay, though it must be admitted that the better the land, the better will be the chances of producing animals of the required size and weight. It used to be thought, many years ago, that good Shires could only be produced on the limestone soils of Derbyshire, and the Ashbourne district, which, by the way, is considered the Mecca of the Shire horse world, for it produced amongst other notable Shires the famous stallion Harold, a giant, truly, of his race. But during the last quarter of a century Shire breeding has spread throughout the country, and on all kinds of soils; it is no longer confined to a few districts as was the case when the Shire Horse Society was originated. Good sound land is, however, required to obtain the best results, that is, land that by the porous nature of its soil and subsoil is drained naturally, or land that has been artificially drained, and that becomes fairly dry and firm in a

reasonable time after heavy rain. Successful horse breeding cannot profitably be carried on if the land be waterlogged or sour; not only do horses do badly on such land, but the land itself suffers considerably by being poached by heavy horses. Although Shire horse breeding is carried on in all parts of the country, there are some districts which have attained specially good results and prominence. This, however, is due not altogether to the land, which undoubtedly has its effect, but also to the enterprise of individual breeders and of societies in those districts. For instance, in addition to the Ashbourne district already referred to, the fens of Lincolnshire, the Peterboro' district in Northamptonshire, the Fylde of Lancashire, and the Welshpool district of Montgomeryshire, are all very important centres in the Shire breeding industry. They have all made great reputations by reason of the quality and type of the Shires which are produced by the landowners and farmers in those districts, and which have attracted buyers from distant parts of the country.

A great impetus was given to the breeding of Shires some twenty years ago by the formation of studs by a number of noblemen and gentlemen in different parts of the country, and the great interest taken by them in the matter generally. Much credit is due to them for the good work they have done and which many of them are still doing at the present time—such men as Mr A. C. Duncombe, Calwich Abbey; the Duke of Devonshire at Chatsworth; the late Sir Albert Muntz; Sir Alexander Henderson Buscot Park, who still holds the show record as having won all the championship honours at the 1898 London Show, with his famous quartet, Markeaton Royal Harold and his son Buscot Harold, Aurea the dam of Buscot Harold, and Lockinge Loiret; the late Lord Wantage, Lockinge, whose stud included the famous stallion Prince William, and produced the great sire Lockinge Forest King; Lord Rothschild, owner of the renowned Tring Park stud, which has included some of the best sires and dams of the day; Lord Middleton, owner of the noted Birdsall stud; Sir Walpole Greenwell, Marden Park, Surrey, the enterprising owner of one of the most successful studs in the country; and many others, who have helped to build up the Shire breed, and have put money into the tenant farmers' pockets by buying from them their best animals at remunerative prices.

The general management and feeding of heavy horses is fully treated of in another part of this volume, but a few observations may be made on that subject here for the benefit of those who desire to be acquainted with the methods adopted in some of the

large and successful studs. With regard to the management of foals after weaning, it is perhaps just as well to point out first of all that many farmers, especially small farmers, make a mistake in turning out foals to grass after weaning, to find their own living in the fields in the autumn and often well into winter, without any help whatever, except perhaps an occasional feed of long hay or straw. Now this is a suicidal policy, for if young animals get a severe check in their growth during this period of their lives, it throws them back at least twelve months, and often permanently injures their constitution. It probably takes them the whole of the following summer to gain sufficient strength and nourishment to start their growth again. Foals require a great deal of care and attention during their first winter and they will respond to judicious feeding and kindly treatment in a manner that is bound to be remunerative in the end. They should be taught to eat before they are taken away from their dams by having a feeder or trough in the field, and given a small quantity of crushed oats with hay chaff once a day, about a month or so before weaning. They soon learn to eat with the mares, and do not feel the loss of their dam's milk when weaning time comes along. This should be continued throughout the winter with the addition of a bucketful each day of gruel, consisting of dissolved cake, preferably linseed cake, and sweet, skim, or separated milk, together with a feed of good meadow hay. A few carrots each day are also a very useful adjunct. The legs of foals and their manes and tails should be regularly washed, not only for cleanliness, but to promote the growth of hair. Their feet also should be attended to at intervals by the local blacksmith; the hoofs trimmed, and kept in good shape. The care of foals' feet is of the greatest importance. They are better turned out to grass in the daytime through the autumn, and until bad weather comes. Our experience is that they are then better in a big roomy yard, with a shed to run into during the winter when the land is very wet or frozen hard, but in fine weather it is certainly better to let them run out in the fields in the daytime.

As to the management of brood mares, some breeders are averse to their doing any work during pregnancy, but the writer's experience is that mares are all the better for being kept at steady farm work, except in the case of mares that are going to be shown throughout the show season, when it would be impossible to keep them in good show condition if in regular work. For mares, however, that are not to be shown, they are far better at work, and earning their living; they are better in health for it, and stronger,

and therefore better able to go through the difficult and risky act of parturition than mares that are in high condition. If care is exercised, mares can be worked up to within two months of foaling, or nearer in some cases, provided they are not put between shafts when they are advanced in pregnancy; at this period they should, of course, only be put in trace harness. It is advisable to give the mare a respite from all work a month or six weeks before foaling; the hind shoes should be taken off, and the legs dressed and washed, as well as the mane and tail, to make her as comfortable as possible for the coming period of motherhood. A large, roomy, and well-ventilated loose box is essential for foaling mares in, with a good floor of brick or concrete, which can be kept thoroughly clean, for cleanliness is one of the essential conditions in the foaling box.

After foaling, the mare should be kept on sloppy mashes containing some crushed oats for two or three days to promote the flow of milk and to keep the bowels right, together with a little sweet meadow hay, after which she can be put on dry food, and if the weather is favourable, and when the sun is shining, they can be put out in the field for a few hours each day when the foal is about a week old.

The ideal time for foaling is in April, when the mare and foal can be turned out to grass as soon as the foal is strong enough; but many breeders, especially those who go in for showing, prefer to have their mares foaling down in February or March, or even in January, but this is attended by many risks, and very early foals cause much more anxiety and difficulty in rearing, as must be the case when they have to be kept cooped up in a loose box for weeks on account of the inclement weather in the early part of the year, though from the show point of view the early foal has a distinct advantage over the later foal.

The docking of foals' tails should be done early, that is when they are about a month old, or even a week earlier if the foal is strong and healthy. It is an easy operation, which can be performed by any intelligent man who has seen it done previously, and does not really require the services of a veterinary surgeon. Of course, a proper docking knife and iron are required for the operation.

With regard to the management of the legs of the Shire horse, with so much hair they are apt to become scurfy and itchy unless they are regularly attended to. In our experience, the best dressing to apply is a mixture consisting of linseed oil 1 pt., paraffin $\frac{1}{2}$ pt., powdered sulphur 2 tablespoonfuls. This should be well rubbed in

under the hair on the legs, and allowed to remain for 12 hours before the legs are washed. This dressing not only cleanses the legs, but improves and promotes the growth of hair. It is also a most useful dressing for the mane and tail.

Colts and stallions require very liberal and judicious treatment in the matter of feeding, and this is especially the case when it is intended to show them. There is nothing better than crushed oats, with a little bran, and plenty of good hay chaff. In the autumn and winter they should have carrots in addition, and later on a mangel or two with their feed, to help digestion. They require plenty of exercise, either turned out to grass or put in a roomy shed with a yard. Failing that, they should be given walking exercise each day. If it is not possible to turn them out, they should be given some green food in the summer time, clover, meadow grass, or better still, lucerne, if it can be procured for them. Lucerne is one of the best fodder crops grown, if not the best, for horses, and indeed for all kinds of stock. Horses are especially fond of it, and do well on it. An acre or two on any farm where horse breeding is done is most valuable, as it is a generous cropper. Three crops can be taken off it each year when once established, and in our experience, horses thrive remarkably well on it. It is one of the few crops that can be relied on to give a supply of fodder in a dry season, but to ensure the best return it should be cut early, that is, just when the young flowers appear. It should on no account be allowed to ripen, unless the crop is intended for hay, otherwise the fodder will not only be tough and bitter, and therefore distasteful to animals, but subsequent crops will suffer; so that in order to secure two or three cuttings in a season it should be mown early.

The colour of Shire horses varies, but there are certain colours that are more fashionable than others. At one time, as Sir Walter Gilbey shows, black and grey were regarded as indicative of pure blood in the breed. The latter colour, however, is much less common now than was once the case. Black is still common, as might be expected in a breed descended from the old English Black Horse. Roan is also met with occasionally, especially blue roan. Brown and bay, however, are the predominant Shire colours at the present day, and it appears likely that at no distant date well-bred Shire horses will be almost exclusively of these two colours. Chestnut is not a popular colour, especially for stallions.

The trade in Shire horses in recent years has been remarkably good. In connection with the London Shire Horse Show, which is the great event of the year in the Shire world, a sale is held

annually, and the prices obtained at this sale are perhaps a fair indication of the demand for the breed. At the 1913 sale, 151 horses were sold for £17,787, an average of £117, 16s., which is practically the same average as that made by a somewhat smaller number of horses in the previous year.

Perhaps the most interesting sale of the year 1913 was that of the Tring Park stud belonging to Lord Rothschild. This famous stud had for so long held its high position that Shire breeders expected some high figures would be reached at the sale, but few, if any, anticipated the actual prices made. A notable fact in connection with the sale is that the record price for a Shire stallion was there made, viz. 4100 gs., which was paid by Sir Walpole Greenwell for the two-year-old stallion Champion's Goalkeeper (30296), by Childwick Champion, and bred by the Earl of Powis, Powis Castle, Welshpool. This horse won the Male Championship at the London Show in 1913 and 1914. Other high prices paid at the sale were 1750 gs. for the three-year-old stallion Blacklands Kingmaker (29102), and 825 gs. for the three-year-old filly Halsted Duchess VII. The number of horses sold was 32, which realized £14,530, thus making an average of £454. This is an average that has never been reached before at a Shire sale.

An interesting and significant fact in connection with Shire horses is that some of the most famous animals shown in recent years have been bred by tenant farmers. Indeed, it may be said that Shire horse breeding is essentially a farmer's business, for horses must be kept on every farm to work the land, and why not keep one or two Shire mares, in districts where Shires can be reared, for breeding purposes? There are wonderful possibilities in the breeding of Shires. It does not come in the way of many to breed a London Champion, but there is the sporting chance for every breeder of Shires, be he the owner of a large stud or of one or two mares. If a farmer should breed a really good foal, there is no difficulty in selling it at a good price. There is always a demand for good ones, and farmers are well advised to sell when they have the chance of making a good price, which may not come again, as something might happen to the animal, as so frequently is the case, which depreciates its value; so the "bird in the hand" principle is a safe one, and much to be commended. On the other hand, if the breeder has the pleasure and satisfaction of seeing his animal winning prizes, especially at the London Show, he will have the additional pleasure of participating in the "Breeders' prizes", which are so liberally given by the Society.

Suffolks

BY EDWARD C. ASH, M.R.A.C.

(Plates, facing pp. 32, 33)

Suffolk, although only a small county, has nevertheless four distinct breeds of live stock—Suffolk horses, Red Poll cattle, Suffolk sheep, and large pigs.

The Suffolk Punch is a breed of cart horses, whose home is the eastern portion of the county—handsome chestnuts, which differ only in the shade of their colouring; some may be light, a golden chestnut, whilst others are of a red or bronze shade, but never does any other colour make an appearance. Certain lines of blood show a few silver hairs interspersed amongst the chestnut, and this has been a noticeable character in some of the most famous horses. But as long as the Suffolk is of a true chestnut it matters little what the exact shade may be. At the present day red chestnuts with tails and manes to match seem to be in the greatest demand, and on the whole, as the richer and darker colours are thought to bespeak finer constitutions, they are preferred to the lighter. But with colour, as with everything else, fashion varies. A few Suffolks have lighter-coloured manes and tails, and are considered by some to be the type of the early breed.

The shape of the Suffolk is so characteristic that, even if it were not for its colour, it could not be easily mistaken for any other British breed of cart horses. It has a thickset body of great depth, measuring some 8 or 9 ft. behind the shoulders, with strong, muscular neck and moderately-short legs. It is by no means a large animal—a horse standing $15\frac{3}{4}$ to 16 hands is somewhere about the average.

The Suffolk has none of the "feather" so much prized by Shire and Clydesdale enthusiasts, and the absence of this adornment, coupled with the fine quality of the hair on the Suffolk's legs, somewhat gives the impression that their limbs are hardly strong enough to bear the weight of the body. But "things are not what they seem", and particularly not always as they look; and moreover, it is well to remember that the real proof lies in what the result may be. It is perhaps unkind to wonder what some of these Shire horses would be like if their muff and thick hair were moved and fine hair substituted.

The origin of the Suffolk is shrouded in mystery, and it is through the painstaking and remarkable work of Mr. Herman Biddell that the history of the Suffolk horse from about 1750 has

been unravelled. Mr. Biddell, to whom every Suffolk breeder and every lover of the breed owes a deep debt of gratitude, has sifted every scrap of information. Old horse dealers were interviewed, thorough search was made through all books that might in any way mention Suffolks, and no stone was left unturned by Mr. Biddell in his efforts to obtain reliable information as to the history of the breed.

The Suffolk horse is without doubt the oldest pure breed of cart horses in England, and early in the last century it was recognized to be a breed of true blood. Arthur Young was the first writer to mention the Suffolk horse, and the antiquity of the breed can be realized when we learn that even in Young's childhood, in 1741, the Suffolk was probably known as "The Old Breed".

It seems rather unfortunate that Young did not make further enquiries as to its history up to that period. He seemed neither impressed nor pleased by the Suffolk of his time. Perhaps he exaggerated somewhat, or perhaps humour guided his pen, for he writes that "an uglier horse could hardly be viewed", and that "it could trot no better than a cow". Yet strangely enough, about the same time Sir Thomas Cullum mentions that he used the Suffolks for his own carriages, and Jerry Cullum in 1800 describes the horses as being good movers, particularly suited for carriage work. We can hardly imagine that Sir Thomas Cullum should care to ride behind a creature that "trotted no better than a cow" and was so extremely ugly, or that Jerry Cullum should recommend such an animal for carriage purposes.

But we can rest assured that the Suffolk of 1741 was not the handsome creature of to-day, which is the result of so much careful breeding. Even in those days, whatever its looks, whether handsome or ugly, good prices were obtained, for at Sir R. Hartland's sale in 1810, £140 was paid for a Suffolk brood mare, and £40 was realized for a foal; certainly good prices.

The first Suffolk horse of which there is any definite description was Crisp's horse (404). In 1773 a Suffolk horse without any particular name was advertised as a five-year-old, "to get good stock for coach or road". The famous coaches that were to run between London and Brighton, and London and Bristol, were then little thought of. The coaches referred to in the advertisement were four-wheeled springless post-chaises, which, drawn by horses of bovine tendencies, must certainly have been far from pleasant to ride in. A later advertisement mentions that breeders who have been unsuccessful the previous year may have the use of this horse at a fee of 5s., and describes it as "a fine bright chestnut,

15½ hands high". Crisp's horse left four sons, one of which was of a dark chestnut colour.

In 1764 a Mr. Blake brought into Suffolk Blake's Farmer, a four-year-old Lincolnshire trotting stallion. He travelled in a small district, and was used by the farmers to cross with their Suffolk mares. The resulting blood became famous. In fact, Blake's blood was a security of good things, and we are told that 400 gs. was refused for a horse of this line. Gradually the origin of the Blake strain became less known, and Blake was nothing loath to keep the true breed of his Farmer a secret. For several years the demand for this line continued, but by degrees it became less in evidence, and to-day nothing but the memory of the breed of horses exists.

Barber's Proctor, originally a riding horse stallion, was another so-called Suffolk that travelled in the county. Its history is highly humorous. It so happened that whilst the horse was undergoing the operation of nicking in order to give it the appearance of a riding horse, an accident occurred, and its tail was broken off. The owner, without much regret, deemed it advisable to travel him as a Suffolk cart horse. In those days the mark of a good Suffolk was a "bung tail", that is to say, the tail was cut off close to the quarters, and so in at least one respect, if in no other, Barber's Proctor somewhat resembled a Suffolk. And we can little wonder that Proctor's blood, similarly to that of Blake's Farmer, is now no longer in existence.

The only other impurity of any importance which might have mixed with the pure old breed was that of a Flemish horse which was introduced in the pedigree of a mare towards the end of the eighteenth century. This, I believe, is not proven, and even if it were, it would result, as the editor of the *Suffolk Horse Stud Book* remarks, in the amount of Flemish blood in the present-day Suffolk being practically *nil*.

Fortunately for the breed, the old Suffolk yeomen by degrees reverted to the pure old stock, and the various foreign strains gradually died out. It is astonishing that all the horses that have left our shores, and those which are now in stud and farm, are every one a direct descendant of one particular horse, Crisp's 404. Crisp's horse had four sons; three of these carried on their respective lines for a few generations only, whilst it was Gleed's horse of Dickleburgh, the remaining son, that had so much to do with the subsequent Suffolk race.

Gleed's horse left three sons, but only one again, Smith's horse of Parham, carried on the blood by Brady's Briton and Julian's

Boxer. Brady's Briton is, however, of the greater importance, for he was the first of a line, eventually divided and redivided to form two of the most important lines of Suffolk horses, the Cupbearers and the Wedgewoods.

Crisp's Conqueror (413) was the son of a famous mare known as Toller's Matchet. This mare, considered to be one of the finest Suffolks that the country has ever produced, was bought by Crisp. Crisp's Conqueror was eventually sold to the Prussians for 300 gs., but fortunately he left a son behind him, Cupbearer (416).

Crisp seems to have had a great liking for this colt. He once remarked, "Whoever lives to see him, that will make the best horse I ever had." There certainly must have been something striking about the colt, for Mr. Crisp was a man of great experience. Little did he realize that this favourite of his was to be the forerunner of numerous champions—Eclipse, Harvester, Gold Ring, Peter, Chief-tain, Easton Duke, and many others of the same blood—which have taken the majority of honours during the last few years.

It will doubtless interest some to read a description of Cupbearer. He was a large horse with grand muscular shoulders, but plain behind. He is said not to have been an elegant mover, but nevertheless exceedingly active. It is remarkable that the Cupbearers of to-day are excellent movers.

The Wedgewood line, which are also direct descendants of Brady's Briton, has included many winners, amongst them being the famous Wedgewood, who was seldom, if ever, beaten, Saturn, Arab, Arabi, Mendlesham, Major Gray, &c.

Although Suffolk is the home of the Suffolk horse, yet many of the farmers are interested in Shire horses, or use crossbreds for working purposes. A few years ago this was even more noticeable than it is to-day, for the sudden increase in trade and the bettering of prices persuaded many to commence to breed Suffolks. Export trade increased, and good colts fetched high prices, whilst mares and horses nearly doubled in value.

In the meantime, not only were Suffolk horses spreading gradually into various counties of England, but some of the finest mares and stallions left our shores for distant parts. And as these horses gave satisfaction, and people realized the value of the Suffolk breed, the export trade increased to a considerable extent; and it is doubtless only a question of time before the export trade will be even keener yet, for a good reputation means much, and the confidence of buyers means more.

In years gone by there was but little export trade, and although possibly the Suffolk farmer did not realize at the time, it was never-

theless a matter of good fortune that this should be so, for the best horses remain in the country, and breeders are able to select carefully their stock for breeding purposes. In this manner the breed was greatly improved, not only in shape and quality, but also in quantity of bone and in many other characters that are to-day their best advertisement.

An olden-day show attraction, at the present day superseded, perhaps rather unfortunately, by various non-agricultural amusements, was the "pulling match". On these occasions the Suffolks were pitted against one another. These sporting contests did much to increase the natural keenness to work so predominant in the Suffolk's character. Strangely enough, Crisp's blood, the true Suffolk, was invariably master of the field, and Blake's, Wright's, and other non-true Suffolk lines were always outpulled. Drawing matches were of constant occurrence. Wagons were loaded with sand until the weight was past all moving, but history relates that if there was a chance, the Suffolks, throwing their weight into their collars and going down on their knees, would succeed in moving it.

Even to-day, although these matches of endurance have long since been abandoned, yet the Suffolk horse remains remarkable for its indomitable pluck and willingness. For the Suffolk is a most resolute worker. Seldom, if ever, will a horse refuse to pull, nor will it cease in its efforts to move the load even though it be far out of proportion to its strength. Should a wagon, owing to the carelessness or inexperience of the driver, strike a gatepost, unless the post is particularly well grounded it is liable to be uprooted or broken in two. This might sometimes result in the harness rapidly disintegrating, for it is natural to the Suffolk horse if impeded by additional weight to redouble its efforts. Suffolk breeders will, it is hoped, bear in mind the intrinsic value of this character, and will realize that the producing of a breed of easy fatteners at the expense of muscle is much to be deprecated. The use of overfat horses for breeding purposes must in time materially affect the race.

Another quality very much in evidence is docility. In fact, it would be a difficult matter to find any breed so tractable and so gentle. They are practically free from all vice. Mares, foals, colts, and stallions are equally docile. It is quite usual for stallions to be exercised on the halter by mere boys, and accidents seldom occur. On a Suffolk farm, when a colt is broken in, it is not driven to partial distraction by the cracking of whips, nor are its life and limbs jeopardized by rough handling, for the colt is treated quietly

and thereby taught to know man not as an enemy but as a friend. It thus gains confidence. A bridle with a well-covered bit is then adjusted, and the colt is left to think matters over. The next stage in "breaking in" may seem risky to those accustomed to less docile breeds. The colt is sent to plough for half a day by the side of an old stager; coaxed and calmed by the voice of the ploughman and by the confidence of its fellow worker, it does its share of the day's work. The Suffolk horse is naturally of a kind disposition, and bad-tempered horses, although rarities, when they do occur are the result of rough handling.

Several years ago the breed obtained the reputation of being particularly liable to various troubles. Whether this breed was actually worse than any other is a doubtful matter. But as soon as breeders realized the importance of soundness, and the Suffolk Agricultural Association had taken drastic steps to eliminate hereditary diseases by a veterinary examination at all shows after the judging, the breed was gradually placed on a firmer footing in respect to health, and to-day it may be honestly affirmed that it is one of the soundest breeds of horses in England. In fact, at the present day, practically every horse entered passes the veterinary examination successfully.

Constitutionally the Suffolk is remarkably strong. It is able to thrive and work well on rations poor both in quantity and quality; and the rations that would only keep one of the larger breeds of cart horses in working condition would tend to fatten the Suffolk. In their native home the horses are accustomed to go without food for long hours; from 6.30 in the morning till 3 in the afternoon is the usual practice, and although they are allowed half an hour's rest at 11 o'clock they are given neither food nor water. One might imagine that this treatment would be liable to curtail the life of a horse, but the Suffolk Punches live to a good old age. Their power of fecundity is remarkable. Cases are on record of stallions travelling for as many as twenty-five years, whilst mares are frequently met with twenty or more years old with colts by their sides. Prejudice, partly founded on fact and partly founded on fiction, has done much to prevent farmers in other parts of our islands from taking up the breed.

Often it is affirmed that the Suffolks have too little bone. That they have certainly less than the Shires must be admitted, but we must remember that the question is not so much of quantity as of quality. The bone of the Suffolk is very similar to that of the Thoroughbred and therefore of paramount excellence, and the horse proves by the age to which it lives, by its general

soundness and by the work that it does, that the share of bone nature has bestowed upon it is certainly sufficient for its needs.

Much has been written and more has been said as to the Suffolk being unfitted for hard roads and for town purposes. Those who have used Suffolks in the streets of London or in those of other large cities speak highly of the lasting powers and general utility of the breed. The Ipswich Corporation with laudable loyalty employs a large number of Suffolks and finds them perfectly satisfactory. But although the Suffolk will actually stand road wear and tear as well as any other breed of heavy horses yet it is perhaps particularly suited to agricultural purposes.

Again, prejudice has labelled the Suffolk as a "slothful" creature, particularly because the horses are exhibited at shows in an immoderately fat condition. Visitors from over the seas are given an entirely wrong impression of the Suffolk horse, if their enquiry into the breed begins and ends at a show ground. Breeders should realize that overfeeding not only somewhat handicaps the trade but also is liable to lead to constitutional troubles.

The young Suffolk has naturally good feet, equal to those of any other breed of cart horses, and in stables or studs where the feeding is rational and exercise sufficient, laminitis seldom occurs. For sufficient food and hard work spoils no horse, whilst fattening, heating foods, in too great quantities is highly detrimental.

It is often asked if the Suffolk is especially suited to any particular district or county. It is found that the horses bred on the heavier lands are liable to produce more bone than those on the light lands. But whether on heavy land or on light land, the Punch is equally useful. The absence of feather saves not only men's time but also keeps the legs far freer from grease and other skin affections. The position of the shoulders gives the horse a particular advantage for a steady pull, and the animal is a decidedly quick walker. In fact, the Suffolk is, without doubt, one of the most useful agricultural horses for any and every county in England.

There is no advantage in attempting to breed big Suffolk horses. The type of Suffolk to be aimed at is one standing up to 16 hands 1 in. high, with hard short legs, close-knitted joints, and deep carcass, with plenty of width in front. The smaller Suffolks are of value for crossing with light breeds in order to obtain active horses with more substance and stamina; in this way many good hunters have been bred and several excellent riding and driving cobs. It is interesting to know that the result of these crosses is usually a chestnut with a remarkably docile disposition.

The capacity to thrive well on a scanty diet, the drawing instinct, and the docility, are the characters which ought to be well developed. The world, as it is now, requires reliability above all things, and gradually the reliable horse—the horse that will do its utmost and will cause a minimum of trouble, the horse that will keep soundest and breed longest—must gradually become more and more a favourite.

Buyers from America, Australia, Africa, and from our neighbours, Russia, Austria, and Germany, are constant visitors to Suffolk. It is thought by many that the Punch horse is predominantly suited for army crosses. Those who come to buy naturally wish to obtain the best animals, and unfortunately there are but comparatively few Suffolks in the country. Good prices are offered and gradually the best blood is being taken from our shores. A day must come when good Suffolks will make still higher prices, for the demand is certain to increase. Rather let the Suffolk breeders refuse good offers and keep a few more mares of the best blood in the country so that the quality of good stock will increase, than sell them to be deported whilst yet they are so urgently required in their own country. If it had not been for a few loyal Suffolk breeders who have refused to sell their best horses and mares at any price, even to-day the Suffolk would be no longer the horse it is. Unless drastic steps are taken the Suffolk horse in this country will gradually deteriorate and the painstaking work of the early breeders will be lost for ever.

The Suffolk Horse Society, noticing the demand for the best blood, particularly in respect to mares and fillies, started a worthy scheme of denomination mares, which will also do a great deal for the Suffolk breed for this and future generations.

In conclusion, it is interesting to note that although at the present day the various breeds of stock no longer compete with each other in the same class, except when it is a matter of judging respectively milking or beef qualities, yet at the meetings of the Royal Agricultural Society from 1839 to 1862 there was a general class for heavy horses of all breeds. Shire, Clydesdale, and Cross-bred competed with the Suffolk in regard to general merits as agricultural horses, and during the twenty-two years one hundred and sixty prizes were divided between four classes—aged horses, two-year-old colts, mares and foals, and two-year-old fillies. At the Oxford Show in 1839 only two prizes were offered, and whilst a Suffolk mare won the aged horse class the honour of the best mare and foal passed to another breed. The following year at Cambridge the results were somewhat similar, a Suffolk winning

the "best mare and foal" class, and the only other honour, the aged class, was won by a Shire or Clydesdale. From 1841 until 1847 the winners were mostly Shires, Clydesdales, or Crossbreds, but at York in 1848, five of the prizes were won by Suffolks and three by other breeds.

During the following years at Norwich, Exeter, Windsor, Lewes, and Gloucester, practically all the honours were taken by Suffolk horses, whilst at the subsequent shows held at Lincoln and Carlisle the East Anglian breed was far from successful. However, from 1856 to 1861 the Suffolks regained the lead, the majority of honours falling to their share—in fact, winning twenty-nine prizes, whilst the Clydesdales, Shires, and mixed breeds won only nineteen.

The final total for the twenty-two years was as follows:—

	1st Prizes.	2nd Prizes.	Total.
Shires, Clydesdales, and Crossbreds	43	29	72
Suffolks	44	44	88

Considering the number of Suffolks compared with other cart horses in Great Britain, and bearing in mind how distant most of the towns at which the show was held were from the east of England, it speaks well for the "Old Breed" that they should yet have managed to obtain the greater number of awards in the mixed class for purely agricultural horses

CHAPTER II

BREEDS OF HORSES

2. LIGHT HORSES AND PONIES

By W. SCARTH DIXON

Cleveland Bays and Yorkshire Coach Horses

There is such an affinity between the Cleveland Bay (see plates pp. 48, 49) and the Yorkshire Coach Horse (see plates pp. 56, 57) that it seems advisable to treat the two breeds under one heading. The Cleveland Bay was to a certain extent bred on the same lines as were afterwards adopted and modified, and of course considerably developed, in the breeding of the Yorkshire Coach Horse.

It is the opinion of many authorities that the Cleveland Bay nearly approaches in character the original horse of the country—the horse that drew the war chariots which gave even Cæsar's veterans a severe shock. It is highly probable that they are direct descendants of those horses, which must have been something out of the common to have attracted the attention of such a fine judge and horseman as Julius Cæsar. It is, however, very possible that the native breed of the country was considerably modified during the Roman occupation of Britain. Here is one way by which it might have been improved. We are informed that the Roman cavalry stationed at Doncaster (*Danum*) in the 2nd century A.D. were mounted on Barb stallions. What so likely as that some of these would be used to improve the breeds found in the East and North Ridings of Yorkshire? There is also historical evidence that the Eastern horse was found in Yorkshire in another connection, for we are told that when the Emperor Severus was staying at York some of the Roman officers organized for his amusement a race meeting at Wetherby, which was possibly the first race meeting of importance held in England.

It has been suggested that the ancestor of the Cleveland Bay was in all probability the horse of the age of chivalry, which

figured in battlefield and tourney. The suggestion is an ingenious one, and judging from what we see of the Cleveland Bay in these days, he would seem to be an ideal horse to carry a knight in armour. But the writer is not inclined to accept the theory. In the first place, the Cleveland Bay of to-day is very unlike his ancestor in the days of King Richard or King John. In those days his ancestor was undoubtedly on a much smaller scale, and I should feel inclined to look for him in the ranks of the Pack Horses rather than of the Great Horses. Then in contemporary pictures of war horses we find the plain, rather heavy head of the Shire and the feather on the legs, which the Cleveland Bay has not, and Sir Walter Gilbey seems to have fairly established his theory that the Shire Horse is the descendant of the Great Horse. It is highly probable that if we saw the much-vaunted war horses of that period we should be greatly disappointed in them, and should consider them common and clumsy. The writer has an idea that the best of them would not make much at Tattersall's.

The late Mr. Lumley Hodgson, a well-known breeder and fine judge of all horses, said that the Cleveland Bay or Chapman Horse was a pure breed before the days of the Godolphin Barb or the Darley Arabian. There is, I think, every indication of the soundness of Mr. Hodgson's theory, which receives some confirmation from the *Notebook* of Sir Walter Calverley, who flourished in the time of Charles II. In this notebook Sir Walter tells us that they took the lighter draught mares to horse the coaches which were then becoming more common in the country. It is, from this, pretty clear that, at any rate in Yorkshire and in some of the neighbouring counties, where horses were used on the land—it must be remembered that cattle were also largely used—those horses were something of the type of the Cleveland Bay, or Chapman Horse as was the older name. Long after the time of Sir Walter Calverley we find this state of things prevailing. In the latter half of the eighteenth century, when Marshall wrote his *Rural Economy of Yorkshire*, he wrote in very trenchant language against the introduction of the Holderness cart horse into the North Riding, insisting that his neighbours had a much better horse for their purpose. Yet the Holderness cart horse was a much lighter horse than the Shire, and was of the type which is spoken of in the section on Hunters (p. 42).

This fairly seems to establish the position of the Cleveland Bay as the draught horse of, at any rate, a considerable section of the country, and we have now to consider the question of his development into the horse we see him to be in these days. All over

England, and in Yorkshire especially, there was an exceptional number of high-class Thoroughbred horses travelling the country. There being no railways, and other means of conveying mares any distance being very expensive, country mares as they were called in Yorkshire, i.e. mares of any breed owned by farmers and others, had access to exceptionally good horses at merely nominal fees. We even find a horse like Hambletonian, a St. Leger winner, taking a few approved farmers' mares at a fee of a guinea.

But long before his time, and as racing began to extend, these horses became very numerous, and no doubt were used to cross with the Chapman or Cleveland mares to a considerable extent. We know of one instance in which this was the case. Traveller by Partner, dam by Almanzor, a bay horse that was bred by Mr. Osbaldeston in 1735 and which won several races, came owing to some cause or other into the Yarm district. There he covered the "country" mares at very low fees—as little as 10s. it has been said—until the Duke of Cleveland, happening to see some of his stock when he was on a hunting expedition, mated Slighted by All to him. The result was Dainty Davy, which was the best horse of his year. And of course after that Old Traveller was purchased and went to Raby. Several famous stallions of the Cleveland Bay breed trace their pedigree back to this Old Traveller.

What was taking place in the Yarm district would naturally be taking place, more or less, all over the country, and hence it is not difficult to see how the Cleveland Bays gradually "grew to quality", and how some of them were very smart indeed, on the road or in the hunting field.

Mr. Lumley Hodgson used to tell of how one Miles of Harlsey, who was serving on the jury at York, rode to York every morning on his Cleveland Bay mare, arriving in time to hear his name read out and returning home when the court rose. This meant riding the mare seventy miles a day for six days, a very good performance for any breed. Mr. Parker's mare, of Cundale and Star, and her sister, are referred to elsewhere, and other instances, similar in general character if differing in detail, are constantly cropping up. I have myself seen a man loose a horse out of the plough and jump on to him barebacked when hounds have crossed the field, and seen him go right well too. And when this happened it was pretty certain to be a Cleveland Bay, with perhaps a cross of blood a generation or two back that was careering after hounds, fully equipped with barfin and hames.

The Cleveland Bay is a very powerful horse, standing from 16 hands to 16 hands 1 in., with big bone of great density. The

Thoroughbred and the Arab alone equal the Cleveland Bay in density of bone. A peculiarity of the breed is the long elegant quarter—a quarter such as is seen in no other breed. The shoulders are generally good and the hock action is excellent. The Cleveland Bays at one time, as well as doing the principal farm work, did a good deal of harness work on the roads, and when a faster horse was required for the coaches, they made a capital foundation for that faster breed. The Cleveland Bay has been well described as the foundation of light horse breeding, for there is no breed that he will not cross well with. I even remember more than one good horse by a Cleveland Bay sire from a heavy draught mare, or vice versa, that could not be beaten for farm work. But it is with the lighter breeds that they cross best. I have seen and ridden many a good Hunter by a Thoroughbred from a Cleveland Bay mare, and some of the best Hunters I have ever come across, especially as weight carriers, have been bred that way, or had another cross of Thoroughbred from a mare bred that way. If the object of the breeder is to breed Hunters, he will have to get a short-legged compact Thoroughbred sire. The ordinary King's Premium winner, narrow, and on the leg standing 16 hands 2 in. or thereabouts, will probably—not certainly, for the unlikely is always happening at a stud farm—entail disappointment. Courage and action he must have, and if I could not find one of the sort standing anything from 15 hands to 15 hands 3 in., I should look out for a Thoroughbred Polo Pony of the stamp of Sir John Barker's Othraë.

In breeding a harness horse from a Cleveland mare there are three courses open to the breeder. He may cross his mare with a Hackney, or a Yorkshire Coach Horse, or he may use a Thoroughbred. If he uses a Hackney with good straight action he will be sure to breed a good harness horse, but I would suggest that he should avoid a gaudily marked chestnut; of which there are too many to be found amongst the ranks of the Hackneys. There are plenty of good Hackneys bay or brown in colour, and it will be found a wiser policy to look after one of them without gaudy white markings, even if a little more expense is incurred, rather than use a chestnut with a lot of white. It will make a great difference when the horses are to sell, and it is well to bear in mind that no harness horse, as a rule, brings so much money as one of the orthodox Cleveland colour, viz. bay with black legs. If he crosses with a Yorkshire Coach Horse there will be no difficulty about the colour of the produce, for the Yorkshire Coach Horse, needless to say, is of the same colour as the Cleveland Bay. Some care will be necessary in selecting a sire. I should prefer a horse on the



Photo Sport and General

SUFFOLK STALLION "SUBBOURNE PETER"



Photo. Sport and General

SUFFOLK MARE—"SUDBOURNE LASSIE"

small side—about 16 hands. He would be no worse for being half an inch short of that height, but he should be full of quality and action. Such a horse would sire a good-looking powerful brougham horse from a Cleveland Bay mare. In selecting a Thoroughbred, when the breeding of a harness horse is the object, it is not so necessary to insist on compactness. There must be length underneath, and if harness is the object it does not so very much matter if there is a little length on the top as well. Action, of course, is imperative. I should add that the cross between a Thoroughbred and a Cleveland Bay mare is often very good both in saddle and harness, and is an exemplification of the proverb which tells us that a good saddle horse is always a good harness horse, though the reverse by no means applies.

With the Cleveland Bay, such an excellent worker on the land and such a valuable acquisition in the stud, one would think the breed would be found all over the country, instead of only in a corner of it, and that, really, not in great numbers. As a matter of fact the Cleveland Bay has had, since the beginning of the nineteenth century, a very chequered existence. Sometimes he has been what Yorkshiremen describe as “all money”; then for a time it has scarcely been possible to give one away. Curious as this may be, it is not difficult to account for.

When in the beginning of the nineteenth century a lighter carriage and a lighter horse were used on the improved roads, an idea began to prevail that Cleveland Bays would be no longer wanted, and no attempt was made to maintain the purity of the breed except by a few enthusiasts. Then came a time of recrudescence, and the Cleveland Bay was looked upon as valuable on the land, as engravings and articles in the *Farmers' Magazine* and the *Sporting Magazine* and *Sporting Review* clearly show. Mr. Lloyd, a Gloucestershire farmer, tells his experience with a Cleveland horse in the first-named periodical in the year 1825, and up to the railway days the breed prospered.

When the railway days came there was a slump and a clearing out, and I have heard a Yorkshire farmer say that it was pitiable to see so many fine mares leaving the country. He saw shiploads of them going, and at a price which was a bare acknowledgment. They were sent to Belgium and Germany, and our Belgian and German neighbours showed they knew what they were about when they availed themselves of the opportunity caused by our folly. I wonder how many descendants of those mares we gave away have come to England at big prices?

There was a revival after this, and in the 'sixties some great

horses were shown and made a stir. Then came another falling off, and in the 'seventies Cleveland Bay breeding had fallen to such a low ebb that at the Cleveland Agricultural Society's show there was only one class kept in the schedule, and that not without a hard fight. I believe that Hinderwell and Egton, two local shows on the edge of the Dales, were the only other shows at which Cleveland Bay classes were to be found, and just before this time the first prize in a Cleveland Bay brood mare class at Whitby was awarded to a *grey*. The class was cut out in the following year, and was not revived till after the formation of the Cleveland Bay Horse Society in 1884.

The last few years of the 'seventies and the early 'eighties saw a wonderful revival in the horse trade. The United States were busy expanding and opening up new country, and the Continent had got nicely settled again after the upheaval of the Franco-German war. Trade was good, and everyone wanted horses. The formation of the Breed Societies also undoubtedly gave a great impetus to the trade; the quality and substance of the Cleveland Bay found recognition in the markets of the United States and the Continent, and for some few years the trade flourished and big prices were made. Then came another slump from which the breed is now just beginning to emerge.

One cause of the falling off in popularity of the Cleveland Bay has yet to be referred to, and I have kept it to the last, as it had something to do with the development of the Yorkshire Coach Horse breed. The "Beaux of the Regency" took it into their heads that it was the "correct thing" to drive a cabriolet on high wheels, drawn by a tall blood-like horse and with a diminutive and impudent tiger hanging on to the straps behind. The taller the horse and the more diminutive and impudent the tiger the happier the voluminous neck-clothed beau who held the ribbons. Of course Fashion's whims must be gratified, and the want being proclaimed, dealers set their wits to work to find the horses and breeders to breed them. The tallest Cleveland Bay mares were selected and mated with the tallest Thoroughbred stallions, and tall, narrow, split-up horses were soon bred, which suited the exquisites down to the ground as long as the craze lasted. There is no doubt—there cannot indeed be any—that this absurd craze inflicted a severe blow on the Cleveland Bay breed, and one from which it has never fully recovered. There were plenty of mares, especially in the Dales, to keep the breed alive, but there is no getting away from the fact that the best and most stylish of the mares were selected to make the foundation of what eventually became a new breed.

The results of this cross of Cleveland Bay and Thoroughbred were mated, and the produce, as might have been expected, was tall and narrow; now and again more Thoroughbred blood was introduced, and the beaux got what they wanted. And then for one reason or another they tired of them. But if they had been instrumental in inflicting serious injury on an old breed, they had formed a new one which the astute Yorkshire breeders, in whose hands it mainly was, were to establish upon a firm basis.

One drawback to the tall horses with long arched necks was that so many of them developed roaring and kindred diseases. When they brought big prices the risk might be run, and indeed was run, but it is useless running risks for an exploded fashion. The tall horses began to disappear as the special demand for them ceased, and the Yorkshire Coach Horse had a capital sale. For he is a stylish harness horse, and if he has not so much snap of the knee as the Hackney, he looks better in his leather, his long elegant quarters giving him a very taking appearance.

The Cleveland Bay cross was introduced again to obtain the compactness necessary, and many Yorkshire Coach Horses are very full of good Cleveland Bay blood. Indeed the similarity between the two breeds is very great, and unless a man is an expert judge it is very difficult to differentiate between them. Frequently they are shown in the same class, and it is by no means always that the Coach Horse wins. Indeed, a Cleveland Bay is eligible for the Yorkshire Coach Horse Stud Book, but a Yorkshire Coach Horse is not eligible for the Cleveland Bay Stud Book. The formation of two breed societies for two such similar breeds has done the trade in neither any good, and it is a great pity that there were ever two societies, for if sufficient precautions had been taken in drawing up the regulations for entry in the earlier stud books, and especially the retrospective volume of the Cleveland Bay Stud Book, the difficulty in all probability would never have arisen.

The conditions were that there should be three top crosses of pure breeding in the pedigrees of stallions; occasionally amongst the older horses, two or even fewer securing admission into the stud book when they were known and fully recognized as Cleveland Bays. This of course only applied to the retrospective volume. Now, there is not the least doubt that some horses were admitted into that volume which had not nearly so much Cleveland Bay blood in them as some of those that were rejected. For instance, a horse by a Coach Horse out of a pure Cleveland Bay mare might have very little Coach Horse in him if his sire was also out of a pure-bred Cleveland Bay mare; there might, indeed, only be four

out of the thirty quarterings Coach Horse, whilst the other twenty-six were Cleveland Bay, whilst with the three top crosses it was possible for only twenty-one of the quarterings to be Cleveland Bay, whilst nine might be alien blood—even Cart Horse. But the committee stuck to the three top crosses, with the result that some hundred horses were rejected, very few of whose descendants would have interfered with the Cleveland Bay Stud Book. A compromise, even after the Yorkshire Coach Horse Society was formed, might have been effected if it had been gone about in the right way, but nothing was done. The Coach Horse Society took a wider area than the Cleveland Bay, and admitted direct crosses of Thoroughbred blood, which of course was a policy which Cleveland Bay breeders could not adhere to. And so a golden opportunity was lost, which perhaps would have been seized upon if everyone had not thought the good times were going to last for ever.

In giving the history of this curious position I would point out that there is not and never has been any animosity between the two societies. Many men are members of both. But there is reason to think that a mistaken policy was pursued.

There was a big slump a few years ago, and for some time prices were bad, but the demand for both breeds has been improving. There seems to be every reason to think that the improvement will continue. Some of the Development Fund money has been allotted to Cleveland Bay and Yorkshire Coach Horse stallions, and this has done a great deal of good. For one thing it has made men register their mares, and the whereabouts of some good mares have been discovered which would probably have been lost sight of altogether if it had not been for this grant. Then the grant if not a large one, will tend to keep a young stallion at home a year or two longer. He will be all the better to sell for having won a prize of this sort. Then Lord Hollenden has taken to driving a team of Cleveland Bays in the Park, and these have been much admired, so that it is by no means unlikely that others may follow his example.

But the most important incident in connection with the breed which has taken place in recent years is the formation of a stud of Yorkshire Coach Horses and Cleveland Bays by His Majesty at Hampton Court. It is well known that the King is a great admirer of the breed, and his gift of a Challenge Cup to be competed for at some district shows in Yorkshire has given a direct impetus to breeding.

It seems a paradox, perhaps, but a man who would lay himself out for breeding geldings of these breeds would do well to buy his

Cleveland Bays of the Coach Horse type, and his Coach Horse mares of the Cleveland Bay type. When he has been a little amongst them he will find that it is not such a paradox as it looks on paper. It would be, in the present condition of the breeds, patriotic certainly, and perhaps more profitable to breed on stud-book lines, for good prices are given for good stallions. One word of warning may be given about working either Cleveland Bays or Coach Horses on the land. Steady men must be sent with them. A "flighty", bad-tempered man will cause mischief. They are quiet enough, but high-spirited, and will not stand knocking about.

There has been a suggestion that the Cleveland Bay and Yorkshire Coach Horse Societies should amalgamate with the Hackney Horse Society, but it is not worth serious consideration.

Hackneys

(Plates, facing pp. 64, 65)

At one time Hackney breeding was practically confined to the East Riding of Yorkshire and to Norfolk and Suffolk—East Anglia. No doubt the breed as we now know it had its origin in those districts, and that for a very long time something which did the same work as the modern Hackney and which was much esteemed in its day, was bred in them many hundreds of years ago. We have, for instance, Dame Paston writing in the thirteenth century to her husband to inform him that "three fayre trottyng horses" have been sent to him from St. Faith's fair; and a couple of centuries later Blundeville draws attention to what were no doubt the foundations of the Hackney, when he says that mares to breed from should be "strongly made, large and fayre, and have a trotting pace, as the Mares of Flanders, and some of our own Mares be". These mares of Flanders, no doubt, had something to do with the origin of the Hackney.

The improvement of the roads, which followed as a matter of course on the termination of internecine broils and the consequent increase of inland trade, was, if not exactly the cause of the modern Hackney's origin, undoubtedly the reason of his rapid development. He was wanted—very much wanted—and it was essential that he should be fairly fast, possessed of considerable stamina, and of quick recuperative powers. There was the foundation in the "trotting mares, fayre and large", which had by this time become indigenous to Yorkshire and East Anglia, and in the Thoroughbred there was the combination of quality and stamina necessary for the formation of the ideal Hackney or Hack.

Undoubtedly for a very long period the Hackney was bred for work and not for fancy, and primarily there is no doubt that the saddle rather than harness was his *métier*. When trade began to expand and merchants, either by themselves or by their representatives, paid periodical visits to their customers all over the country, the journeys were frequently taken on horseback. For one thing, short cuts could be taken; for another, a man was a little safer from highwaymen on horseback than he was in a gig. Whatever the reason, a good deal of the commercial travelling in the latter part of the eighteenth century and the early part of the nineteenth was done on horseback. But as time wore on and roads became better, and the country became more opened out, the gig or the high dog-cart in some measure took the place of the saddle.

There is one remarkable circumstance in connection with the development of the Hackney, and that is, that though here and there we have a record of a horse trotting so many miles within the hour, or a mile in a given number of minutes, or even of beating another horse over a certain distance of ground, trotting as a sport never "caught on" in England. In England there was always racing and plenty of it, and, compared with racing, trotting is only slow sport. It is said, and perhaps with some show of reason, that the popularity of trotting in the United States is due to the fact that, whilst the original settlers were opposed to horse-racing and set their faces against it as a deadly sin, they never said anything against match trotting, and that in consequence their descendants got rid of their superfluous energy, first in matching their horses on the roads, and then on the trotting track. If this is true it is a very amusing instance of human inconsistency. Unfortunately for this theory it is a well-known fact that Cromwell and other well-known Puritan leaders were partial to racing, and I should think the reason why trotting caught on and became as it were a national sport in America was that they had not sufficient of the right material for racing whilst they had plenty for trotting. There was some good trotting foundation to work on when Mambrino and other Thoroughbreds were imported to consolidate and found the now famous American trotting breed.

The Thoroughbred influence on the Hackney during the early years of his written history is worth a passing notice. Beginning with the original Shales, we find that he was by Blaze by Flying Childers, who was full of English as well as Eastern blood. Mr. Euren suggests that as that English blood is unknown it might be running, trotting, or ambling. Surely this is a question that settles itself. Both Blaze and his sire, Flying Childers, were good race-

horses, and trotting blood was scarcely likely to win at Newmarket or elsewhere. A grandson of Shales, Marshall's Hue and Cry, was the sire of a lot of horses named Shales, but he scarcely made such a mark on the breed as did his other grandson, Jenkinson's Fire-away, who was by Driver, and from whom comes a long list of high-class horses, perhaps the most notable amongst them being Wroot's Pretender, who was the sire of Bob Ramsdale's Performer, of whom the Druid writes with such enthusiasm, and who was perhaps the finest mover not only of his own but of any time. Other Thoroughbred horses whose names are to be found in the pedigrees of the older horses registered in the Hackney Horse Stud Book, and who had much to do with the formation of the breed as we now know it, were Mr. Robinson's Sampson, a horse that was bred by the Marquis of Rockingham, and famous for his remarkable substance; Jalap, a colt by Regulus, who, according to Marshall, was a very successful sire in the North and East Ridings of Yorkshire, and whose name is found in the pedigree of Ramsdale's Performer; and Hartley's Joseph Andrews, a well-known Royal Plate winner, whose name continually occurs in the pedigrees of East Riding celebrities. Of course this by no means exhausts the list of Thoroughbreds who in the eighteenth century and early years of the nineteenth helped to develop the modern Hackney; but those whose names have been mentioned come prominently into the pedigrees of some of the more famous sires, and may be taken as a fair example of what took place in the way of introducing the Thoroughbred cross at the time.

The Hackney was at a very high pitch of perfection indeed when the railways came and altered the whole system of travelling. Then indeed the Hackney seemed likely to suffer severely, but at first he seemed nearly as much wanted as ever as a means of communication between the great trunk railways. The end of road travelling was, however, inevitable; at the best it was only a question of a few years; and had it not been for the fact that gentlemen fancied the stylish horses, and took keenly to them, and that the shows began to increase and multiply, the Hackney would in all probability have fallen on very evil days.

It is worth noting that during the middle years of the nineteenth century—say from the 'forties down to the end of the 'seventies—the Yorkshire and Norfolk Hackneys grew widely apart in type. This was, no doubt, due in a considerable measure to the greater frequency with which Yorkshire breeders introduced a cross of blood. Whatever the cause, however, the fact remains, and the Yorkshire horses up to quite the end of the 'seventies, or even later,

were more of the saddle type, whilst the Norfolk horses were more of the harness type.

Though it is outside the scope of this article to enter minutely into the pedigrees of individual horses, there are two to which a brief reference must be made—Triffit's Fireaway and Bourdass's Denmark—as they have made such a great mark on the modern Hackney, and are perhaps the greatest sires of the latter part of the nineteenth century. Fireaway was foaled in 1859, and was by Hairsine's Achilles (2), through whom comes some Thoroughbred blood, out of Nancy by Ward's Performer by Norfolk Phenomenon. He was a great prize winner, and was the sire of many good stallions, amongst whom may be mentioned Bismarck; Vary's Fireaway, the winner at Alexandra Park in 1874; Foster's Fireaway; Triffit's Landseer; Brough's Phenomenon; Triffit's Sir Edwin Landseer, and Postill's Sir Garnet. Denmark was three years younger than Fireaway. He was by Beal's Sir Charles (768), dam by Rickett's Merryman (458). He was very much inbred to Burgess's Fireaway (208), whose dam was by the Thoroughbred Skyscraper, a son of Highflyer. The Thoroughbred Hyperion also comes into his pedigree. His rival, Triffit's Fireaway, also had a strain of Fireaway (208) in his pedigree, and amongst other Thoroughbred horses in it are Ponteland by Waxy and Borodino by Smolensko.

Denmark, though scarcely so successful in the show ring as Mr. Triffit's famous horse, has the better record as a sire of stallions. First and foremost amongst his sons stands Danegelt (74), for whom Sir Walter Gilbey gave 5000 gs. when he was thirteen years old; other great sires by him were Dorrington (174), Charley Denmark (130), Moore's Confidence (163), Fordham (187), Lord Derwent (418), and Moore's Sunbeam (819).

The rivalry between these great horses was keen, and the question has never been settled satisfactorily to their respective partisans as to which of the two has had the best effect upon the breed. It has been said, perhaps with some show of reason, that Denmark sires and Fireaway mares were the better, and there we will leave it. But it may be added as a rider that nearly every great Hackney has a cross of one or other or both.

The formation of the Hackney Horse Society, and the publication of the Hackney Stud Book marked an important epoch in the history of the breed. For many years it had gradually been developing into a fashionable breed, and the growth of the show system had done much to assist in this development. The Hackney Horse Society by its London show strengthened the movement, and an enormous and increasing foreign trade kept it well "in the

limelight". Perhaps there never was such an opportune time for the successful floating of such an important enterprise. Never in the history of the breed had there been so many good horses astir, and their whereabouts were made known to the general public by means of the large classes seen at the important shows which were springing up all over the country. In a word, the time was ripe.

The popularity of the Hackney did not all tend to his benefit. It was perhaps a good thing that the Yorkshire and Norfolk types should be merged in one, which to a considerable extent followed on the issue of the Stud Book, though whether it was altogether due to it is matter of controversy. One notable instance of this combination of blood occurs to the memory—Mr. Henry Moore's Rufus, a horse of great style and character, that was champion in 1889 and 1890, and that died all too soon.

There is no doubt that one thing which made the Hackney popular with the public was his stylish action—his high stepping; and the result of this is not altogether satisfactory. It came to pass that if not everything, at any rate many very important things, were sacrificed to the snap of the knee. It mattered not whether a horse used his shoulders and hocks sufficiently so long as his knee action appealed to shouting crowds. It became a fashion, too, to regard the Hackney as the fashionable *harness horse*, and to make him fill this role properly his height must be increased—he must be bred up to 16 hands 1 in. or 16 hands 2 in. This was attempted and to a certain extent it succeeded, but at what a price! The old type was to a considerable extent lost; horses began to throw their legs about and "weave", and upright joints and other faults began to multiply. The council of the Hackney Horse Society, wisely realizing that many of the evils which were appearing were due to heavy shoeing, restricted the weight of the shoes, and further restriction in this direction would be beneficial.

The council has also restored to its London show the riding classes, and though these were the subject of much hostile criticism, it is to be hoped they will not be dropped, for it is as the dual-purpose horse that the Hackney seems to have a bright future. The coming of the motor car has done much to weaken the position of the "fashionable" harness horse.

It should be mentioned that the showing of harness horses is increasing, and may perhaps develop into a sport if the enthusiasm which is manifested at Olympia is to last, so that here is a way for the high-class harness horse. But the breeder of Hackneys who is strange to the details of Hackney breeding will have to find a market for those horses which do not come up to the first-class

standard, and this is really a difficulty sometimes. It will, I think, be best met by endeavouring to breed a medium-sized horse, under rather than over 16 hands, and by bearing in mind that originally the Hackney was a riding as well as a harness horse.

In selecting a stallion or brood mares the breeder must pay special attention to pasterns, shoulders, and hocks, and must insist on *straight* well-balanced action. If this policy is followed, saleable horses should be bred.

Hunters

(Plates, facing pp. 80, 81)

The term "hunter" embraces a wide area, and is applied to all sorts of horses, from the upstanding, well-balanced, well-bred horse that carries his master right up to the tail of the hounds to Master Johnnie's "hunter", who is generally a shaggy Shetland Pony. That there are hunters and hunters a visit to any big show will abundantly testify, but all the classes of hunters are not found in the showyard nowadays, whatever may have been the case when Hunters and Coach Horses were classified together, as I believe is the case even yet at some old-established and old-fashioned agricultural shows. For the showing of Hunters, as they have come to be more and more classified, has got into the hands of men who make of it a speciality, and who have come to recognize that there are only two or three sorts that can be shown with any chance of success.

We see the hunter in his "infinite variety" at any important fixture of a provincial pack. For I would rather take a good provincial pack than one in the Shires for finding the different kinds of horses which are classified as hunters. The well-bred weight carrier, nearly Thoroughbred; the handsome middle-weight hunter; the galloping light-weight horse, shaped like, and in all probability, a clean Thoroughbred—all these you will see at any fixture in the Shires. But there are others. For instance, there is the hack hunter, who shows his sporting master a good day's sport to-day, and two days later is taking him round the country on his business. He is not so much in evidence as he was, but he is a valuable possession if one of the right sort. The hunting doctor always had something good of this sort, but since he has taken to going his rounds in a motor car the sort is not so much in evidence. An old friend of the writer used to drive out in his gig, see several patients, then put up at a farmhouse, saddle his horse—he took his hunting saddle and bridle with him in the gig—and have a spin with the hounds. He would finish his professional visits as he returned home. I

cannot say I view such a plan with unqualified approval, but as in these days there is not much likelihood of its being adopted, it is scarcely worth while to spend time in criticism.

Then there is the lady's hunter, which once meant any nondescript in the stable which no one else would ride, but which is now generally a high-class middle-weight hunter—a lady should always be mounted on a horse up to a couple of stone over her weight. The old man's horse, short-legged, somewhat sober, but full of quality, and with a character peculiarly his own, is not the least valuable of the lot of horses which will be seen on such an occasion. He is a horse which cannot carry his owner right up to hounds, but he is one on which a man who knows the country, and who will jump a fair-sized fence on occasion, will see a lot of sport, and on which he is not unlikely to be "there" at the end of the run of the season before the gentleman who has gone into every field with hounds. And so we go on down the scale till we come to horses which can only be called hunters because they are ridden hunting.

It has been well said by the late Sir Richard Green Price that the Hunter is a type and not a breed. Many years ago an attempt was made to make a breed of hunters, and it has, so far, signally failed. Nor does there seem to be any prospect of success, at any rate in the immediate future. The drawing up of certain conditions of entry into a stud book, and the publication of a certain number of volumes of a stud book, are not of themselves sufficient to constitute a breed. To make a breed it is necessary that the mating of a horse and mare, bred on stud-book lines, should result in a foal of the same characteristics as the sire and dam, and these characteristics this stock should have the power of transmitting to their offspring, and so on. This, where there is very high up in the pedigree a considerable quantity of alien blood—cart horse, perhaps—is a thing that cannot be looked for with any degree of confidence. Then there is another reason why a Hunter breed is scarcely likely to be formed successfully. It is above all things necessary, as pointed out above, that the sires of any breed should be hardy in constitution, and that they should have their capabilities tested by some more reliable trials than those of the show ring. How is the half-bred Hunter sire to be tested? Racing him is an impossibility. The days of half-bred racing are over for ever in this country, and it is well that it is so. In the hunting field he would scarcely be tolerated, besides which, if he were, for many and obvious reasons it would be impossible to be sure that the test was a sufficiently satisfactory one.

So I think we may fairly hold with Sir Richard Green Price

that the Hunter is a type and not a breed. A curious fact which came under the writer's own observation seems confirmatory of this, and it also would seem to have a bearing on the whole question of Hunter breeding.

It has frequently been remarked by men who flourished in the beginning of the nineteenth century how certain Cleveland Bay horses carried their owners to hounds. The late Mr. Lumley Hodgson spoke of one which carried his owner, Parker of Cundale, near Boroughbridge, right to the front with hounds, and which could live alongside any hunter when hounds ran fast and far. Mr. Hodgson, however, was not able to give a pedigree of Cundale's horse, and he might have had a Thoroughbred cross pretty near the top of his dam's pedigree. In the cases that I am about to give there was nothing of this sort. The pedigrees were correct Cleveland Bay pedigrees. Two sisters were by Barnaby, dam by Master William, then came two more Cleveland Bay crosses, the names of which I cannot call to mind, but the breeder was a man who had a famous line of Cleveland Bays, and I do not think he ever bred anything else. Now the elder of these two fillies was named Star, and she was one of the finest show jumpers I ever saw. She was a very capable hunter, and could get there, but was a little time in doing it. Her sister was not a very great jumper—that is, she was nothing approaching a show jumper, but she could get over a country, and was *fast*. This is a curious case of reversion to undoubtedly remote ancestors, and such cases are occasionally cropping up. I knew of another similar reversion, and in the same breed, but not in the stud of the same breeder. A Cleveland Bay mare of undoubted pedigree threw a chestnut foal to a Cleveland Bay horse. There was nothing but bays with black legs on either side for generations, and all the rest of the mare's foals were of the orthodox colour. The chestnut was made a hunter, and I have seen her go fairly, but it is a long time since, and I have no very keen recollection of her performances.

The most difficult thing to generalize about is Hunter breeding. No sooner does a man enunciate a theory than some instance is at once brought to his notice which proves that in one instance, at any rate, he is utterly wrong. Here is a case that occurred with the writer some years ago. A friend mounted me with a well-known and very fashionable pack of hounds, where jealous riding was very much in evidence. The horse met me at the station, a big upstanding bloodlike horse, too. The hounds were gone on, and I had to gallop on to catch them. We had a long hard day, and my horse never put a foot wrong. We took a short cut home over

some fields, for a train was to be caught, and on coming to a gate I found it locked. It would never do to go back, so I turned my horse round and jumped it. As my friend and I were getting to the end of our journey, I happened to mention a letter which had appeared in one of the papers advocating the crossing of Thoroughbred mares with light active Clydesdale stallions. I was criticizing this letter rather freely, when my friend asked me how I liked my mount. I replied, "Very well." "That is how he is bred," said he. "He is by ——," naming a Clydesdale stallion of repute, "and his dam is the old mare." That was an old Thoroughbred mare of his own. I was certainly surprised, for I was riding what was unquestionably a good hunter. I noticed, however, that my friend never tried the same cross again, or if he did, it was a failure of which he would not speak.

The many different theories about the breeding of Hunters would fill a volume. There is no doubt that what a breeder should aim at is to produce as much substance with as much quality as possible, for the more weight a horse is up to, provided he is a really fine and fast galloper, the more money he is worth. In speaking of weight carriers, it is not a little curious how some people think they can find a horse for a heavy man. "I have just the horse for you," says a friend who considers himself a judge, and he straightway shows you a big heavy-headed, probably upright-shouldered cart-horse-like animal that might take half a plough, but that looks rather out of place with a scarlet coat above him. Now, the most erroneous idea a man can conceive is that such a horse is a weight carrier, and if ever he held such an idea the sooner he forgets it the better. The heavy, clumsy kind of horse must be got completely out of the mind if a man would be a successful Hunter breeder. It is quality, balance, and action that carry weight.

There is always a certain amount of risk in breeding from a cross-bred mare, that is, it is difficult to forecast exactly what sort of a horse she will breed, but some idea can generally be formed. You will find occasionally that a big powerful mare will breed her foals rather on the light side, whilst a light mare will occasionally "breed them big". That is a point which depends, no doubt, in a considerable degree upon the breeding of the mare.

In selecting a brood mare, care should be taken to get to know as much about her antecedents as possible. Unfortunately, there is not much known about the pedigrees of half-bred or Hunter mares, though more is known now than there was a few years ago. The breeder will find that if he wants to buy a tried mare,

one that has won a few prizes, for example, or that has bred some good horses, he will have to give a big price; but if he keeps his eyes open he may very easily pick up a young Hunter mare "that has happened something" at a reasonable price. It is certainly preferable, where possible, to begin with a well-bred weight-carrying brood mare, and it is better to begin with a young one, six years old or even younger. It is impossible to be too particular in selecting a brood mare of this type, and the best plan is to begin at the beginning with the feet. It is of immense importance that the mare should have good open feet, with tough horn, and that she should stand absolutely correctly on her joints. That she should have size is of importance, but size does not necessarily mean height. I do not think she will be any better for standing much over 16 hands; she will certainly not be unless she is wide in proportion. That is, after all, the great point in a brood mare—balance. It stands to reason, of course, that she must move well. Her hocks must be big and near the ground, and well let down, and she must get them well under her. A mare of this type will do a great deal of light work on the farm, and in that way earn her keep, but it must be remembered that it will not do to set any rough lad with her. A friend of the writer adopted the plan of keeping his young mares well, and always putting them to the horse at three years old. It answered well in the main, and I remember him selling a couple of four-year-olds off two of these young mares at £150 each.

At one time weight-carrying Hunters were as plentiful in Yorkshire as leaves in Vallombrosa. This was when the old-fashioned light, clean-legged cart horse and the Cleveland Bay were plentiful. Unfortunately, the former has disappeared, whilst the numbers of the Cleveland Bay have become sadly depleted. Of course it was the formation of the breed societies that extinguished the old-fashioned cart horse. One of the prices we have to pay for breed societies is that everyone immediately tries to grade up anything he has which at all appertains to the type in order to get it into the Stud Book. At first a stud book has a sort of charm to some breeders, but they soon find that without the animal stud-book registration is not of such great importance.

Weight-carrying hunters of great value were bred from these old-fashioned cart mares if they were properly crossed. I think it is highly probable that they were descended from the old breeds of the country, and perhaps it was that which made them breed such good hunters. If any reader has a mare of the sort—there may be an odd one here and there—he cannot put her to a more

profitable use than breeding a hunter. Or, for a weight-carrying hunter the Cleveland Bay makes an excellent foundation; but I shall have more to say on this subject later on.

The selection of a sire to suit the mare is a very critical task. I am of opinion that in all Hunter breeding the wise policy is to use a Thoroughbred sire. If I were mating a well-bred Hunter mare, a mare with two or three crosses, or perhaps more, of Thoroughbred blood, and standing anywhere about 16 hands, or from that to 16 hands 1 in., I should try to find a horse about the same size, or a trifle shorter—certainly not taller—and built as much on the same lines as possible. Particularly should I try to find one similar in action. Some have a theory that if you mate a mare that has a bad point with a horse that is particularly good where she is weak, he will “correct” it. He may, but it is quite as likely that the produce will have its sire’s faults and its dam’s as well. It is a difficult subject, but it is in any case the wiser policy to avoid breeding from extremes.

I am quite sure that in breeding from the light cart mare or the Cleveland Bay it is of importance that the sire should *not* be tall. If you use a tall, lengthy, split-up sire, your young Hunter may be good-looking enough, but that will be all. The essentials in a sire for the direct cross are compactness, courage—but of course you want that in all sires, and generally get it in the Thoroughbred—and action. As for height, a horse will be quite high enough if he is 15 hands 3 in. I would rather have him under than over. One of the most successful Hunter sires I ever knew was Homœopathist by The Cure, out of Countess of Burlington by Touchstone, her dam Lady Emily by Muley Moloch, out of Caroline by Whisker. Homœopathist was under 15 hands, indeed very little if at all over 14 hands 3 in. He was picked up in a fair, and a more pitiable object than he then was I do not think I ever saw. But his new owner got him into good condition, and he was a handsome little fellow enough then. He cost something between £5 and £10, but he made his new owner a small fortune, and was certainly the best Hunter sire I ever came across, if I except Cape Flyaway, who stood 15 hands 3 in., and was a most successful sire when mated with Hunter mares.

It must not be supposed, because I advocate a sire of moderate height, that the 16-hands-2-in. horses never sire good Hunters, for they do; but I am satisfied that the more compact and better-balanced a horse is, the more likely is he to prove a successful cross in the majority of cases.

Then there is the half-bred Hunter sire whom some people

think is going to make a complete turnover in Hunter breeding and who has been going to do so for some time. There was a great deal said in some quarters about the excellence of the weight-carrying Hunter sires at the 1913 show of the Hunters' Improvement Society, and the premium horses were a very nice lot. Dr. Haslewood's Dalenberg and Mr. E. W. Robinson's The Tower are both Thoroughbred, and Mr. T. Wickham Boynton's Atty, though technically a half-bred, is to all intents and purposes Thoroughbred. He was in training till he was six years old, was a winner in good company at Epsom and Newbury, as well as over hurdles. We should have had all these horses if the half-bred Hunter sire had never been heard of.

It must not be deduced from what has been said that the Hunter-bred sire is altogether a failure. Some amongst them are really good-looking horses, and altogether on Hunter lines, and occasionally one sees a really good-looking Hunter by them. Also, I have no doubt that some of their stock will carry a man well to hounds, just as those Cleveland Bay mares carried men well to hounds, and for the same reason, viz. that they breed back to some remote ancestor, or, as Mendelians put it, they are pure bred to one of the breeds used in the cross. But considerable care will be necessary in using these sires, and if they are used indiscriminately, there is pretty sure to be disappointment. Great pains should be taken to avoid crossing them with mares that are on the strong side, or coarseness is almost certain to be found in their offspring, and it is unnecessary to emphasize that no one will give a big price for a coarse horse unless he is a very brilliant performer. Very brilliant performers are scarce, and besides they do not do much good to the breeder.

The difficulty of breeding from two cross-bred animals may perhaps be most clearly exemplified by the following experience. In the middle of the hunting season the person in question was in the unfortunate position of not having a sound hunter in his stable, and he did not want to miss all the sport. It was before the days of the Shire horse—that is, before the Shire horse spread all over the country, and the light, clean-legged cart horse was in favour in North Yorkshire. Amongst this gentleman's farm horses was a grey, named Prince, a big raking horse that was somewhat cross-bred. I do not remember his pedigree, but he had some Coach Horse blood and a bit of Thoroughbred a generation or two back. The hounds met in a hilly woodland district, and the owner thought he might as well see a little sport on Prince. So Prince was trimmed up a bit, the long hairs singed off his jaws and his



Photo. Short and General

CLEVELAND BAY STALLION "CHOLDERTON LUCK"



Photo. Sport and General

CLEVELAND BAY MARE—"HAWTHORN BEAUTY", WITH FOAL

legs, and, dressed in mufti, his owner rode Prince on to meet the hounds. It was the last time Prince ever carried mufti with hounds. It often happens that when you are not particularly anxious for a start you are sure to get it, and so it happened on this occasion. The hounds had the best of runs that hounds can have, viz. one in which a hill fox makes a good point across the low country. Prince soon showed himself a natural jumper, and he was one of the very few that were there when the fox was killed. Four days later Prince, clipped and smartened up, was carrying the scarlet coat. There was an own sister to this horse in the breeders' hands, and this gentleman hastened to buy her. He gave a big price, as prices were then, something like £90. Prince had cost under £30. In appearance she was very much like Prince, but in nothing else, for she was as bad as he was good. I have frequently heard the owner say that Prince was the best hunter he ever owned and his sister the worst. From this it would seem that it is essential in crossing that at least one parent should be pure-bred, and if this is the case, it would seem reasonable to expect the best results from a Hunter-bred sire when he is mated with a Thoroughbred mare, somewhat on the light and perhaps small side. A small, compact, Thoroughbred mare, all quality and courage, should cross well with a Hunter-bred sire provided that he is clear of coarseness. That is the great thing to avoid in breeding Hunters, for it assuredly lessens the profit of the breeder.

The light-weight Hunter is not so valuable, and does not meet with so ready a market as the medium-weight horse or the weight carrier. The man whose riding weight is under 11 st. 7 lb. is generally easily mounted, and if he is a wise man he will ride Thoroughbreds and nothing else. He will easily be able to provide himself with them if he attends the yearling sales and buys unfashionably bred yearlings. These can frequently be obtained for 25 gs., or even on occasion for less, and I have known some good 14-st. hunters turn out from amongst them.

If a man has a light-weight Hunter mare he will have no difficulty in mating her, but, as with stronger mares, he will be wise to avoid the tall split-up horse.

It remains to say a word about the classification of Hunters. Generally a light-weight horse is considered as one that can carry 13 st. 7 lb. or less; the middle-weight horse is expected to carry over 13 st. 7 lb. and not more than 15 st.; and the weight carrier must be up to 15 st. or upwards. Broadly this is the usual classification, but occasionally at shows a different one is adopted for special reasons.

It is important to notice that a well-bred horse will carry much more weight than his appearance would lead one to suppose, and that an underbred horse cannot carry so much. Amongst Hunters of all kinds well-balanced action is power.

Thoroughbreds

(Plates, facing pp. 96, 97)

The English Thoroughbred horse has filled a unique place in the history of horse-breeding all over the world. He is the only horse of whom there is a systematic record which dates back to the seventeenth century, and which is to be found in print, so that he who runs may read. Perhaps I may be reminded of his relative, the Arab, of whom the records date back to the days of Mohammed. But what are the records? There is considerable controversy about some of them, and Arab pedigrees are sometimes to be taken with much caution, for your Arab has the reputation of being an accomplished horse copier.

But even granted that the Arabs have preserved their pedigrees for hundreds of years, that is all that they have preserved. There are stories of wonderful performances, of great pace and courage, and of remarkable endurance shown; but these mainly rest upon tradition. No doubt, however, need be thrown upon their accuracy on that account; the Arab horse has no greater admirer than the writer, who, however, would point out that the traditions about him, if not exactly vague, have no sort of scientific accuracy.

Very different is the case of the English Thoroughbred. From the seventeenth century there are records of the races that some of them have run. When we come to the eighteenth century we find the records increasing year by year, we are told the distances they ran, the number of heats they contested, and the weights they carried.

These carefully-kept records, together with the equally carefully-compiled pedigrees to be found in the General Stud Book, are of inestimable value. They enable us to form a fairly accurate opinion of the qualifications of individual horses; from them we are enabled to learn how certain characteristics are preserved in different families; and we are also enabled to form some idea as to the results of various theories of breeding, though perhaps it does not do to generalize too much in this direction. And the records of the Calendar give us a good idea of the stamina and constitution of the horse whose performances we are considering, which is, perhaps, the most important thing that we can learn about him.

The facts which are forthcoming about the sires of other breeds are by no means so numerous. The Shire horse, the Hackney, the Cleveland Bay, or the so-called half-bred Hunter sire, are never put to any strenuous exertion. Just enough exercise is given to keep them in health, and their severest work takes place in the show ring and in the preparation for it.

The performances of a Thoroughbred horse, the races that he has won and the class of the horses he has beaten or been beaten by, what racing men call shortly his "form", do not concern the breeder of Hunters or other half-bred stock. They are only of interest to the man who breeds Thoroughbreds for the yearling market or otherwise, and it is not for him that I am writing. It is, however, of the greatest importance that the Thoroughbred sire which a breeder of hunters intends to use should have been in training for some years, and that he should have won races. It is of equal importance that he should be descended on both sides from ancestors who have also shown that they have got good constitutions, by keeping in training for some years and winning races. For the winning of races has a bearing on the question. If a horse does not win races, or show that there is a likelihood of his winning races, he will not be kept very long in training, which is a very costly business.

There is another matter which the racing and consequent training of a horse brings pretty prominently to notice, and that is the question of soundness. No one would willingly or knowingly breed from a horse with any hereditary unsoundness. But there is such a thing as being too particular. That excellent judge and authority on all relating to horse-breeding, Baron von Oettingen, says that we are too fastidious on the question of hereditary unsoundness in England, and there is some show of reason in what he says. Certainly it seems absurd that a horse which has been in training for several years, that has galloped on ground fetlock-deep, and on ground as hard as brick, should have to undergo as strict an examination, say, when he is twelve or fourteen years old, to satisfy the conditions of a premium competition, as the horse that has never been subjected to a severe strain at all. It is quite possible that, when a horse has had a strenuous time in training and has begun to age a little, he may put out some little blemishes which are better not there; but if he has had four or five years in training and has passed a pretty strict examination when he was eight years old, I should not ask for any more; and I should use that horse, lest in passing him by I might use one that had nothing but his soundness to commend him.

Here is an illustration. Many years since there was a great

class of Thoroughbred stallions at an important show. There were some eighteen or more in the class, and amongst them were some horses that had done their share to the making of history. It was before the days of veterinary examinations at shows; at any rate, there was no veterinary examination at this one. The judges did their own veterinary work. They obeyed their instructions to the letter, and took no notice of what any of the exhibits had done or had not done on the turf; and, greatly to the surprise of many good judges outside the ring, they passed over the horses that had helped to make history and placed a horse first that was practically unknown. "Quite right," said an onlooker. "See what legs and feet he has, his legs are as clean as the day he was foaled." So they were, but the enthusiastic admirer of the winner was not aware of the fact that he was never sound enough to stand training. If he had been, perhaps he would have won the Derby.

I have dwelt upon this the more strongly, because there is scarcely a breed of light horses which the Thoroughbred has not improved, directly or indirectly. The Hunter could not exist without him, and the Hackney, the Cleveland Bay, and the Yorkshire Coach Horse get their stamina in no small degree from the Thoroughbred, which it is the fashion in some places to despise in these days. Not only do these bigger horses owe much to the Thoroughbred; the ponies also would be a very different race if it had not been for occasional crosses of Thoroughbred blood introduced into the Forests and Hills. The blood of Marske runs in the veins of many a New Forest pony, and Thoroughbred blood has found its way into the Dartmoor, Exmoor, and perhaps even into the Welsh ponies.

It is no part of my design to write a history of the Thoroughbred horse or of his evolution, but a few notes on it may be of interest. To begin with, it is well known that in Britain there was an original breed of horses possessed of activity, a certain amount of speed, and hardy to boot. It is sufficient for our purpose that they were there, and it is needless to enquire into the question of what particular tribes of horses they belonged to. Those who wish to pursue their researches in this direction may be referred to Professor Cossar Ewart's and Professor Ridgeway's writings. It is quite possible that this native breed had been improved before the Roman invasion of Julius Cæsar, by the importation of horses by Phœnician traders, but there is no historical record of it. Racing was indulged in in Anglo-Saxon times, and Athelstan received some horses as a present from the King of France. William the Conqueror brought over some Spanish horses, which

were then in high repute in Europe, and which were undoubtedly descended from the Libyan horse, the ancestor of the Arab. King John also imported many good stallions, and the native breed was improved from time to time during the reigns of the Plantagenet kings and their Tudor successors, so that in early Stuart days we find that prolific writer, Gervase Markham, speaking with enthusiasm of the English hunting horse and courser.

The history of the modern Thoroughbred may be said to date from the time of Charles II, and the Royal mares, which were purchased for that monarch in the East, are at the foundation of the General Stud Book. But the Royal mares and the three great Eastern sires which founded the great families into which modern Thoroughbreds are divided, to wit, the Darley Arabian, the Godolphin Barb, and the Byerley Turk, found some good English material to unite with. And this English material must have had some affinity to the Eastern racer or the result would not have been so satisfactory. The modern Thoroughbred could never have been developed from two distinct breeds.

If the pedigrees of some of the older horses are carefully examined it will be seen where this English blood is to be found. Let us take Eclipse for example. It is unnecessary to go into minute detail. Snake, Grey Hautboy, Smith's son of Snake, Woodcock, and Miss D'Arcy's Pet Mare all figure prominently in his pedigree, and of not one of them does even an approximation to a full pedigree survive. The late Joseph Osborne, who was one of the leading authorities on Thoroughbred breeding, sums up the case admirably. After analysing the pedigree, in which there are no fewer than thirteen unknown sources, he says: "What, then, are the deductions to be drawn from this analysis? They are surely too obvious to need pointing out. The thirteen unknown sources affect nine out of the sixteen divisions, leaving the natural inference that the amount of English blood in the pedigree of Eclipse is almost as large as that of the Eastern sires, and it is impossible to tell the relative value of either blood in the descent."

There is, I think, reason to believe that this same blood underlies to a considerable extent the whole of our light horses, and certainly our ponies, but that it has been developed on different lines. This is a very important factor, and to it, perhaps, may in some measure be attributed the acknowledged superiority of English-bred horses. Another thing which goes to establish the predominance of the English horse is the climate and the natural grasses of the country, which are especially favourable to the development of the equine race.

The racehorse in the days of Queen Anne, and for many a year after her time, was very different from what he is at present, and when Tregonwell Frampton ruled the Turf, and for long after his time, a horse on the lines of a twentieth-century Derby winner would have been looked upon with astonishment. Perhaps it would not be too hasty a generalization to say that more racehorses in the first three-quarters of the eighteenth century were 14 hands and under than were over that height, and certainly some very famous horses, such as Pacolet, were under 14 hands high. There was a considerable importation of Eastern blood in the eighteenth century, so much, indeed, that a writer in the *Gentleman's Magazine* had much to say about spoiling our native breed by the admixture of an effeminate race like the Arab, who only had speed to commend him. It is not a little curious to compare the Thoroughbred as he has developed with the prophecy of the writer, for the best Arab of these days has not the speed of an ordinary selling plater.

With the nineteenth century the Thoroughbred horse began to increase in height, and of late years the increase has been rapid. This, no doubt, has been to some extent caused by the "forcing" system, which is caused by the craze for big yearlings. There is little doubt, however, that in this endeavour to "breed them tall"—a successful one, as it proves—some very valuable characteristics of the Thoroughbred, if not lost, are at any rate held in abeyance.

In the latter part of the eighteenth, and for a considerable part of the nineteenth, centuries, the Thoroughbred, though specialized to a very great extent for racing, was, *par excellence*, the general-purpose horse. He was a good hunter, he was a fast and excellent hack, and he was also a good light harness horse. Short-legged, compact, and well balanced, he had a considerable amount of weight-carrying power, and there were in those days many men who bred Thoroughbred horses without any idea of racing them. They had the choice of excellent horses on very reasonable terms, for in pre-railway days stallion fees were low, a fact which helped the small breeder considerably. But with the railway system came a development of racing, and in course of time fees rose and the scarcity of good stallions in country districts began to be felt. But not at first, for there was a good steady demand for hunters, and some very good horses were, for a short period, found travelling in districts where good mares were plentiful. They became fewer, however, as time went on. Some enterprising landowners bought horses for the use of their tenants; here and there a wealthy hunt kept a horse for the farmers over whose lands they rode. This, however, was only, as it were, a drop in the ocean. Then the

premium system was started. An agricultural society, or a body of breeders gave a premium under certain conditions, and some very moderate horses have been known to win them. In 1888 the Royal Plates, which had been originally started by Charles II, and which for many years served a good purpose, were done away with, and what has come to be known as the King's Premium show has taken their place.

It is with the Thoroughbred as a probable sire that the farmer is mostly concerned in these times. There are, as has already been intimated, a few farmers who breed Thoroughbreds for the yearling sales, but for them a special literature is provided. The breeding of Thoroughbred general-purpose horses or hunters scarcely, under present conditions, seems likely to attract breeders. With prizes of such value, the man who goes in for Thoroughbred breeding is likely to breed for the yearling market.

Nevertheless there may be, here and there, a man who has an opportunity and a fancy to breed from a Thoroughbred mare, or who may become possessed of a Thoroughbred mare, and for his benefit a few words of advice may be given. To begin with, if he would avoid disappointment, let him select as his brood mare one that is near the ground, short in the cannon bone, and compact. The tall, narrow, flash, split-up mare, though she may breed a race-horse, will be likely to breed nothing but disappointing stock. The mare should have deep well-placed shoulders and a short back. These points are easier found than the well-set-on neck, which is another important point. Nothing is a bigger "crab" upon a horse when he comes into the market than a short neck set on the wrong way. Little narrow feet and upright pasterns should also be avoided.

Occasionally I have seen Thoroughbred mares mated with light cart horses or with Hackneys. I do not really approve of either plan. Those by the light cart horses are generally what is known as a rough ride. There is, generally, plenty of substance and power, it is true, and some people advocate the cross, saying that if the produce be a filly it will be the typical brood mare for breeding hunters. It may be so, but it is a far cheaper and more satisfactory plan to buy the brood mares instead of attempting to breed them to a type, always a lengthy, and frequently a disappointing, business.

It is, then, as a sire that the Thoroughbred principally interests the general breeder, and a certain number of sires have been provided for him by the premium system since 1888, and for twenty-six years farmers have been able, at more or less inconvenience, to obtain the services of a sound sire at a reasonable price. One

excellent result of this premium system is that it has been educative. I think there is little doubt that breeders on the whole are better judges than they were twenty-six years ago, and anyone who listened to the remarks at the ring side at the earlier shows cannot fail to be impressed with this.

But he would be an optimist indeed who would venture to state that the premium system provides a sufficiency of Thoroughbred stallions for the use of the breeders of half-bred stock in the country. Nor are the horses provided, as a rule, of the class that they ought to be. It would be a liberal estimate to say that 15 per cent of the premium horses are of high class, but I think we may put it down at something like that. The remainder leave much to be desired. Occasionally, however, there are very good horses left out of the premium list; much better horses in point of fact than some that obtain premiums. This is occasioned by the system, which is at best only a makeshift, as indeed it is bound by the complications of the case to be. The amount of money at command is not large—even when the super premium is added to the premium it is not a princely fortune that the owner of the horse will gain. It is not such a sum as justifies the authorities in saying, "Here is our premium; you must go where we tell you." This is a fact which those appear to forget who say that the number of premiums should be distributed to the whole of the horses in one class and the districts allocated to the horses afterwards. The entries are few enough as it is; they would be still fewer if owners were not allowed to select their own district classes. And any other plan would be economically unsound, for naturally the best horses draw to the districts where there are the best and the largest number of mares.

There is an inclination in the man who perhaps does not give much thought to the subject, and who has not had much experience with Thoroughbred horses, to select the premium horse right away when mating his light mare. This is easily understandable, but at the same time he may be warned to consider the case carefully and on its individual merits before he decides. The horse may be the best horse in the class, he may be the best horse in the show, but he may not be the best horse for the individual mare under consideration.

In selecting a sire a great many people run away with the idea that it is necessary to select a big, strong horse. There can be no greater mistake. All the most successful sires I have known have been under rather than over 16 hands; some of them have been under 15. The three great requisites in a Thoroughbred stallion

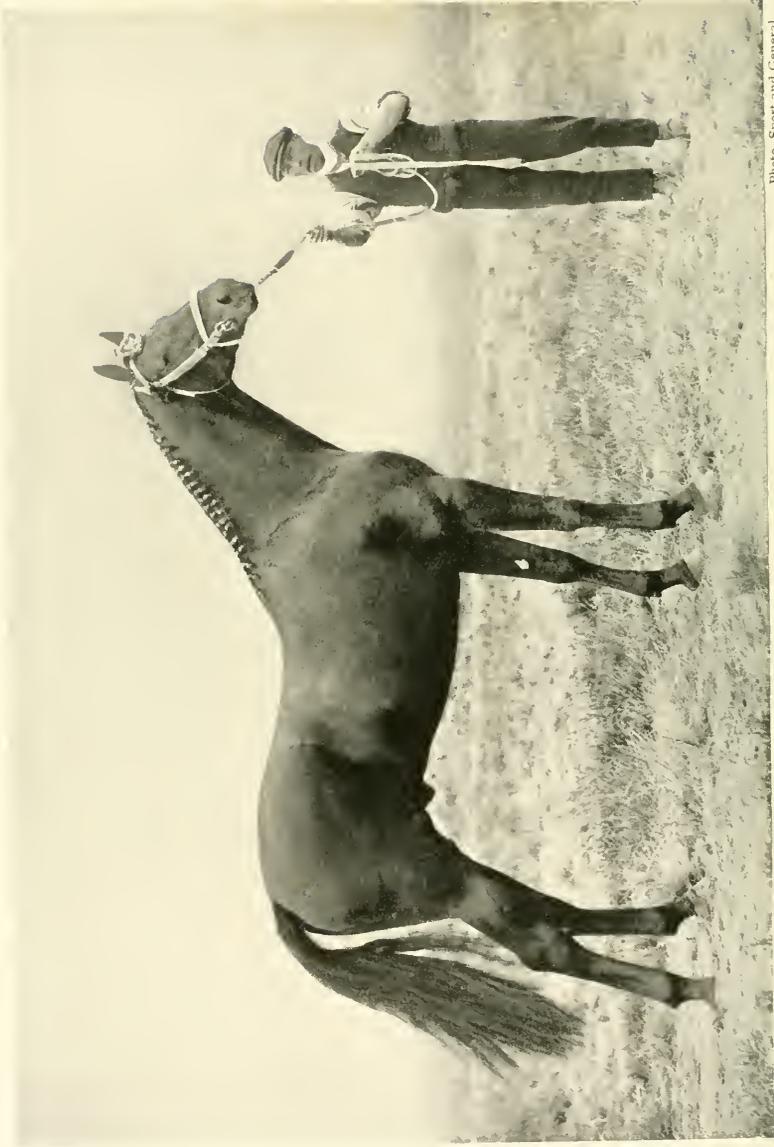


Photo Sport and General

YORKSHIRE COACHING STALLION—"RENOWN" (407)



Photo. Sport and General

YORKSHIRE COACHING MARE—"RILLINGTON ATTRACTION"

for mating with light mares are courage, action, and compactness. Avoid any leggy, split-up, long-backed horse like the plague. I do not say he will never sire good horses, but he is not so likely to do so as the compact, well-balanced horse. The ideal sire should have well-placed shoulders, his neck should be a fair length and well arched, and he should have a bold eye and a masculine appearance. His back should be short, he should be well ribbed up, and his quarters should be lengthy and elegantly turned. His hocks and knees should be big and his hocks well let down; his arms and thighs muscular; and his bone flinty in texture, and flat, with the sinew well defined. This I consider of more importance than mere measurement. His action should be free and well balanced, the foot well put out, and the hocks well flexed and got well underneath him. A little knee action is a good thing, as the produce will probably have to hack considerable distances at times. At any rate, a "daisy cutter" should be avoided. And so should a straight pastern; and whilst it is better that a horse should turn his toes in than turn them out, provided he does not brush, it is wise to avoid both extremes.

PONIES

Connemara Ponies

(Plate, facing p. 112)

Undoubtedly one of the breeds of ponies indigenous to the British Isles is the Connemara pony, which at one time flourished exceedingly on the mountains of Ireland, but which is now very rarely to be seen in its original type. In many respects it is very similar to the Highland pony, has good riding shoulders, and can jump like the proverbial cat.

But if the original type of Connemara pony has decreased in numbers till it has become exceedingly scarce, the district of Connemara is full of excellent small horses or ponies, which are used for carrying seaweed and other manurial substances in creels in those parts of the country where carting is a physical impossibility. Ponies of similar type are found on some of the islands, but they are of smaller stature, rarely reaching over 12 hands 2 in., which is perhaps the average size. On the mainland, however, they grow up to 14 hands 1 in. This, of course, is the result of better food and, of what is of quite as much importance, better climate.

Curiously enough a prevailing colour amongst the island ponies off the coast of Ireland is dun, and this may be perhaps held as a proof that there is a similar origin to that of the West Highland pony hailing from Barra, Uist, and Mull. Then there was at one time a kinship and connection with the O'Neills, who were, it is said, offshoots of the M'Neills, and it has been suggested that the O'Neills took some Highland ponies with them when they went to Ireland. It may be so; but we are now in the realms of myth, and may leave that to others. What is of more importance is that there are many points of resemblance between the pony of Connemara and the pony of the Western Islands of Scotland.

Many years ago an attempt was made to breed harness horses from the Connemara ponies, and I believe it met with a certain amount of success. They were crossed with a Hackney, and the result was a very hard, wiry, and untiring harness horse.

That the Connemara pony is at the foundation of many a good Polo pony is an undoubted fact, and I think it quite likely that more than one good hunter is descended from them, though I cannot say I have ever heard of an instance. Still, if a Highland pony has bred one, it seems only reasonable to suppose that a Connemara pony, which has so many points in common, should also breed one.

Dartmoor Ponies

(Plate, facing p. 113)

If, as has been suggested, the Dartmoor pony has a common origin with the Exmoor, the two are very different in appearance in these days. The Dartmoor pony has more substance than the Exmoor; he is altogether on a larger scale, and he lacks the excellent quality of his more diminutive kinsman. One feature in the Dartmoor pony is that he is frequently cow-hocked to a remarkable degree, and it has been ingeniously suggested that he owes this peculiarity of his formation to standing behind the walls for many hours together, to shelter himself from the winds that sweep with such force over his wild moorland home. It may be so, but the writer is inclined to think that this is rather the result of weakness caused by insufficient feeding than of standing for shelter behind a wall.

The Dartmoor pony has scarcely such a fine head as the Exmoor, but it is small and bloodlike for all that; he has capital shoulders, and is a smart little fellow, take him all in all. He is often goose-rumped, but it is said that this defect, like the cow hocks, breeds out in a generation or two with better grazing. His

maximum height is 14 hands for stallions and 13 hands 2 in. for mares. In colour he should be brown, black, or bay. Grey is allowable, but other colours are objected to.

It has been said that the Devonshire pack horse had something to do with the foundation of the modern Dartmoor pony, and it is quite likely that some of his substance may be derived from that source. It is a matter for regret that our ancestors, either from jealousy that others would copy their example and so make money by what they regarded as their secret, or from carelessness or indifference, or from a mixture of all three, made few records of their crossing experiments, and we have consequently to rely entirely on tradition, which, though it frequently embodies a great truth, is as frequently inaccurate about details. In breeding it is details that matter. Mr. Palmer tells us, however, of a Mr. Watkins, in the Brentor district, who had a herd of ponies which were miniature pack horses, and that a Mr. Watts, of Okehampton, bred a similar type of pony. Mr. Watts introduced some Exmoor pony stallions into his herd, and these did so well that other breeders followed his example, and brought Exmoor stallions to improve their native stock. Eventually Mr. Watts's herd obtained a high reputation, and on his death it was dispersed by auction. Horses were dear at the time, and excellent prices were made, some ponies making upwards of £20, and the average for seventy head, including suckers and yearlings, was £15.

Arabs, as well as Thoroughbreds, have been introduced occasionally to improve the breed, but they have not been uniformly successful in so doing, though at times they have done much good. Lord Arthur Cecil notes in connection with this cross, as well as with the Hackney or cart-horse cross, that occasionally it produces "an extremely ugly head, with dull and stupid eyes and large, bat-like ears, totally unlike either father or mother, but apparently some reversion to an ancestral type". Lord Arthur Cecil points out that this is exceptional, and that it is worth bearing in mind when one sees a Dartmoor pony with a big, ugly head.

At one time Dartmoor ponies were very much used in the Durham and Northumberland coal pits; but the law which prevents ponies going below till they are four years old has deprived the Dartmoor commoners of one, and that a very considerable, market. It does not pay to keep them on the moors another year. Whether they will be bought and grazed for the mines remains to be seen; perhaps they will. But the commoners obviously cannot keep them, so there again is an opportunity created for the middleman.

Dartmoor ponies have the "homing" instinct very strongly developed, and though but little of the moor is enclosed, they never stray far. Some breeders, however, put their mares on enclosed ground in May, turning from a score to a score and a half of mares to one stallion. Foals begin to be dropped as early as May, and occasionally, but not often, an August foal is seen. They rough it from the beginning, for they are soon turned on to the open moor, and there they remain till the middle of winter, when some of them are brought into enclosed moors for shelter. We must remember that "Dartmoor" is from 1200 to 2000 ft. above sea level. What is known in some districts as hand food—that is, hay or oats—these ponies never get in their moorland homes, or, at any rate, but seldom, and that under exceptional circumstances.

Curiously enough, there is the best demand for them in the north, and railway rates have been known to run to nearly the value of the ponies, which is certainly rather hard for the breeders.

The value of Dartmoor ponies is scarcely so high as that of Exmoor ponies. An average price for suckers is from £2 to £2, 10s.; ponies rising two years old, from £3 to £5; and mares and foals, from £6 to £10, prices which fall far short of those realized at the sale held by Mr. Watts's executors in the early 'seventies.

Dartmoor ponies are excellent for children, and in a wild moorland country they make excellent boys' hunters. It is sufficiently exasperating, as the writer can say from experience, to see a light boy threading his way fearlessly through an awkward bog which necessitates a wide detour for the man on a high-class hunter. And the Dartmoor pony also can show a fine pace. There is a good, or, at any rate, an increasing trade in Dartmoor ponies with America, and with a little trouble this might be considerably increased. One thing that is necessary to bring about this very desirable state of things is more attention to the registration of pedigrees. The semi-wild life which most of our mountain and moorland ponies lead is, of course, somewhat against regular and systematic registration in the Stud Book; and perhaps there is a sort of indefinable prejudice against registration. The importance of it, both from the standpoint of the breed and of trade, cannot be too much impressed upon breeders.

The principal fairs for Dartmoor ponies are Princetown, South Brent, Chagford, and Okehampton.

[The writer wishes to acknowledge his indebtedness to Mr. T. Palmer's interesting article on Dartmoor ponies for some of the facts of which he has made use in this article.]

Exmoor Ponies

(Plate, facing p. 128)

The hills of the west and of the north have their respective breeds of ponies, breeds of which the types have been firmly established for many generations—it would not be too much to say for many centuries. During the last two centuries all over the kingdom there have been attempts made, with greater or less success, to improve these breeds; and it is satisfactory to say that any of these plans which has seemed likely to have an effect on the hardihood of the breeds has been immediately abandoned.

There is no difficulty in these later days to differentiate between the Exmoor and the Dartmoor breeds; but for all that, there is an opinion that they have a common origin. It is not unlikely that it may be so. Indeed, if we were to go far enough back we might find a common origin for all our British mountain and moorland ponies. But there is no necessity to go so far back as the prehistoric age, and the Exmoor and Dartmoor breeds have been regarded as separate breeds long enough—probably for centuries.

There is some kind of tradition that the Exmoor ponies are descendants from ponies brought over by the Phœnicians to carry the tin purchased of the natives. There is, I think, no ground for that opinion, for even if they filled Exmoor and Dartmoor with ponies, what about the ponies of the New Forest, the hills of Wales, and other places, which certainly have an affinity to the Exmoor? The Phœnicians, one would think, could not have stocked the country with ponies. But what is quite possible is that the Phœnicians brought over some stallions which improved the breed.

There are, of course, any number of legends. Wild and wide expanses of country lend themselves to legends, and the legend of Katerfelto is told in many versions. According to the late Mr. G. S. Lowe, he ran on the moors “a sort of spectre horse”, and no one knew how he got there. He was eventually caught and kept by one of the Froude family at East Anstey. We are also indebted to Mr. Lowe for a very ingenious theory about the moorland ponies. Referring to the Give-and-Take plates of the early years of the eighteenth century, he suggests that these were very popular; that the horses that ran in them never found their way into the General Stud Book, and that in all probability many of them, horses and mares, were turned away on the moors, where they improved the ponies already there. This may have been the case—perhaps in some districts was the case—but I think, if we look carefully through the *Racing Calendar* and compare it with the

General Stud Book, we shall find some of the 14-hands-and-under racehorses figuring in the latter. That there was some affinity between the racehorse and the Exmoor pony on occasion is, however, undoubted. In the eighteenth century an Exmoor pony was mated with Blank, a son of the Godolphin Arabian. The mare she bred was the direct ancestress of Mrs. Taft, who won the Cesarewitch of 1851. She was the dam of New Oswestry, who was the sire of Zoedone and St. Galmier. So Exmoor may be well said to have a close connection with the Turf.

The modern history of the Exmoor may be said to date from the beginning of the nineteenth century. Mr. John Knight purchased about 10,000 acres of Crown land in Exmoor in the year 1820, and he also purchased 6000 acres of Sir Thomas Acland. Sir Thomas Acland took his ponies over to Winsford Hill, near Dulverton, and at this time they had a high reputation. Mr. Knight was not long before he began to experiment on improving the breed, and he first tried some Dongola Arabs. These were not a success. The produce generally grew to 14 hands 2 in., a hand and a half too high—and they lost type in other ways. They also lost their hardy character, and the Arab cross was abandoned. Better success attended the introduction of the Thoroughbred horse Pandarus, whose stock came truer to colour, and did not “run to seed” like the half-bred Arabs, though some of them were too tall. Quicksilver and Old Port, the latter a son of the famous Beeswing, were also horses which Mr. Knight purchased, and which did good service.

The Exmoor pony is a handsome little fellow. He should average about 12 hands, and should never, under any circumstances, exceed 13 hands. He is generally dark bay or brown in colour, with black legs; he has a very intelligent head, with broad forehead and wide nostril, a mealy nose, and well-pricked ears. He has good shoulders and back, is short-legged, has capital bone, and has fairly good but not superlative action. Referring to his colour, I have seen a grey or two, but do not remember to have seen a chestnut.

The Exmoor pony is hardy and untiring. No breed, perhaps, unless we except the West Highland pony, can do so much work on so little meat, and it is astonishing what weight these ponies will carry cheerfully. I have seen many good hunters from the Exmoor pony. Mr. Lowe tells us how that hard rider and good sportsman, Mr. C. Trelawney, said that one of the best hunters he ever rode was a horse named Canopus, who was by one of the Dongola Arabs out of an Exmoor mare. He had run on the

moors as a stallion with Mr. Knight's ponies. Some capital hunters have been bred, the second cross from Exmoor ponies.

As well as Mr. and Sir Frederick Knight, the names of Earl Fortescue and Sir Thomas Acland are prominent as breeders of Exmoor ponies, Earl Fortescue getting Sir Frederick Knight's herd when he purchased the Simonsbath estate.

Exmoor ponies, it is needless to say, make capital children's ponies, for, as a rule, they are both sagacious and quiet; but it must always be remembered that they keep their flesh and their high spirits on remarkably small quantities of food. If too highly fed they are apt to get very fat. They are seen in perfection at Exford, Lynton, and South Molton shows, where many small breeders take their ponies, in the hope of finding a customer amongst the many visitors to the west for the stag-hunting, and, judging from appearances, they seem to have a very good trade. Bampton Fair is, however, the great market for them. A stallion has been sold for £25, and mares for as much as £20 each. Two-year-olds of exceptional quality have been known to make from £10 to £12 each. The average price at Bampton, however, runs from 16s. 6d. to £5, 10s. for suckers; from £4, 18s. to £8, 5s. 6d. for two-year-olds; and from £3, 10s. to £6, 12s. 6d. for mares and foals.

[The writer is indebted to Mr. A. C. Mardon's article on Exmoor ponies for some of the facts given in the above article.]

Fell Ponies

(Plate, facing p. 129)

There was no more useful breed of ponies than the Fell ponies. I say "was" advisedly, for the only place where I have seen a real Fell pony for many years is the Durham County Show. I have seen one occasionally in Cumberland and Westmorland, but not frequently, nor for many years. I have, however, heard old men tell of what they could do, and of their hardihood and endurance; and from what I have heard and seen of them, I should consider them ideal ponies for a hill farm; for they can draw a big load for their size and weight, they are easily kept, they carry good condition with comparatively little food, and they can carry their master, or run him and his goodwife to the nearest station. Always cheery and lighthearted, if at all decently used, they are ready for any job that turns up, and anything they are put to, within reasonable bounds, they do well.

The origin of the Fell pony, or perhaps I should say his history, is, unfortunately, enveloped in obscurity, and, so far as I can make

out, even tradition has little or nothing to say on the subject. Lord Arthur Cecil thinks that the Fell pony and the Highland pony are nearly akin, and he is an authority on anything and everything connected with ponies. It may be so, and, indeed, it is almost inevitable that there should be some relationship between the Highland pony and the Fell pony, as he is known in Scotland. But the old light trotting cart horse, or the Vardy horse, always crops up in my mind when I see a good Fell pony, carrying his head and tail well, put his foot out and his hocks under him, and making a great show.

It is easy to see how these hardy little ponies could be gradually evolved from the light, clean-legged cart horse that was so popular at one time, at any rate on the east coast. A cold climate and short commons would bring about a reduction in size; and it must be remembered, if this is supposed to be the origin of the Fell pony, that his ancestor was not a very big one to begin with, so the reduction of size would not be very great. I have no historical grounds for such a theory—it is merely a matter of surmise, and it is offered as a suggestion. In support of it, however, it may be permissible to point out that the Fell pony survives in the Fells and mountainous districts, in the plains of which, the Vardy horse was such a favourite amongst all who knew him.

Why the Fell pony should have gradually fallen off in numbers till there are comparatively few left it is difficult to say, for there is no more useful breed for the small hill farmer. Is it that, like some other breeds, the hill pony is so well adapted for crossing that he has been crossed and crossed, and crossed again, till the old type has, in many instances, disappeared? It may well be so, and if it is, the more the pity.

The Fell pony, it is said, should stand from 12 hands 3 in. to 14 hands 1 in. I do not remember to have seen any of the breed under 13 hands 2 in., and most of those I have come in contact with have stood about 14 hands. Short on the leg, with capital bone and plenty of it, they remind one of a miniature Clydesdale, with good shoulders. Needless to say, they are fine movers. I am not aware of the extent to which breeding on the Fells prevails at the present time, but when, some few years ago, I went through Cumberland and Westmorland, the only ponies I saw were practically housebred. That is, they were brought down to the enclosures, and no doubt sheltered when the weather was very bad, though the shelter would perhaps scarcely have been considered as such by a fashionable stud groom. There may be in places ponies bred in



Photo. Talmann

HACKNEY STALLION — "ROYAL DANEGELT"



Photo. Sport and General

HACKNEY MARE—“ABBOLTON ST. MARY”

a semi-wild state on the Fells, but I should think they are a very limited number.

Fell ponies bring a good price when they come into the market, £50 and upwards having been given for a stallion. As far as one can gather from observation and hearsay, the market seems a small one.

It is a pity that a greater effort is not made to preserve and, indeed, revive this excellent breed of ponies, if it is not too late.

Harness Ponies

It is so self-evident that in our native moorland and mountain pony breeds we have a most valuable national asset that it almost seems necessary to apologize for referring to such a fact. Yet not so very many years ago the native pony breeds were, generally speaking, but little thought of. Pit ponies were wanted as a matter of course, and Shelties and other breeds made excellent pit ponies in the narrow seams of the coal measures. Children's ponies of course were wanted, and in various districts there were enthusiasts—men like Mr. Knight and Sir Thomas Acland in the past, and Lord Arthur Cecil and Mr. J. H. Munro Mackenzie in the present—who devoted their energies to the improvement and development of our native pony breeds. But it is only very recently that anything like a national interest has been taken in them, and there seems to be good ground for saying that this national interest is due in a great measure to the influence and work of the Polo and Riding Pony Society.

Before proceeding to discuss that question, however, it may perhaps be as well to refer briefly to the Rigmaden ponies, about which everyone was so enthusiastic some twenty or thirty years ago. Mr. C. W. Wilson, of Rigmaden, working on the native pony foundation with Hackneys and Hackney-bred ponies, by an elaborate system of inbreeding, eventually bred a beautiful little animal with fine action. But he was a miniature Hackney, the pony type being practically lost. The names of many famous winners of this type will occur to anyone who has attended the shows regularly, and perhaps, at the present day, Mr. Walter Cliff's Melbourne Hall stud is as representative as any in the country. The late Mr. William Foster, of Mel Valley, in Worcestershire, was always to the front where ponies were shown, and the name of Mel Valley is well known in every country where harness ponies are shown for valuable prizes.¹

¹ Mr. Foster died after a brief illness whilst this work was passing through the press.
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Another well-known stud is that at Dinarth, Llandudno, North Wales, owned by Messrs. Jones & Son. Messrs. Jones & Son have followed up the policy of Mr. C. W. Wilson, and have bred some remarkably handsome miniature Hackneys, the ultimate foundation in their case being Welsh ponies.

If anyone has a wish to breed harness ponies nowadays—and it is a profitable industry—there is no necessity for him to grade up his foundation from any of the native breeds. This is always a lengthy process and consequently an expensive one, and it is one, moreover, in which there are many disappointments. There are now obtainable plenty of mares of the type required. No doubt if a mare is a good one and a fine mover she will cost a considerable sum of money. But if the original outlay is big in proportion to the original cost in the “grading up” process, it must not be forgotten that the profit is in proportion, and also—a very important consideration—it is immediate.

It fills the imagination to learn that a man, commencing with the foundation of a Welsh or an Exmoor or a Highland pony, has in the course of a few generations bred a pony perfect in type and quality and action, a Hackney in miniature, with all the Hackney's good points and some that the Hackney does not possess, and that he has sold him for £1000 or something approaching to that sum. That is a very pretty picture, but if the cost of the production of that handsome pony is taken into consideration the result scarcely appears in such glowing colours. It must be clearly understood that this refers entirely to the economic view of the situation. The satisfaction which a breeder feels in having worked out his theories to a successful conclusion is quite another matter, and can never be estimated in coin of the realm.

If a man has a fancy that way, if he is fond of a smart harness horse, he might do much worse than buy a couple of pony mares and try his luck at breeding ponies. The mares will do a lot of odd jobs; they will run him to “kirk or market, mill or smiddie”; their meat will not be missed; if he buys them “right ones” they will pick up a prize or two probably at local or district shows; and they will surely pay their way, and may turn out a veritable gold mine.

In buying mares for this purpose it is essential to get them pony-bred ones. By this is meant as many crosses of acknowledged pony blood as possible, and then there will not be much difficulty in keeping the produce small. It must be remembered that, provided it is a really smart mover, a small pony is the most valuable.

There is one thing that is greatly in favour of the pony breeder, and that is that the pony is easier to breed to type than a bigger horse. Another generalization may also be made, viz., that all breeds of native ponies, that is, all which may be classed as light breeds, cross well with other light horses such as the Thoroughbred or the Hackney. This leads me to think that in the remote past all our native breeds had a common foundation, and that that foundation had something in common with the Thoroughbred and the Hackney.

Highland Ponies

(Plate, facing p. 144)

There is no more valuable breed of ponies to be found in the country than the Highland pony; the old hardy breed, which carried the men of the hills on many a long journey on "the roads before they were made". Invaluable in the deer forests, hardy and quick on a journey, capital breeders, and crossing well with more than one breed, the genuine Highland pony is a valuable acquisition indeed. But, it may be asked, what is a genuine Highland pony? The answer is a simple one. It is a pony which has no mixture of the Clydesdale in his composition. There are some at the present day who claim that a type more like small cart horses than ponies are the genuine and original Highland ponies, and they support their contention with many hypotheses which, although ingenious, are scarcely tenable. The original tenant of the hills had no cart horse in his composition, and he, or one like him, could alone have faced those roads before they were made. The cross of cart-horse blood would have been fatal.

The Western Islands of Scotland may be safely regarded as the original home of the Highland pony. The Mainland pony—sometimes called the Garron—is on a somewhat larger scale than the pony of the islands, but this is undoubtedly due in great measure to the better climate and better grazing of the mainland. There may be, and no doubt frequently are, cases of outcrossing in the Mainland ponies, but generally when a good one is spotted he can be traced back to the islands.

These ponies have many subdivisions, such as the Barra, the Uist, the Skye, the Isle of Rum, and others, but one type predominates through them all. Indeed, it is characteristic of the Highland pony that no matter how it is crossed it is almost impossible to obliterate the original type. Highland ponies vary considerably in height, climate and food perhaps being the prin-

cial reason for this. The Barra pony, for example, is found as small as 11 hands 3 in., and from that height to a hand higher, whilst the Skye ponies run on an average to 13 hands 3 in. The Mainland ponies are standardized at from 14 hands to 14 hands 2 in.

Some time ago there was a breed which showed all the characteristics of the Highland pony, but was 15 hands 2 in. high. In all probability Mr. J. H. Munro Mackenzie was correct when he said that this breed, which has quite died out, was most likely the result of a cross from some cast troop horses.

One great quality of the Highland pony is his surefootedness, and he is also capable of undergoing severe fatigue and of carrying a great weight. A pony of some 13 hands 1 in., almost lost under the carcass of some gigantic "antlered monarch of the waste", will pick his way down trackless hills without falter or stumble; and I have heard of a pony of little larger size carrying a man of 13 st. thirty miles a day for three days on three feeds of corn, which were all that were obtainable on the journey, and what he could pick up.

During the last few years considerable attention has been paid to Highland pony breeding, and there is no doubt that in the Highland pony there is the foundation of an excellent general-purpose saddle horse. Indeed, the writer has known a very good hunter whose dam was a Highland pony and whose sire was Thoroughbred. And it may be just as well to emphasize a danger here. If the best are used as foundation for hunters and cavalry horses, what is to become of breeders in a few years' time? The Highland pony would make a good mounted-infantry horse, especially the Mainland variety of him, and he is emphatically a saddle pony that can take on any work that comes to hand.

The Polo and Riding Pony Society has done much for him in the past, and great improvement has appeared in the Highland pony since the formation of that society. Enthusiastic breeders like Mr. J. H. Munro Mackenzie of Calgary, Mr. Cheape in Mull, the Duke of Atholl at Blair Castle, and others too numerous to mention, have been indefatigable in their exertions to improve the breed, and they have adopted the wise policy of improving it on its own lines and not endeavouring to improve it into another breed altogether. They have met with remarkable success, in no small measure because they avoided giving the Highland pony qualities he never had, and that it was never intended that he should have.

The Development Commission through the Board of Agriculture and Fisheries has been of great service to the breed. There has been considerable difficulty always in getting smallholders and

crofters to register their brood mares. They fail to recognize the benefit derived and do not recognize that the fee has to be paid. The Government grant for stallions renders it incumbent that the mares should be registered, and an indirect benefit is rendered to the breed. Highland ponies have been sent to the United States and to Australia, of course for the purpose of crossing, and it is possible that a regular if a small trade may spring up in course of time.

New Forest Ponies

(Plate, facing p. 145)

With much in common with their neighbours, and perhaps relatives, the New Forest ponies have had a more varied history. Lord Arthur Cecil, than whom there is no more reliable authority on ponies and pony breeding, says that it is very difficult to come across a really typical New Forest pony, even in the Forest, and this is not so difficult to understand when the history of the breed is considered.

The history of the breed is intimately connected with a Royal Forest, and with a Royal Forest in which there are, and have been from time immemorial, rights of common. The New Forest with its common rights was a Royal Forest in the reign of King Canute—close on nine hundred years ago—and it is within the range of probability that ponies were commonable animals in the time of Canute, or possibly earlier. We know that William the Conqueror tried to abolish these common rights in the New Forest and that he failed utterly, as indeed did all subsequent attempts of the kind; but it is impossible that the conditions under which the ponies were bred should not have had considerable influence on the breed. It has been suggested by Lord Arthur Cecil that it is possible that some attempt was made to improve the breed even so early as the reign of Canute; and it is highly probable that there have been introductions of other blood, from time to time, of which even tradition is silent. But little is really known of the old commoners and their relations with their overlords, and the little that is known is confined to fines and taxes and disputes. Nothing, so far as I am aware, is known about the ponies or other stock they bred, till King Henry VIII, alarmed at the shortage of horses in the country, which he viewed with a more statesmanlike eye than the subject commands in modern times, began to consider the question of horse breeding from a national standpoint. In his time the ponies in the Forest were very closely looked after, and no stallion under 14 hands 2 in. was permitted to roam within its

precincts. So that we may fairly assume that during the last years of the Tudor dynasty, and probably also in the early days of the Stuarts, the New Forest pony was on a larger scale than he is at present.

We know that during the eighteenth century, and probably later, the New Forest pony was bigger than he is now. During the time William, Duke of Cumberland, ruled over the destinies of the New Forest the famous horse Marske was mated with New Forest ponies, and other Thoroughbred blood was, I believe, introduced much about the same time. This, of course, would tend to increase the size of the ponies, but Lord Arthur Cecil points out that there were not so many Crown enclosures in those days, and that in consequence the ponies had a much richer pasturage. There is nothing which has such an effect on the size of horses as the grass they eat in their earlier days, and I should be inclined to think that the larger size was due just as much to the better grazing as to the introduction of Thoroughbred blood. It should be borne in mind that the Thoroughbred was not so tall in the early part of the eighteenth century as he is wellnigh two hundred years later.

Lord Arthur Cecil gives it as his experience that no pony—neither stallion nor mare—that is much over 13 hands can live in the Forest as it now is in winter; and he deprecates the attempts made to increase the size of the ponies by the introduction of new blood, for he justly points out that these bigger ponies cannot support themselves in winter and that their owners are unable to buy corn and hay for them.

It was not until late in the nineteenth century that any system seems to have been adopted in breeding ponies in the New Forest. Colts were left running with their nearest relatives, with the result that, to use the expressive words of an old huntsman, they were all brothers and sisters and uncles and aunts and cousins, and promiscuous inbreeding of course told seriously on the breed. But in the 'eighties a better state of things began to prevail. The verderers, who are elected by the commoners, became aware of their powers, and found that they could reject animals which were in their opinion unsuitable. They were also alive to the importance of the duty that devolved upon them, and set to work to do it thoroughly. An annual inspection was appointed in the month of April, and then they began to purchase a few stallions. Her Majesty Queen Victoria also lent or gave a couple of Arabs. A society was also formed which gives premiums to stallions, and altogether considerable improvement had been effected between

the time that the change of policy took place and the time when I paid my last visit to the New Forest some ten or a dozen years later.

The introduction of "foreign" blood has undoubtedly improved the style and character of the New Forest pony; but it has not been all for good. Some of those who know the Forest well contend that there are not so many mares able to stand the winter as there were; they say the ponies cannot live on gorse, as was their wont in the good old days; and that their instinct of availing themselves of every little bit of shelter, and of seeking new feeding grounds as the weather changes, is not so keen as that of their ancestors. Lord Arthur Cecil, too, points to a fault which the modern New Forest pony has. He gets away from the Forest when he can, and loves to get into the cultivated enclosures and lanes. Lord Cecil suggests concerted action on the part of the commoners and others interested to check this tendency, and thinks that if this is done it is highly probable that the modern pony would regain many of the habits and characteristics of his undoubtedly hardier sire.

The modern New Forest pony stands from 12 to 13 hands. He is good on his forehead, but his general appearance is too frequently spoiled by a low-set-on tail and cow hocks, which, as with the Dartmoor, disappear, it is said, in a generation or two on good pasture—and, by the way, the effect of taking young New Forest ponies on to good grass is marvellous in effecting an increase of size. He is short on the leg and has capital pasterns.

All colours seem to be allowable, but dun is not often seen. Greys, however, are frequently met with, and flea-bitten greys are said to be descended from an Arab sent to the Forest by the Prince Consort. They certainly seem to possess something of the Arab character, and are handsome little fellows.

Polo Ponies

(Plate, facing p. 100)

It has been intimated that in all probability the general interest which is now felt in our native Mountain and Moorland ponies is due in a great measure to the action of the Polo and Riding Pony Society, now the National Pony Society, which has done so much good work, and whose endeavours have been so successful, that it stands out as an extraordinary example of how much can be done in a little time. For when we come to look into details

there is no society, anywhere, which has done so much in such a little time as the Polo and Riding Pony Society.

It is not altogether that there has been greater ability displayed in the management of the society, or that there has been a greater loyalty to ideals than in any other of the breed societies, that the wonderful progress is due. It is rather to the exceptional circumstances in which the society was situated and the exceptional material which lay convenient to its hand that the great success is due. For, whatever may be the ultimate fate of the Polo-bred pony, the society can claim that up to the present time, at any rate, they have fairly established a breed.

The establishment of the Polo pony on a firm basis has been nearly as rapid as was the establishment of the racehorse—perhaps more so, for there were greater advantages in the surroundings—and for precisely the same reasons. The Polo pony, like the racehorse, was wanted for a specific purpose. So long as he was able to do the work he was called on to do, it mattered but little what he looked like. As the racehorse's primary object in life is to win races, so is the Polo pony's to gallop and pull up quickly and bend well—in short, to play polo. So many points which might have had some bearing on the development of the pony, and which probably would have caused differences of opinion, never came in question at all. Then comes the question of material. Like the racehorse the Polo pony, sire or dam, has done its life's work before it goes to the stud. There is therefore a higher standard of excellence guaranteed than that which is merely the result of showyard competitions.

Polo is, in Europe, only a comparatively new game, and has not been in existence in England fifty years. Yet it is one of the oldest games in which horses take part—a game of unknown antiquity in the East—the famous Changan of the *Arabian Nights' Entertainment*.

It is a remarkable thing in its way that Englishmen did not take to polo sooner. They must have seen much of it in India, and the wonder is that they did not realize its possibilities at once. True that India had been kept pretty busy with wars and risings all the early part of the nineteenth century, but one would think that even the brief intervals of quiet which took place were sufficiently long to enable the game to "catch on" with a set of men always eager to take up a sport that has a horse in it.

However, such are the facts, and the introduction of polo into England is due to the 10th Hussars, a dull afternoon,

and an Indian newspaper. Some subalterns of that regiment were whiling away the tedium of a dull afternoon over the papers when one of them came across an account of a match at polo, which had been played by the Munnipoories. The possibilities of the game were talked over, and, having nothing else to do, the subalterns determined on trying it then and there. So they got their chargers, some crooked sticks, and a billiard ball, and engaged in the first game at polo played in England—or indeed, for the matter of that, out of India. The game was talked over with their brother officers and with the officers of the 9th Lancers, and then, as a result of the conversation, a match was played in June, 1870, between the 10th Hussars and 9th Lancers and the 1st Life Guards and Royal Horse Guards, which was the first public polo match played in this country.

The game caught on from the first, but it was a very different game from the polo that is played at Hurlingham and Ranelagh to-day. The ponies were from 13 to 14 hands high, and they never went out of the "regulation canter". This kind of thing could not last long. Gradually the game got faster and faster; instead of dribbling the ball men drove it along merrily; and a natural consequence of a faster game was that a taller pony was introduced into it.

It is difficult to realize in these days the trouble there was in getting Polo ponies at all approaching the right sort, or the many long and fruitless journeys which were undertaken in the search for them. With many, a pony was a pony and there was an end, just as a primrose was a primrose to Peter Bell in the ballad. How difficult it was to make people realize what you wanted may be shown by a personal experience. I was told about a Polo pony which was "just what I wanted". Fortunately, as I thought, I met the owner soon afterwards. I asked him about his pony, telling him I wanted one with good deep shoulders, and a galloper. Again he told me he had just what I wanted. So I went to see it—a distance of sixty miles by train—and found a Hackney pony with upright withers, short on the neck, and hitting his curb chain with his knees. Of course I did not look at him twice, and went away without saying a word to the owner. But I verily believe that he thought the pony *could have been made to do*, so ignorant was he of the correct type.

This was in or about 1890—twenty years after the game was introduced into England. It was spreading over the country

rapidly. Rugby had become a centre, and wherever a cavalry regiment was stationed there the game was played. So naturally the demand for ponies increased, for civilian clubs were formed; hunts took up the game, and the cry was for still more ponies. Under such circumstances what so natural as that players should say, "Let us breed our own"? So there was a little talk in clubs and other places where men met, and a little correspondence in *The Field* and *Land and Water*, the then hunting editor of which, the late Captain Moray Brown, taking an active part both in the correspondence and in the subsequent formation of the Polo and Riding Pony Society, which came into existence in 1893.

Mr. John Hill, and his son, Mr. Frederick Hill, who was by the way, the first secretary of the society, had much to do with the formation of the society, and Mr. Hill was a member of the first council. Other members were Mr. T. F. Dale, Lord Arthur Cecil, Mr. Tresham Gilbey, and Lord Harrington. Now, in Mr. Hill, Lord Arthur Cecil, Lord Harrington, and Mr. Dale there were four of the strongest believers in the native pony to be found in the length and breadth of the land, and it was pretty certain what they would say in reply to the question, "Where are we to go for a foundation?" Attention was thus called at once to the excellent qualities inherent in the native Mountain pony, who was given a trial, and with what amount of success the development made by the Polo-bred pony is ample testimony.

Not only was the pony of the moors and mountains given his chance in a new sphere, but he was given his chance without any attempt being made, as it were, to merge his personality in a new breed. Sections in the Stud Book were opened for him in his different varieties, and the wise policy of improvement on natural lines was emphasized from the beginning.

But, as well as sound judgment, Polo pony breeders had some good fortune when they first established their society and published their Stud Book, and good fortune has followed down to the present time. Reference is made to the high-class Thoroughbred stallions which were under the height which admitted of their being entered in the Polo Pony Stud Book. One of the first was Rosewater, by Rosicrucian, out of Lady Day II, by St. Mungo; then we have had Spanish Hero, by Kilwarline, out of Spanish Maiden, by Merry Hampton; Othraë, by Raeburn, out of Othery, by King Monmouth; Gownboy, by Montezuma, out of Santa Zeta, by Galliard; Arthur D, by Pride, out of

Maquay, by Florentine; Merry Moment, by Count Schomberg out of Merry Gal, by Galopin; and Sammy the Verger, by Avington, out of Gold Flake, by Esterling—all of them good ponies with exceptionally fine pedigrees. One would have thought that Eastern ponies would, on account of their undoubtedly fine pedigree and comparatively small size, have been largely used in grading up the Polo pony; and such indeed was the case at first. But recently the Eastern sire has not been so much in evidence. There is, of course, a considerable amount of Eastern blood to be found in the Stud Book, but it is mostly found in the older volumes, and the class for Eastern sires has only obtained few entries at the last few shows.

Before leaving the subject of Polo pony stallions it may be well to refer to Sandiway, a little big one that has made his mark, and that no small one, on the Polo pony breed. He was by Rosewater, out of Cuddington, by Cucumber, her dam a Welsh pony mare. Not only was Sandiway a good pony himself but he transmitted his good points to his descendants, and there are many fine ponies by him, amongst which may be named Sandileto, Sandipix, and Lady Buckingham, all of them good winners.

The playing ground, rather than the Stud Book, is, however, the final court of appeal for the most successful breeders, and "Breed from the ponies that have been accomplished players themselves" is the principle they stand by. It was the policy adopted by the late Sir John Barker, and it is not necessary to point out that he was not only the most successful breeder but that the blood of his animals is to be found in all the leading Polo pony studs in the kingdom.

In considering the question of breeding Polo ponies a very important matter is whether the would-be breeder is capable of training them to stick and ball and to bending. A pony that is broken to stick and ball, and that bends well, is not a perfect Polo pony it is true, but he is on the highroad to becoming so. It is not necessary for a man to be a good polo player, or even a polo player at all, to enable him to do this, but it is necessary that he should be a good horseman and have good hands. And it requires also considerable patience and perseverance to train a pony even only as far as this. If a man has these qualifications he may enter upon the breeding of Polo ponies with the greatest of confidence, for a pony with good looks, pace, and manners that "is likely to make a Polo pony", as the prize schedules say, is always good to sell.

The Polo pony should be built on the lines of a weight-carrying Hunter. He should have plenty of rein, a well-set-on neck, and good shoulders, and plenty of heart room is essential. Upright shoulders and a short ewe neck are fatal, however handy the pony may be generally. For the moment comes, sooner or later, when the pony's handiness deserts him for a moment, and if he can get his nose out, a bolt is almost certain. It need not be insisted that there is considerable risk in a run-away, and in the middle of a game it would certainly be dangerous. Then an upright shoulder might easily cause a nasty fall in one of those sharp stoppages which are constantly taking place in a fast game of polo. So that it is essential that a Polo pony should have a good forehead. A short back and a muscular one is necessary, for Polo ponies often have to carry considerable weight. The ribs should be well sprung so that there is plenty of room for heart and lungs, for polo is a big strain on the breathing apparatus. The loins should be muscular and the quarters well turned. The hocks should be big and flat and powerful, well let down and near the ground. Pace, of course, is indispensable. The height limit is 14 hands 2 in. "Hurlingham measurement", which means a trifle over the strict measurement of the showyard. But Hurlingham measurement is always accepted, and the breeder or owner of a Polo pony will act wisely in getting the Hurlingham measurement registered as soon as his pony is four years old.

How are such ponies to be bred? Starting from a Mountain or Moorland foundation has already been hinted at, and I think it will be all the better where that plan is adopted to select a Thoroughbred pony if possible. For it must be remembered that polo is a fast game now, and that the Thoroughbred is the best exponent of pace. There is of course some risk, if Thoroughbred blood is resorted to freely, that the produce may grow over height, which is to be guarded against. If a mare "breeds them big" it may perhaps be as well to mate her with a Polo-bred pony; but the subject is a difficult one to generalize upon, and the breeder will be guided by his experience and the circumstances of each individual case.

If, unfortunately, he should breed one or two over the regulation size, there should be no difficulty in getting rid of the misfits at a fairly remunerative price. Well-bred saddle horses standing 15 hands find a ready market as boys' hunters or as hacks, and they bring a big price if they chance to be up to weight, for there are too few of them.

Shetland Ponies

(Plate, facing p. 161)

Of all the pony breeds, the Shetland is the best known and the most popular. To many, the New Forest pony or the Dartmoor pony is a vague entity—a something they have heard of, but everyone knows the quaint little Sheltie with his “old-fashioned” ways, and everyone has a good word for him.

The Shetland as we now know him has a long history, and he is probably—I had almost said undoubtedly, and if I had I should perhaps not have been very far wrong—the purest bred of the equine race. There is no historical record of the time when he was not to be found in the Shetland group, for that he was a Norwegian importation, as was once thought, is a theory which is no longer tenable. He was certainly known in the islands in Celtic times, and practically as he was known then so is he known now. No Arab or Thoroughbred¹ has found his way into the Shetland Islands to improve the native breed, and the management of the Shetland pony of to-day is on similar lines to those which have always prevailed. That is the management in his native islands.

Winter and summer the Sheltie “fends for himself”, finding his own food and his own shelter. It must be borne in mind, too, that though, owing probably to the action of the Gulf Stream, the Shetland Islands are, in spite of their more northern situation, warmer in climate than the mainland of Scotland, the winter months are dark and drear, and the herbage is scant and at times practically non-existent. Then the hardy little Sheltie finds his way down to the sea and exists on seaweed. Occasionally, perhaps, when the ground is covered with snow and ice-bound—a very rare occurrence—he will find his way down to his owner’s dwelling, and find his reward in a bundle of oat sheaf or meadow hay. At the end of winter he looks a curious spectacle in his shaggy, matted coat—more like the fleece of a sheep than the coat of a horse—and he is as thin as the proverbial lath. But genial spring weather soon puts him right, and though his coat is a considerable time in slipping, some of it remaining till after midsummer, he is soon in good case and sleek as a mole. In the islands the mares as a rule only breed every other year, this being due in great measure to the fact that the foals are not weaned till they are a year old, a plan which cannot be

¹ Professor Cossar Ewart has compared the skeleton of a Shetland pony with that of the famous Thoroughbred horse *Persimmon* and has found them to be in perfect proportion.

defended on economical grounds; and though it is insisted that the young stock stand the rough winter better than if they were weaned in the autumn, which is probably correct enough, a little forethought and a little enterprise might easily obviate any difficulties on that score.

Most of the ponies in the islands are owned by crofters, who have from two to half a dozen, and they generally sell their ponies at a year old. It is easy to see how they would benefit if they were to so manage that their mares breed every year, but old customs die hard.

The Marquis of Londonderry, and his agent, Mr. Robert Brydon, were about the first to breed Shetland ponies systematically. Shelties had first been used as pit ponies in the coal measures of the county of Durham as early as 1850, and thirty years later the Londonderry stud was formed. The greatest care was taken to improve the bone and substance without increasing the height, and though all colours are found amongst the Shetlands it may pretty safely be said that blacks and dark browns were fairly established at this stud. Other successful breeders have been—and, indeed, still are—Mr. R. W. R. Mackenzie, and the Ladies Hope, whose ponies are known through the length and breadth of the land. The Londonderry stud was dispersed a few years ago.

From his extraordinary power for his inches the Shetland pony has been called a Clydesdale in miniature. This is, however, a misnomer, except as regards their wonderful weight-shifting power. There are two types amongst Shetlands, one with a coarse head, and collar-filling, rather than saddle, shoulders; and the other with smart blood-like head and riding shoulders. As there have been no importations of stallions it is probable that this variation is due to the difference of individual traits common to all breeds, and there it may be left. The height of the Shetland pony is from 8 hands to 10 hands 2 in., the latter being the extreme height admissible in the Stud Book; but with reference to the height it may be added that a class for miniature ponies at the Agricultural Hall (1913), in which the height limit was 8 hands, obtained an entry of seven, and that one of these only measured 6 hands 3 in. It has been noticed that good pasturage and a better climate has had a material effect upon the size of the Exmoor, Dartmoor, and New Forest ponies; change of climate certainly does not tend to increase the height of the Sheltie, so far as can be gathered. Occasionally, however, they are crossed with larger breeds and with considerable success.

The Shetland, as well as being a powerful pony well suited for pit work, is high-spirited and docile, a famous children's pony, with a lot of pace. Mr. R. Brydon relates how Mr. R. Lacy's Beauty trotted in harness ten miles on the Leeming Road in 39 min. 30 sec., driven by a man weighing 11 st. 4 lb., that she several times trotted a mile in 3 min. 44 sec., and that she trotted fourteen miles in 55 min. 45 sec. driven by the same man, who then weighed 11 st. 7 lb., and had it not been for a rein breaking she would have covered the fifteen miles within the hour with ease. There is a joint sale at Earls Hall, Leuchars, every year, and though all ages, including foals, are sold, consequently the averages are not reliable as to the value of adult ponies, some idea can be formed of the market from the following figures:—

		Sold.		Vendors.		Average Price.		
						£	s.	d.
1903	.....	57	.....	3	.....	16	13	4
1904	.....	108	.....	9	.....	15	4	0
1905	.....	111	.....	16	.....	16	11	0
1907	.....	86	.....	10	.....	19	8	6
1908	.....	115	.....	17	.....	14	4	3
1909	.....	90	.....	14	.....	23	2	7
1910	.....	124	.....	—	.....	20	13	2
1911	.....	106	.....	—	.....	17	18	2

Welsh Ponies and Cobs

By D. D. WILLIAMS, M.R.A.S.E., F.H.A.S.

(Plates, facing pp. 176 and 192)

The Principality of Wales has long been famous for its light horses, whose merits have long been recognized also in other parts of Britain. Of late years an increasing demand for exportation purposes has been experienced, particularly from America and Australia. Indeed, such excellent specimens have found their way to South Australia that we are assured of the continuance of the breed in its purity, however much it is threatened with extinction at home.

It is a regrettable fact that so many of the farmers of Wales have been crossing their mares so extensively with the Hackney. The cross, it must be admitted, is a decidedly good one in the majority of cases, but the question which will have to be seriously faced sooner or later is that of foundation stock. The crossbreds are altogether unsuitable for the country, and can only breed a

very mixed lot of light-boned, weak-constituted animals, such as we only too frequently see at the leading fairs even to-day. Much has been said and written about the advantages and disadvantages of shows, but as far as Welsh ponies and Cobs are concerned they certainly have been a disadvantage. The Hackney generally gives a much better exhibition of action in the show-yard, but when it comes to road work he is quickly out of competition. The Welsh Cob really never shows himself to advantage until he gets on the hard road; here he will complete a forty-mile journey without any sign of fatigue. Weight of shoes does not improve his action so materially; all he wants is to hear the sound of his feet and then for pace and action he will challenge all comers. The outstanding features of Welsh ponies and Cobs are: hardiness, courage, stamina, surefootedness, and freedom from disease.

The Welsh Pony and Cob Society divides them into four sections:

1. The Mountain Pony, which does not exceed 12 hands 2 in. high.
2. The Lowland Pony, " " " 13 " 2 "
3. The Small Cob, " " " 14 " 2 "
4. The Large Cob, which is 14 hands 2 in. high or over.

1. THE MOUNTAIN PONY

This is the one which has preserved its original characteristics best. The description given of this animal four hundred years ago applies equally well to-day. It is an admitted fact that into the best specimens of these a certain amount of Arab blood has been infused, and it may be clearly detected in many of those seen at shows. But in the case of the thousands found on the Welsh hills the probability is that no cross has ever been introduced. Their breeding has been entirely unmethodical. Even the introduction of a stallion of another strain is an unusual thing, the majority of owners rearing their own stallions and allowing them to run with the mares in much the same way as they do with their sheep. Such a course of inbreeding pursued for generations produced a race of breedy-looking, small-boned ponies for which there was only a very limited demand.

For a long period there has been a gradual reduction in the number of Welsh ponies, but now again the tendency is towards an increase. The demand from America has done much to foster this tendency. More attention, also, is now given to their breeding



Photo, Parsons

HUNTER GELDING—"SPLENDOR"



Photo. Short and General

HUNTER THOROUGHBRED MARE—"FAIR GERALDINE"

than ever before, partly, no doubt, on account of this newly-opened market, but mainly owing to better knowledge of the principles of breeding. The passing of the Commons Act, 1908, which provided for the elimination of undesirable stallions, has had a marked effect already in improving these ponies, and the encouragement given by the Board of Agriculture and Fisheries in awarding premiums to suitable stallions must ultimately result in the production of a most useful and marketable pony.

Pony Improvement Societies have already been formed in several districts, notably at Church Stretton, which is the pioneer in this movement. The annual "drive" and "round up" of the ponies from the hill, and the annual show, are events worth seeing. Other societies have been already formed at Gower in Glamorganshire, Gwynfe and Brynamman in Carmarthenshire, and Eppynt in Breconshire.

To see these ponies in the improved state one cannot do better than pay a visit to Church Stretton; while Llanwrtyd Wells show, Newbridge-on-Wye fair, or places like Lampeter and Tregaron during the third week in April, when they are collected and taken back to the hills from their winter quarters, will give an excellent idea of the unimproved type.

2. THE LOWLAND PONY

This is altogether a larger and better class of pony than the one just described. It has been bred with much more care and on better soil, and thus possesses more bone and substance, while its constitution, stamina, and endurance have not suffered in the least.

The sires selected for mating with the mares of this class are those of the small-cob type of from 13 hands 2 in. to 14 hands 2 in. high. This mating results in the production of a pony of about 12 hands 3 in., which one so frequently comes across in the counties of mid Wales, particularly in Cardiganshire. The celebrated cob stallion, Eiddwen Flyer, has played a more important part in the moulding of this type of pony than any other sire.

Most of the mares entered in this section of the Stud Book are found, when we examine their pedigrees, to be sired by either Eiddwen Flyer or his descendants, and this is considered the blue blood of Welsh ponydom.

They have all the characteristics that a Welsh pony should possess, viz. small head, prominent fiery eyes, restlessness, activity, intelligence, small ears, width between the eyes, and tapering

towards the nostrils, which should be wide and open, long neck; short back, with quarters well up; long to the hock; long forearm; short cannon bones and pasterns, with long wavy silken feather. These points apply equally well to the Welsh cob, the main difference being one of height.

These ponies are in great demand by English buyers, who use them for riding and driving, or keep them for show purposes, where they often win great fame. Others use them as foundation stock for breeding Hackney ponies, and for this purpose they are unrivalled. Many a London winner bred in this way has been picked up at a comparatively low figure at the Welsh sales and shows. For breeding Polo ponies, again, they are excellent. To say that thirty per cent of the Polo ponies bred in this country have Welsh blood in them would probably be no exaggeration.

Their suitability for such a variety of purposes is not without its disadvantages, and the scarcity of mares of the old Welsh stamp is already felt. Welsh farmers would be well advised to use their best mares for breeding pure-bred specimens, for which there will be an increasing demand as time goes on. The soil and climate of Wales suits the pure breed, and the natural system of breeding adopted ensures that stamina and endurance which is its special feature.

3. 4. THE WELSH COB

The two cob sections may well be taken together, as the only difference which exists between them is one of height.

Much as the lowland pony has done to ensure popularity for the light horses of Wales, the reputation of Welsh horses of this class is chiefly to be attributed to the strength, courage, and endurance of the Welsh Cob. At home cobs begin to give a return for their keep in their third year, and they may be seen doing saddle and carriage work in addition to all kinds of farm work. This variety of purposes for which they are adapted and used accounts perhaps for their extraordinary muscular development. It is not by any means an unusual sight to see two cobs drawing a plough, or a mowing machine, and on the hill farms they are even preferred to heavier animals.

In the absence of any records their origin must always remain a matter of conjecture. The generally-accepted view is that the Welsh Cob and the old Welsh cart horse are closely allied, and a cross between mares of the latter breed and Mountain Pony stallions, with a certain amount of subsequent grading up, resulted in the evolution of the cob. Farmers who cultivate land adjoining

the hills generally bring their ponies down to the lower slopes during the winter. The stallions always accompany the mares, and there are seldom any precautions taken to keep the other farm horses from mixing with them, so it is a plausible theory of how these crossbreds, which ultimately were called Cobs, were obtained.

Authentic information concerning the Welsh Cob does not date further back than the memory of men still living. We cannot, with any degree of certainty, go further back than the year 1840, when a foal was dropped which was destined to become the progenitor of numerous Cobs, both male and female, which have had a marked influence on the race. That was Old Trotting Comet. His descendants include the Welsh Flyers, Comets, Expresses, Caradogs, Railways, Jacks, and Beaconsfields. Ninety per cent of the cobs of recognized breeding in Wales to-day are descendants of one of the first three sires named above.

There is no doubt that a certain amount of Arab blood has been infused; the famous sire Cymro Llwyd was the son of Mr. Richard Crawshay's Arabian. Eiddwen Flyer therefore had two strains of Arab blood in his pedigree. Whether any Hackney blood was introduced must remain a debatable point. Definite proof is wanting.

There is no doubt that the most typical specimens are to be found in the 14-hands-2-in. class, but the demand at present is for the larger cob, not because of his better type, but owing to the fact that by mating mares of this class with large Hackneys some of the finest carriage horses in the country have been produced. Although specimens of Welsh Cobs of the old stamp are few in number, an effort is being made at the present time to revive the breed, and the effort is already beginning to bear fruit. The Board of Agriculture and Fisheries, by offering premiums to approved stallions to travel the cob-breeding counties of Wales and awarding free nominations in respect of suitable mares, have already arrested the decline, and if this is continued for some years, and every care taken in the selection of mares, we may look forward to a rapid increase in the number of these most serviceable animals.

CHAPTER III

THE GENERAL MANAGEMENT AND FEEDING OF HEAVY HORSES

BY GEORGE MACQUEEN

At an early period in the history of the world man, who had been endowed with power over the lower animals, began to utilize their strength for the work of cultivating the soil and moving heavy weights. Asses and oxen appear, however, to have been used for that purpose long before horses. We read of oxen and kine being employed for draught purposes and as beasts of burden. We are informed also that the patriarchs of old possessed many sheep, cattle, asses, and camels, but horses are seldom mentioned. The original country of the horse is not known with certainty from any records of history, or from any reliable tradition. As an animal used in warfare the horse is frequently mentioned in early records, and is frequently depicted as such in ancient sculptures recovered from buried cities, where he is represented in all the grandeur of military equipment, but never in the menial occupation of cultivating the soil.

As an animal used in military operations, for military displays, for purposes of racing, for saddle work, and for harness work, the horse is known to have been used in many countries from early times; but it is difficult to ascertain when people began first to use him for purposes of draught. And it is even more uncertain when and where the heavy type of wagon horse first appeared and was harnessed to work. Most probably he is the product of gradual evolution and development, the result of the efforts of man to produce an animal fit to move heavy weights. Query: Is there still room for improvement in that respect?

The old saying that there is "no horse perfect" should encourage further efforts at development towards perfection. Still further encouragement may be derived by looking back half a century, and comparing the heavy horse of that period with the

almost perfect, or at least greatly improved, horse of the present day. For many centuries the ox was recognized as being the best and most useful of the lower animals for helping man in the work of cultivating the land, and of moving heavy weights from place to place. It is not many years since teams of oxen were quite frequently to be seen at work in some of the counties of England, and are even up to the present day used for timber hauling and other heavy work in some of our colonies. In countries where roads are yet unmade, and wagons have to be dragged through the forest and across a rough country, a span of oxen is considered preferable to a team of horses.

Although we now consider the anatomy of an ox far inferior to that of the heavy horse for draught purposes, yet there must have been special characteristics in the ox which qualified him to be retained and used for so many centuries in the service of man—characteristics which man must have appreciated not only in the working of the ox, but as possible or desirable characteristics to be introduced into the heavy horse during the process of development.

THE HEAVY HORSE

It is almost impossible to say with certainty now from what foundation our heavy horses have been evolved, or of what materials they have been built. It may be conjectured, however, that in his efforts to produce a horse for draught purposes, man kept his eye on the special attributes of the ox, attributes which so long retained him in the service of man in preference to the horse. One may conjecture that the quiet, patient temper of the ox, his power of steady pulling, his readiness to work together or co-operate as a team, the inexpensive nature of his food, his value as human food when his working days were over, and his freedom from serious ailments, all must have contributed to the retention of his services on the farm and on the road, as being the superior animal for draught purposes, compared with the horses of old times.

The Romans were renowned for their skill in agriculture as well as for their valour in war, and we have glimpses in their history of horses being used in the cultivation of the soil. Is it too much to suppose that they tried to select the horses for that work that they considered the best qualified for the performance of it, and that in their horse breeding they aimed at producing a type of horse suitable for the work? Is it too much to suppose that they tried to combine as far as they could the patient temper, steadiness,

hardihood, and constitution of the ox, with the high courage, greater activity, heavier weight, and superior anatomy of the horse, in breeding an animal for the purposes of heavy draught? Is not the heavy horse of the present day the result of the efforts of those early breeders, followed by the persistent efforts of generations of agriculturists who have all tried in their time to produce some slight improvement in this our grandest and most popular farm animal? And if we mean to carry on this work of improving our heavy horses, can we do better than follow, to some extent, on the same lines as our skilful predecessors, who have done so much in the evolution of our fine breeds of heavy horses?

The horse has now proved himself to be the most suitable animal for heavy work, either on the farm or on the road, and has almost entirely displaced all other animals in use for that purpose. There is therefore quite a steady demand for horses of this type, and the breeding and rearing of such has become quite a profitable branch of British agriculture. It is also a branch that is likely to continue profitable, as no mechanical substitute has yet been invented that is likely to displace the horse on the farm or on the road.

When railways were first introduced many croaking prophets foretold that horses would not be required afterwards. How far that prophecy has proved incorrect may be judged by the keen demand experienced, and the higher prices prevailing, since the country has been opened up by railways; and never have sound working horses of the heavy class been more eagerly sought after than at the present time, when we read of record prices being paid for geldings as well as for stud animals. True, the cab horse and the bus horse have been displaced by mechanical contrivances, and great efforts are being made by inventors to bring out a rival for the heavy horse, but so far with only partial success. For the work of the farm, for moving goods on the streets of our large cities, for shunting at railway stations, and for hauling timber from the woods, no other power can yet rival the heavy horse. It is therefore highly desirable to bestow increased attention upon the breeding and rearing of this branch of farm stock.

The heavy horses of Britain have practically developed into three distinct types or breeds: the Suffolk Punch, chiefly bred and reared in the county of Suffolk; the Clydesdale, the prevailing breed in Scotland and the north of England; and the Shire breed, now generally bred all over England and Wales, and the source of supply for the street work of all our large towns and railway stations. Each breed has its distinctive features and characteristics,

and may have to be referred to differently in treating of the breeding and rearing of each; but the remarks on the general management may be applied to all the breeds alike.

With the formation of societies and the publication of stud books a general advance has been made in the improvement and development of all the heavy breeds during the last generation or two. The science of breeding has been brought within the reach of every farmer who has capital and convenience to embark in it. Previously it was confined to the few men of genius, born horsemen and enthusiasts, who on meeting began to talk of horses before the seat got warm—men who knew every horse of note in the county and a good many outside it, every horse of their lifetime, and the history of many that lived before their time—men who knew where to find a good mare, and the best horse to send her to. To such men we owe what improvement was effected in the type, size, and quality of the horse. To such also we owe a great deal of the information collected and conserved in the early volumes of the Stud Books—information which enables every farmer to breed on the right lines.

It would be interesting to trace how the heavy horses came to be divided into three breeds, and the causes that led to the development of the different types; but that enquiry scarcely comes within the scope of the present chapter.

THE MARE

The first and most important subject for consideration in horse breeding is the selection of suitable mares. The idea that a mare which has broken down and is unfit for work is a suitable animal to breed from must be waved aside at once. If success is to be attained in breeding, great care is necessary in the selection of foundation stock. How, when, and where, and what to get, are all questions of great importance. Men of wealth can always command the best, and by plucky speculation at some of the periodical auction sales can always acquire some good breeding animals, even if they do not all turn out quite a success. A tenant farmer of limited capital cannot afford to speculate; he must lay out his money carefully. To do so he must have a clear idea of the type of animal he requires, whichever breed it represents. The age to buy at is of some importance. By buying fillies of one or two years old, which have the full length of their breeding life before them, he secures not only the full term of their life but also the best and most vigorous years. A brood mare should be young

and vigorous, not worn out with years of continuous toil and hard feeding.

At the same time there is the risk of their proving non-breeders or inferior breeders; there is also the risk of the development of sidebones or other diseases that do not generally show their presence during the first years of their life; so that many farmers may consider it safer to buy a mare which has bred one or two foals successfully, even if they have to pay a higher price for her, and lose a year or two of her breeding life. An exceedingly important point is her pedigree. We must know something about her ancestors; and now, with the opportunity we have of getting all that information in the Stud Book, there is no reason why we should buy in the dark. At the same time, if the mare herself is not worthy it is unwise to introduce her into the stud simply because she has some grand relations. Neither must we forget that the information given in the Stud Book is very limited. It gives the name, colour, date of birth, accomplishments in the stud or in the show ring; but it does not tell her faults, her vices, her unsoundness or malformations. It proclaims the good qualities, but keeps the bad ones in the dark. In selecting a mare, the character, style, symmetry, constitution, type, and soundness are of more importance than pedigree. It is well to have the type of perfection in one's eye, and to get as near that as possible.

It is a matter of controversy which is the most important point to be considered in selecting a mare; some breeders attach the greatest importance to one point and some to another. A very successful Shire horse breeder, lately deceased, insisted on having the feet and fetlocks correct, whatever other defects might be apparent. Breeders of Clydesdales always consider the feet and coronet as of prime importance, and express the point in Scotland as "guid strong cutes". In a brood mare a strong and healthy constitution is of the utmost importance. The long, low, wide sort, with well-sprung ribs, and plenty of middle room to carry a good dinner bag, wide in chest, and thick through the heart and lungs, is the ideal stamp of a Shire mare, or indeed of any heavy mare. It is also essential in a brood mare that she should be wide in her hind quarters, both in hips and thighs—a mare that leaves you with a good impression as she walks away, and has no appearance of legginess or of being "split up", as it is commonly called. Her loins should be strong and well padded with muscle. The head should be typical of the breed, and with the eyes and ears should betoken docility, intelligence, and courage.

By close observation anyone may get to recognize the different

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characters of mares. If the look of the eye, the fretful twitch of the ear, and the defiant toss of the head show any signs of bad temper, it is well to avoid a mare of that sort. On the other hand, the vacant sleepy look that betokens stupidity and laziness, is also to be avoided. Brightness and intelligence, combined with good nature, are the desirable qualities, and these may be recognized in the little mannerisms of head, eyes, and ears, the talking organs of the horse. Close observation, however, is better than any amount of descriptive writing in teaching one how to acquire the art of recognizing character in any animal.

The mare should have a fairly long neck, well crested and just slightly arched, and nicely set into the shoulders, which should be sloping at a considerable angle. A horse or mare with upright shoulders always goes as if fettered, and cannot step out, is apt to stumble, and does not get over the ground quickly. The tail should be well set up in line with the back, and not drooping. A droop-tailed horse is ugly, and often of a sluggish disposition. Most important of all, however, are the size, shape, and quality of the feet and limbs. When we come to consider that the work of the heavy horse is the moving of heavy weights on the hard road or paved street, we readily recognize the necessity of his being furnished with strong limbs and large well-shaped feet.

The hoofs of the mare must be of the proper shape and slope, well dished out underneath, wide at the heels, and strong at the top or coronet. The Clydesdale mare excels in these points; but there is still room for much improvement in the Shire and the Suffolk. The hoof should be of a tough nature; brittle hoofs are very objectionable, troublesome to the blacksmith, frequently breaking off with the shoe, and a prolific cause of lameness. The fetlock should be strong, fairly long, and nicely sloped at an angle of about forty-five degrees. Short as well as upright pasterns are very objectionable, and do not stand the jar of the hard road; there is a want of elasticity and springiness in the upright pastern that creates greater concussion on the stones and causes more frequent lameness. On the other hand, a very long pastern, or one that is sloped down too flat, is by no means a strong one, and although allowing free action and enabling the horse to go easy when not heavily loaded, yet it is apt to give way and break down when the horse has to put all his weight in the collar to move a heavy load. The feet should be set straight on the legs, and the mare should move them straight forward. *The toe* (or front centre of the hoof, as there is really no toe) should neither turn inwards nor outwards; pigeon-toed and splay-footed animals are both very objectionable.

The knees should be wide when viewed in front, and straight in front when viewed sideways; at least there should be no tendency to bend back at the knee. The hock should be of great width when looking sideways at the mare, but narrow and free from puffiness when looking at her from behind, and well set together as hocks set wide apart are not at all desirable, and are to be avoided. The bone under the knee and hock should be flat in formation, hard in consistence, and free from fleshiness. Round-boned, fleshy legs are very subject to grease, and a mare with that class of bone should never be put to the stud. The muscle should be well developed above the knee and hock; a strong muscular forearm and thigh give power to pull a heavy load when the footing of the animal is unfavourable, such as on a slippery road. The curve of the hock is of great importance, as, if there is too much bend, or what we term "cow hocks", the animal is not so strong at a pull, and is apt to strain the ligaments when pulling with all her weight at a load, while very straight hocks are subject to spavin, and devoid of action.

The feather should be long and silky, and free from any tendency to hardness or curling. This is important in both Clydesdales and Shires, as the feather is generally indicative of the quality of the bone, and of freedom from grease and other leg troubles.

A mare with such a class of legs and feet is almost sure to be a good mover; but it is well to ascertain that this is so by testing her paces, both walking and trotting, as good action adds greatly to her value and usefulness. She should bend both knees and hocks well, and put her feet straight forward without any side action or throwing about of the feet. A mare that moves straight economizes her power much more than one that throws her legs all about; she is, besides, much more pleasant to see and to work with.

The Clydesdale breed excels in action. The late David Riddell used to say about a particularly good specimen of the breed that "her very step had music in't". Shires have also been greatly improved in action; but there is still much need of development of action in both Shires and Suffolks, so many of them having a habit of lumbering on without using their joints.

The above is a brief description of the style of animal which should be kept in one's mind; and, in selecting a mare for breeding, the aim should be to select the nearest approach to such an animal that can be obtained, bearing in mind, of course, that the *perfect* horse has not yet been discovered.

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As regards size, a mare standing 16 hands high, and of proportionate symmetry, is big enough. Colour may be decided by taste. Suffolks, of course, are all chestnuts. Bay or brown are the prevailing colours among Clydesdales, and among Shires a good bay or brown sells better than any other colour. Not so long ago, white feet and legs were considered very objectionable, as it was thought that dark feet were harder and more enduring. Whether that idea stood the test of experience or not, dark points are not now insisted on as formerly. Indeed, white feet and legs seem to be all the fashion now in Shires as well as in Clydesdales; and it must be admitted that a ring full of fine horses with clean white legs and fine flowing feather is a sight well worth seeing.

Having now grasped the idea of what is the most suitable animal to breed from, the next consideration is how, when, and where to obtain her. Facilities for doing so are much greater than they were a few years ago, when the only way was to travel about among the breeders, attend the horse fairs, or commission a dealer to buy one, a process which took time and could not be done without expense.

The periodical auction sales, which many of our successful breeders have instituted, afford excellent opportunities for young breeders to obtain foundation stock. The information given in the catalogues of these private auctions being generally reliable, one can depend on its being more correct than that obtained in a horse fair or from a dealer. The agricultural shows instituted in every county, and in nearly every parish, also present good opportunities of discovering where the right class of mare is bred, and of by and by securing one. Indeed, many breeders now exhibit their young stock for the sole purpose of obtaining customers and effecting sales. Farm sales also afford occasional opportunities of buying a useful animal; the stock at these sales being generally well known to the neighbours, information as to the characters of the various animals can generally be obtained. Yet another system of buying and selling stock is being introduced, and is likely to develop into a means of transacting a vast amount of business; that is, by advertisement. The agricultural journal is now cheap, and is read by nearly every farmer. It is used for advertising all sorts of goods the farmer has to buy. Why should not the farmer advertise what he has to sell? Old prejudices, of course, will have to be broken down. The idea that something is suspiciously wrong because a farmer advertises stock for sale should not be harboured for an instant in these days of enlightened business habits. And because a farmer advertises

that he is open to buy a certain class of animal, it is unreasonable to suspect that he wants to obtain it by fraud, or to get it under its value. The columns of the agricultural papers offer facilities of obtaining information and of transacting business far superior to the old-fashioned, slow-going, time-wasting system of perambulating the country from fair to fair. Of course, it is obvious that no one would think of buying by advertisement only, and without seeing the animal. The advertisement, however, gives information which beforetime was difficult to obtain. Whatever system is adopted, it is absolutely necessary that the animal should be seen and thoroughly well examined. One pair of eyes is not always sufficient for this work. The advice and assistance of a friend who may be an expert as a judge of horseflesh is invaluable. Indeed, if there is any suspicion of unsoundness, it may be advisable to employ the services of a qualified veterinary surgeon.

It is of the greatest importance to ascertain whether the animal is perfectly sound and free from any hereditary disease before contemplating the purchase. Shire horses especially are very subject to have sidebones, and Clydesdales and Suffolks are not all free from them, so that a strict examination is necessary for traces of sidebone, ringbone, sand-crack, contraction of the hoof, spavin, thoroughpin, or splint; for diseases of the breathing organs, such as roaring; for diseases of the eyes, such as cataract; for nervous diseases, like stringhalt or shivering. If there is the least trace of any of these hereditary ailments in the mare, it is better to avoid investing money in her, and the buyer should try for something else.

Horse-buying, at best, is a risky business. There is an old saying that "no man is honest in selling a horse". The clever horse dealer can hide the faults from the buyer, and parade the good qualities of the animal and make the customer believe he is offering him perfection. In buying a mare it is well to have one that is entered, or eligible for entry, in the Stud Book. The future progeny will be much more saleable, and will command a higher price.

As types of the present-day Shire mare, Dunsmore Chessie, Lorna Doone, and Halstead Royal Duchess may be considered models. In the Clydesdale circle, Harviestoun Baroness (now in America), and Lady Peggy, from Boquhan, may be considered typical specimens; whilst Bawdsey Jewel and Sudbourne Lassie are good representatives of the Suffolk breed,

THE STALLION

Having secured a mare, or mares, the next important step is to secure a good stallion to mate her with. The selection of a suitable sire for stud purposes is even more important than the choosing of the mare. Breeders who keep a large number of mares generally arrange to have a horse of their own, and in that case it is of supreme importance to get the right horse. Small farmers cannot afford to keep their own stallions, and therefore have to send the mare to another man's horse and pay him a fee for the service. The keeping of stallions for stud purposes is generally a distinct branch of the business of farming, and as it requires special skill and aptitude, the majority of farmers do not care to embark in it. Those who do so, and keep a choice of several horses, are benefactors to their neighbours, and deserve encouragement as well as payment for their enterprise. The system of co-operation has been called into action for the purpose of securing stallions, and has been for many years the recognized method for providing stud horses. The Clydesdale breeders began it, and it was soon afterwards adopted by the Shire men. The farmers of a district unite and form themselves into a Society, pay a yearly subscription, and appoint working officials. A few of the best judges amongst them are appointed as a deputation to select a horse to travel the district for the season. They arrange with the owner of the horse which they select, that he travels the horse a certain number of weeks in the district, and that the horse serves a specified number of mares belonging to the members, the Society paying a certain amount agreed upon, or so much per mare, or, in some cases, it is paid both ways. The Glasgow Show is the great mart of the Clydesdale breeders, and the London Show that of the Shire horse breeders. If the various deputations fail to secure what they require at those great marts, they have to visit the owners of the principal studs and select what they think most suitable for their mares.

These Societies have been formed in many districts of the country, and are found a great convenience to many farmers, who do not care to send their mares a long distance off to meet a horse, and also to some who have not sufficient confidence in their own judgment to select a horse. The drawback to the system is that whatever the mare is, there is no choice of a horse; they are all tied to the same horse. As mares vary greatly in size, character, and symmetry, they should be mated to horses of correspondingly varying characteristics. Districts, therefore, wherein resides a stud-

owner possessed of a number of horses of varying types who is willing to let the public have the use of these horses, are better served in the choice of a horse than where they are tied to the use of the Society's hired horse.

The mares of a district are not all alike. The horse chosen by the Society, even if he is one of the best in the country, is not likely to suit all the mares; so that a still greater benefit to a district is the existence of a private stud, the property of some wealthy farmer or enterprising landowner. Such a stud, in which are stallions of different ages, varying types, and different sizes, gives a much better opportunity of mating the mares with suitable stallions, and is of incalculable service to the breeders of a district. Every farmer who has such a choice should keep one or more mares and rear young horses of the best sort.

The reprehensible practice of beating down the service fee to the lowest possible pitch, thereby encouraging the travelling of cheap, unsound or worthless horses, is a "penny wise pound foolish" practice, which ought to be discountenanced by every right-minded farmer. Owners of good horses deserve encouragement, and they cannot afford to keep a good horse and accept a small fee.

Railway companies now give improved facilities for conveying brood mares to distant studs, so that the best horses are almost within reach of everyone. There are drawbacks to this plan; for one thing, the expense is considerable. To a wealthy landowner it may appear but a trifle, while to a tenant farmer it may seem an outlay which he does not care to face. There is a high fee, the keep of the mare for several weeks, railway freight, risk of travelling, disadvantage of being from under the owner's observation, and possibly no result, or a disappointing result, at the finish. There is a certain element of uncertainty in all arrangements of this sort, but the uncertainty seems to be greatly increased when the mare has to be sent off some distance. "The best laid schemes o' mice and men gang aft a-glee." And it has been noticed many times that very weedy foals have been the result of excellent mares being sent a long way to noted horses. However, this risk must be faced sometimes when there is no better alternative.

The proper plan is to select a sire of repute as a stock-getter, not necessarily a prizewinner. Many of our greatest prizewinners have been disappointing at the stud, while some of our most noted sires made no show in the ring. Of course, it is almost impossible to get a horse possessing as many good qualities as we should like and be, at the same time, free from bad ones. If the mare has a weak spot or deficiency anywhere—and most mares have—the

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proper plan is to select a horse strong in those points. The progeny may then inherit the horse's good points, or at least the weak points of the mare may be modified. By no means should a mare showing any pronounced defect be put to a horse exhibiting the same weakness, as the progeny is almost certain to inherit the same defect, and perhaps in an aggravated form.

The remarks previously made respecting the outward appearance and soundness of mares hold good with equal force in the selection of a sire. It is contended by some that a horse intended for stock should stand at least 17 hands high. That is by no means essential, as many of the best Clydesdale and Shire stallions do not reach that height. There are more important points than the mere height.

The bone below the knee should be large and strong, and measure at least $11\frac{1}{2}$ in. in circumference (Laurence Drew's Prince of Wales, the best Clydesdale stallion of the last century, measured considerably over $11\frac{1}{2}$ in.). The cannon bone should be short from knee to fetlock; a long-legged horse with small bone is unfit to be used in the stud. The chest should be wide, affording ample room for the action of heart and lungs. The forearm and thigh should be well covered with muscle. It has been averred that the progeny is likely to inherit the outward framework of the sire, including legs, feet, and action, and is more likely to inherit constitution, temper, and character from the dam. If that theory is correct, it is doubly necessary to use a sire with large limbs and feet, and with good action.

Some of our best Shires have been the progeny of comparatively small mares, but mares of style, quality, and constitution mated with sires of weight, bone, and muscle. Purity of breeding, soundness, robustness of constitution, strength of conformation, and activity, are leading characteristics essential in a sire. It is most essential that he pass a thorough examination by the veterinary surgeon. Many of our heavy horses have had to be condemned for roaring. Some of the very best have been afflicted with this ailment, so that it is not to be wondered at that it shows itself still in their descendants. A horse so afflicted should not be used in the stud. The groom may have a plausible tale to tell about some dusty hay he had to eat when ill with the influenza, and that his stock will never inherit it, but unfortunately many of his progeny have the influenza and the dusty hay, and are roarers. It is a disease that must be exterminated at all costs.

The Board of Agriculture have recently instituted a scheme with the object of eliminating the unsound sire. The scheme,



Photo T. Lehman

THOROUGHBRED STALLION - "ARTUR D"



Photo. Sport and General

THOROUGHBRED MARE—"SCEPTRE", SOLD FOR £25,000

which applies to all breeds of horses, gives the owners of stallions an opportunity of having their horses registered, and certificates of soundness issued annually. The diseases which debar from registration are cataract, roaring, whistling, ringbone, sidebone, spavin, navicular disease, shivering, stringhalt, and defective genital organs. The idea at the initiation of the scheme was, that the breeders would be enabled to ascertain what horses had been certified as sound, would patronize the horse that was registered, and would not patronize the others, which would have to be withdrawn from the road. Up to the present time the scheme can hardly be considered a success. Not more than 10 per cent of the heavy breeds of stallions have been registered, the principal owners of studs appearing to ignore the scheme. Perhaps in time it may be adopted more generally, and only sound sires used in the stud.

If properly managed, the keeping of stallions may be made a profitable branch of business. Of course, capital, judgment, and close attention to details are requisite if success is to be won. Wealthy landowners have taken up the business as a hobby, and when the requisite skill is obtained the business goes booming. But many have succeeded well who had no large estate at their back. Laurence Drew, David Riddell, and Andrew Montgomery, all now gone over to the majority, made the Clydesdales what they are, and made money at the business.

Three also of the Shire stallion owners, who have passed away, began business with one horse, and extended it into large and valuable studs. The names of James Forshaw, Thomas Shaw, and Walter Johnson were well known in the Shire horse world long before the formation of the Shire Horse Society and the starting of the Stud Book.

The risks are considerable, the death rate of stallions being considerably higher than that of the ordinary working stud on a farm. If the stud is large, the cost of insurance may be heavier than the annual losses, but where the stud is small and comprises only one or two valuable animals, it is safer to have the risk covered by insurance, and there are now plenty of insurance companies willing to take the risk at a reasonable rate. Some large stud owners form a sort of insurance of their own, by allocating a certain percentage of the profits, and putting it to a reserve fund to cover losses. To ensure success in the stallion business, the first requisite is to secure a good animal to begin with—one that will gain the confidence of the breeders, command the trade of the district, and be worth charging a good fee for his services. It does not pay to keep an inferior or an unsound horse, as that would almost immediately alienate the

patronage of the public, besides which it costs as much to keep and attend to an inferior horse as to a good one, or usually rather more. One does not realize the difficulty and extra trouble there is with horses that are subject to defects of any sort, in bringing them out in presentable form to the public, hiding their defects, patching up their unsoundness, and keeping them in trim for work; whilst at the end of the season the money earned may be less than the cost of their keep. Not only must the animal be a good and a sound one, but he must also be of a type to suit the district.

A stallion owner must have judgment, not only to know a good horse, but also to know which type of horse would succeed best in the district, by pleasing the breeders and mating suitably with the mares. He must also know how to select and place his horses, each in his proper sphere of work. The stallion may be a home-reared one, or he may be purchased at weaning time as many are, or he may be acquired later in life.

A farmer is sometimes fortunate in rearing a good promising foal, and as he has perhaps felt the inconvenience of sending his mares for long distances to meet the horse, he decides to keep the foal and use him as a stud horse at home when he attains the proper age. Or perhaps a stallion keeper (a profession distinct from ordinary farming) may come past, take a fancy to the foal, and by offering a good price tempt the breeder to sell. Many of the best stud horses have been bought for this special purpose at the time they were being weaned.

TREATMENT OF COLTS

Whether reared at home or bought from a breeder, the after treatment of the colt must be on similar lines. Granted that a breeder has the good fortune to have a colt of the right stamp, descended from sound parents, with plenty of bone and muscle, good wide feet, open heels, hard tough hoofs, correctly-set pasterns, flat-boned limbs, big knees, strong clean hocks, masculine head, strong neck, nicely sloping shoulder, stout back, well-sprung ribs, strong muscular loin and quarters, with tail well set on—a colt of this description may well be saved from the castrator, put on extra good keep, and watched for a time to see how he develops.

Good feeding is necessary after weaning and all through the first winter. A liberal quantity of sound oats, with a little bran and plenty of well-harvested clover hay, should be allowed until the grass comes again in the spring. As colts seldom do so well singly as when wintered along with others of the same age, our prospective

stallion should have some company. He will be more contented, will take his food better, and will take more exercise.

A convenient paddock with a shed in it is the most suitable place in which to winter yearling colts; the paddock for exercise in the daytime and the shed for night quarters, or for shelter in stormy weather. If no paddock is available, a large well-fenced bullock yard, with a shed, is very suitable. Plenty of straw underfoot is necessary with this arrangement, and care must be taken that there are no projections or obstacles with which the colts might come in collision and injure themselves. Yearling colts are very playful, and if they have plenty of room will usually take sufficient exercise without being led. At the same time it is good management to have yearlings accustomed to be haltered, taught to be led, and rendered quiet and docile. It sometimes happens that they have to be led to the blacksmith's to have their feet attended to; but even if it is not necessary to lead them anywhere it is better to have them trained to it, as they are easier to manage and take their lesson better at this age than they will when they get older.

When the spring comes, if the colt has developed properly in size, symmetry, and action, he must of course be saved entire, and if convenient, ought now to be done better than the other colts. This, however, must be done judiciously, as it is quite possible to ruin a colt at this age by too much forcing. Indeed, many a good colt has become a victim to laminitis and ruined for life through too much forcing, and many have been lost through internal derangements—literally killed by kindness.

The colt must be kept healthy, and that can only be done by feeding on natural food and having regular exercise.

There are some noted pastures on which the entire yearling colt will grow and develop as much as is desirable without the help of artificial feeding. It is really amazing how the bone and muscle will grow on some of these natural pastures, which presumably must be rich in phosphates and the other constituents which are required for the formation of bone. Those noted pastures are not to be found everywhere, but the districts in which they are found have acquired a name for the excellence of their cart horses. However, if pasture of any sort is available, it is better to run the colt out all summer at this age than to have him confined entirely to the house, and if the pasture is not strong and rich enough, his food must be supplemented by a continuance of the winter rations, or part of them. Bran may not be necessary on the pastures, neither of course is hay necessary, but the oats may safely be continued. If it is not convenient to turn the colt out on the pasture and he has

to be kept indoors, he must have green food carried to him, such as vetches, rye, mowed grass or clover, as much in reason as he will eat of it, and a small feed of oats in addition.

When indoors, exercise must be allowed him; the run of a large bullock yard will do, and will save time and labour in hand leading. The yard must be kept well littered with straw, and the manure must not be allowed to accumulate under him until it ferments. His feet may be spoiled if he is kept on hot manure.

The same treatment may be continued through the second winter, increasing the quantity of oats and bran as the grass fails, and of course allowing as much hay as he will eat, seeing also that the fences are strong and secure. As colts at this age are wicked and playful, it is better to keep them by themselves, so that they cannot injure others or be injured by them. The yard and shed must be kept for his use, or, if available, the paddock and shed. Indeed, the ideal arrangement for a playful entire colt is to keep him in a strongly-fenced grass paddock, with a sheltered shed in the corner of it. This paddock may be utilized as his winter quarters for the after years of his life. An ordinary hedge is scarcely to be depended on for fencing in an entire horse unless protected and strengthened by a line or two of barbed wire. The wire must not be stretched in the hedge or very close to it, or the horse may injure himself with it before he is aware of its presence; but if it is stretched about 2 or 3 ft. from the hedge inside the field, the horse will ascertain its presence and its character and will keep at a respectful distance from it. With this safeguard almost any sort of hedge will do round the paddock. In the absence of a hedge, a strong safe fence may be erected with disused railway sleepers set close together in a row on their ends in a trench 2 ft. deep, and well rammed in and fastened together by a light rail at the top. This kind of fence costs a good deal to fix up, as old sleepers are not always to be had cheaply, but it has the advantage of being very durable, very strong, and affording some little shelter from cold winds, besides being of a nature that the horse cannot possibly hurt himself by coming in contact with it.

The shed, which is useful as a protection from the sun in summer and from the cold blasting storms of winter, need not be an expensive erection; no bricks or mortar are needed. On farms where there is some rough timber and plenty of straw suitable sheds for colts may be run up very cheaply. The late Thomas Shaw, of Lancashire, who owned about half a hundred entire horses, had a specially-designed shed of his own put up at little cost with the materials at hand. These picturesque, quaint-looking hovels were

erected all over his farm where required, and simply consisted of a framework of scantling attached to posts set in the ground, the walls thickly interlaced with gorse, the roof thatched with straw or heather, and the floor thickly laid with dried peat-moss litter. A strongly made sparred gate, about 6 ft. wide, formed the door and shut in the horse when he was wanted in. The sheds were comfortable, convenient, inexpensive, and very healthy. They were cool in summer and warm in winter, free from draughts, and easily repaired. The straw-thatched roof is the most comfortable, but in many districts straw is scarce and too expensive to use as thatch. This is the case now, especially on the western side of England and Scotland, and in all Wales. The larger portion of the land being in grass, what little straw is grown is utilized for stock feeding. In these districts useful, inexpensive sheds are erected with timber, and galvanized corrugated iron for roofing. As the iron roofing is cold in the winter and hot in the summer, it is found the better plan to erect these sheds high enough to admit of a loft overhead, being careful to leave plenty of head room for the horse underneath. The loft keeps the shed at a more equable temperature, cool in summer, and cosily warm in winter; besides, it comes in useful for storing a load or two of hay for the use of the horse, saving a lot of labour carrying hay if the haystack is some distance away.

When two horses have to be run in adjoining paddocks, a little expense is saved in building and material by making a double shed with a partition in the middle, one end with entrance on one side being used for the one paddock, the other end with the entrance on the other side available for the other paddock. A typical shed of this construction may be 30 ft. long, 15 ft. wide, divided in the middle, and forming two boxes each 15 ft. by 15. The loft should be 10 ft. from the ground, and should have at least 4 ft. of wall under the circular corrugated-iron roof. A hayrack and corner manger should be fixed in each shed, and although the shed is usually left open so that the horse may go in or out as he likes, it is advantageous to have a door fixed so that he may be shut in if required. A door of open framework, admitting light and air, may be made by bolting together strong rails about 4 in. by 3. A good layer of moss litter should be spread on the floor. A substantial building of this sort without any architectural pretensions may be erected for a little over £20.

When the travelling season is over the horse can go back into the paddock for the rest of the year. If the paddock is large he will require nothing besides grass till Christmas, and all being well, will require very little attention. His feet must be watched and

kept in proper form; if any shoes are worn they must be flat shoes, and very light. On some few soils it is quite possible, and, indeed, is better to let the horse go without shoes, but on most classes of land it is necessary to have some light shoes, more especially with some sorts of hoof. The ideal, hard, tough, nicely shaped hoof should not require a shoe when at grass; but we have scarcely yet attained that ideal.

After the new year begins the young stallion must now be taken up, allowed a gradual increase in his rations, his horsebox prepared for his regular use, and the run on pasture substituted by a daily walk out. We must now decide the programme for the coming season, whether the horse is merely to stay at home for the use of the home stud and perhaps a few neighbours' mares, whether he is to be offered to some association for the season, or whether he has to travel a certain district and make a season for himself—all three courses open to horse owners; also, we must decide whether he is to be exhibited at any show or not. Various circumstances may contribute to the decision of the programme. The quality of the horse himself, his comparative excellence amongst other horses, and his chances of winning a prize will probably decide on the point of exhibition, and will also have a certain influence on the decision of the season's arrangements.

TREATMENT OF YOUNG STALLIONS

The treatment and management of the horse must necessarily be regulated by the work intended for him. If the first, or stay-at-home course, is selected for him, no special training is required; he must just be kept in natural growing condition; no attempt at forcing the condition should be allowed. The same fare on which the farm teams have to do their work is quite good enough for him. Indeed, there is no reason why he may not perform a share of the work if broken and trained to it when young, so that he is docile and manageable, and will work quietly along with the geldings. It is often asserted that a horse living the life of a labourer will beget more stock than one living the life of a gentleman, so that it really may prove the best treatment to keep him in the team for the first three months of the year. So many horses are spoiled by being overloaded with fat, that when the season comes round they are practically unfit for their work. Of course it may not be convenient to keep him at team work after the season begins, neither is it desirable. If the horse has to be offered for hire, or if he has to travel a district and make a trade, he will have to be treated

differently. He must be made as presentable as possible so that he will please the public, and as condition generally improves symmetry and hides faults it is best to bring him out in the pink of condition. Condition in a horse, however, does not mean having him boxed up and fed like a pig and getting him covered with fat. Conditioning a horse is getting him in good health and spirits, improving his movements and muscle, putting some heart into him. It is comparatively easy to fatten a heavy horse; but it is a mistake to do so at the beginning of the travelling season, and have him falling off during the season.

To give satisfaction a horse should be thriving and improving during the time of travelling, and those horses that have to work during winter are more likely to do so than those that have been fed up all winter. To develop the muscle we must feed him judiciously, keep him in a natural state, and exercise him regularly. For that purpose there is no better feed than oats and bran. Animals vary so much in their requirements, and in their ability to digest and assimilate rich food in their system, that it is difficult to name any given quantity which a horse should have as a daily ration. As much good hay should be given as the horse can eat the oats and bran being given sparingly at first, and gradually increased as the system of the animal can absorb them. It must always be remembered that a horse has a very small stomach in proportion to his size. Consequently he cannot consume and digest a large quantity of bulky fodder, and a stallion on travel, or one that is being got up in condition, should have most of his food in a concentrated form, given at short intervals as many times a day as possible. Sixteen pounds of oats and two pounds of bran may be taken as a fair standard for this class of horse, the quantity to be varied according to circumstances. The oats should be bruised and mixed with chopped hay cut about an inch in length, so that the animal may be compelled to chew it. If the hay is cut too short it is very likely to be bolted without chewing, and if oats are given whole and without being mixed with chop some horses will swallow them without chewing, and they are passed through the system undigested. The groom in charge must be observant and use his discretion regarding the quantity to give a horse, and the owner must allow him ample scope to use his own discretion. Beans in small quantities are of great value to a horse that is working hard; but it is not advisable to use them for an idle stallion; and maize tends rather to produce fat than muscle. A little boiled linseed given once a week helps to keep the digestive organs healthy.

Horses also appreciate a few roots; a mangel or two, or a swede or two may be given daily. Condiments, spices, and condition powders are not necessary for a healthy horse; these articles are of more profit to the maker, seller, and advertiser than they are to the buyer or user, and often do harm to the stock. All aphrodisiac agents should be strictly prohibited; some grooms are addicted to the administering of these noxious, exciting drugs, especially if they think the horse a bit slow at work. To produce healthy condition, regular exercise is an absolute necessity. The stallion should be walked out for at least two hours daily, not with a slouching, easygoing step, but at a brisk pace as if being shown off to a customer. The daily exercise helps his appetite, keeps his digestive organs healthy, keeps legs, joints, and feet all in working order, and gives a splendid opportunity for training a horse to his proper step. Stylish action and good manners are most important if we wish to sell, to hire out, to exhibit, or even to travel the district with the horse. It is wonderful how the eye of a judge, or the eye of the public, is attracted by a bit of style and movement. So many of our heavy horses are deficient in these qualities that a horse which excels in action gains rapidly in popularity. This is also one of the attributes of the horse which may be improved greatly by practice and training. Some horses, of course, have it naturally by inheritance, and are much more amenable to training than are others, but it is in the drill and instruction of the horse that the aptitude, tact, patience, skill, and perseverance of the man are brought into prominence. As the soldier has to be drilled into the proper step and movement, so must the horse, and it is only by persevering in daily training that the horse is brought to his proper paces and behaviour. Some, of course, require much more time, patience, and perseverance than others do, but the hours of exercise give just the proper opportunity for applying the drill instruction. The man must imagine that he is in the show ring, and should put the horse through his paces each day as if the eyes of the public and the judges were on him—walking, trotting, turning round, and making him stand out in the best position as if for inspection, and checking all tendency to erratic action or to sluggishness. If intended for exhibition, this daily role must be carried on for some considerable time so that the horse may acquire perfection in his manners; it does not do to leave the training to the last day or two before the show. Some animals may require a long course; but when they do acquire the education it is not readily forgotten. Great patience and perseverance will effect a wonderful improvement in time. Very excitable horses are apt to forget themselves

and to cause trouble when brought first into the ring. It is a good plan to try to accustom an excitable horse to some of the same kind of noises at home that he is likely to be disturbed by when taken to a show. Some of the Clydesdales are very excitable, more so than the Shires or Suffolks. After he has well learned his lesson on the quiet, he might be further trained in a paddock where some colts are running loose, and a noisy boy or two introduced to get up a lot of noise and excitement among the colts.

A course of training under these circumstances may get him partly accustomed to the excitement, so that he will not be taken so much by surprise when he comes into the ring. It is a great disappointment to an exhibitor if his colt, through nervousness, forgets all his training at home, shows himself at a disadvantage in the ring, and has to take a lower place on account of his bad manners. It is also painful to see a good colt shown in a careless manner, brought into the ring and allowed to jog round in a sluggish, happy-go-lucky manner, with a happy-looking, easygoing lout at his head, who has taken no trouble to drill the colt or to smarten himself.

Of course if the horse is not to be exhibited at a show, it may not be necessary to take quite so much trouble and spend so much time on him. Still, if he has to be offered for hire, it may pay well to show him in good condition and well trained in action and manners. A deputation of judges will not readily take a fancy to an animal that does not show to advantage in style or action; whereas a horse that makes the most of himself, moves straight and true, carries himself well, and has pleasant manners will at once prove attractive, and may command a better price than one that was carelessly brought out, even if a better animal.

The feet of the stallion must also be carefully watched, shoes regularly removed, and any tendency to erratic growth checked. This care of the feet must of course be at all times taken by those in charge of the horse; still more is it required at this time, so that his feet may be in perfect order for the travelling of the season. It is very annoying to have a horse go lame during the season, and perhaps be held up a long way from home. A skilful blacksmith is of great value in a stud of heavy horses in keeping their feet in good form. Any blacksmith can shoe a horse with good tough well-formed hoofs, but it requires one with some skill to shoe a horse with a narrow heel and get it to develop width, or to shoe one with a low sole and avoid lameness, or to shoe a brittle hoof and fix the shoe that it will not be off before he reaches the end of the lane. A good blacksmith may improve poor feet, and a care-

less blacksmith may ruin good feet. By careful trimming and shoeing a narrow heel may be gradually widened, and a malformed hoof gradually brought into shape. It must be done by degrees, and by frequent application of the knife just a little at a time. The width of heel is such an important point in a heavy horse that a stallion showing any tendency to that deformity would be avoided and neglected. Flat shoes, levelled to the slope of the outside wall of the hoof should be used; they should be wide at the heels but not very thick and heavy. It is better to change frequently than wear out a very thick and heavy shoe. If the hoof of the stallion is at all inclined to be brittle, it may be greatly improved by a daily smearing of that well-known ointment used years ago by the Paris Omnibus Company for dressing the feet of all their horses. Indeed, if the hoof of the stallion is not apparently in need of it, it is well to use it, as it keeps the hoof sound, and improves the appearance of the feet. It is not a costly ointment, and a pot of it may be made by taking 1 lb. of mutton fat, 1 lb. of beeswax, 5 pt. of neatsfoot oil, 6 tablespoonfuls of Stockholm tar, and let the ingredients simmer together for a little till they are thoroughly incorporated. When the horse is travelling, the groom would find it convenient if he took a small tin boxful of the ointment in his scrip.

The feather is a point of great importance in the show ring, especially amongst Shires and Clydesdales; and it should be carefully looked to when bringing out a stallion for hire or for travelling. Some people would have us believe that hair is not wanted, that the horse is better with as little as possible on his legs, and that the Americans would buy more of our Shire horses if there were not so much hair on their legs. Yet with it all a fringe of nice long silky feather adds greatly to the appearance of the horse, and hiring deputations would immediately consider it a detraction if the horse seemed short of feather. So it is really necessary to see that nothing should be allowed to cause the hair to come off, as once lost it takes a long time to grow again. Some horses are apt to bite it off with their teeth; of course it is itchiness in the leg that causes them to do so. The itchiness may be caused by heating of the blood through high feeding, or it may be by want of cleanliness in the legs. Frequent use of the comb and brush, and an occasional dressing with an ointment composed of sulphur and paraffin, will be found the most effectual means of cleaning the legs, curing the itchiness, and promoting the growth of the hair.

HIRING STALLIONS

Stallion owners prefer now, when they have the opportunity, to let out their horses to some society or company, and are even prepared to accept a smaller sum than the prospective amount they might realize by travelling him in a certain district. The obvious advantages are that a certain sum is assured, and the money is paid in one payment or it may be by two instalments, the society taking the onus of collecting the fees from the members.

It has always been a troublesome and disagreeable part of the business of the horse owner to collect the fees. The fee is not usually a large item, but it is apt to be forgotten or postponed indefinitely by the farmer. He is not likely to forget to pay his rent, as that is a large item; but it is a general cause of complaint among horse owners that he does forget to pay the small item of the horse fee, that they have to wait a long time for the fee, have trouble in getting it, and some of it may never be paid at all. The society also takes the onus of getting up the number of mares, whereas it is a matter of uncertainty what number may be got if the horse is travelled as a private speculation; besides, it saves the necessary expense of canvassing and treating to get the promise of mares.

When hiring out a horse to an association, it is important to have a written and stamped agreement stipulating the amount of fee, date of payment, numbers of mares nominated, date to begin travelling, and date of finish. Most societies have certain rules drawn out which they compel the horse owner to adhere to. One of these generally stipulates that the owner of the horse pays all expenses of travelling, and that in the event of the horse dying or breaking down in health during the season, the owner has to send a substitute to the satisfaction of the committee.

The above is perhaps the most general and simplest form of hiring arrangement; but some societies offer a certain sum as a premium, and in addition a certain fee per mare, the number being uncertain, or it may be a certain fee per foal, the number of which is still more uncertain. The latter system involves a prolonged account between the parties. Various modifications of these systems are in use by other societies.

Opinions differ greatly as to the number of mares which should be allotted to each horse, and a good deal of controversy has arisen over the question. Most societies fix the maximum for a horse at full age at one hundred; a four-year-old at eighty; a three-year-old at fifty; whilst it is generally considered that a two-year-old colt should not be allowed more than eight or ten. There

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can be no doubt as to the wisdom of restricting the number within reasonable compass both in the interest of the horse owner and that of the members. A desire to gain in number of foals by increasing the number of mares is apt to disappoint the greedy members by overtaxing the capabilities of the horse.

The matter could be more easily arranged if all the mares would settle at once; but some of them are almost certain to cause trouble by coming in season every few weeks during the summer. Of course, if there are many such, the work of the horse is greatly increased, and the result is unsatisfactory at last. Most societies allow their members to withdraw a mare that has got into this objectionable habit, and to substitute another instead, and as a rule the horse owner concurs in the arrangement.

If the owner of the horse does not travel with it himself, it is of the greatest importance to get a steady, reliable man to go with it. Generally the beginner who starts business with one horse does all the work himself; but most owners have to engage a travelling groom, a steady man who understands his business, and can work up a trade if the horse is not secured by a society. An experienced travelling groom who has been on the road for a few years acquires the art of talking farmers into the belief that his horse is by far the best to suit their mares, and by his persuasive eloquence works up a trade more readily than an inexperienced hand would do even with a superior horse. His convincing assertion that "He'll just suit your mare" decides many a farmer who has not sufficient confidence in his own judgment, and secures more business. A good man deserves good wages. The rate of wages varies considerably in different parts of the country; but it is an almost universal custom that the groom has about 2s. 6d. of a fee for each mare, which fee is paid by the owner of the mare. This custom no doubt was instituted to encourage the groom in his endeavours to get a trade for the horse. The hiring system tends to deprive the groom of his fee, the mares all being booked by the society. Still, if the horse is hired it requires a reliable man to go with him, and this man must be well paid, having to be from home and lodging wherever the horse is placed all through the season. The groom has to make arrangements not only for his own accommodation but for the stabling and food of the horse, which may probably be at five different stopping places. These places should be arranged for previously, and it should be entered on his card where he will stay each night in the week. As a rule, societies arrange most of these details. When, however, the horse is not hired but is being worked privately,

these arrangements have to be made by the groom and his master. If the district and route are such that the horse can be at home for the week-end it simplifies matters; but even then it is necessary to carry certain requisites along with them. These are carried on the horse in a double-ended bag slung over his back, balanced and strapped to a broad girth band which is usually buckled round the horse. This bag is designed to carry what corn the horse may require before he gets to his next night's quarters, some food for the groom, a curry comb and brush, any simple ointments or medicines likely to be wanted in an emergency; also attached to or in the bag should be a set of hobbling cords. These hobbling cords should be made of strong inch-thick rope; two ropes about 6 ft. long should be spliced together about the middle, leaving four loose ends; to two of these ends should be strongly stitched two straps with buckles to fit round the mare's hind fetlocks, the other two ends to be drawn forward between her fore legs and fastened on her neck, the one end being made with a loop. The operation of hobbling is done in a twinkling, and does not prevent the mare from walking, but it effectually prevents her from kicking out behind. Vicious mares must be guarded against, and the hobbling cords are the safest protection. Many a horse has been seriously hurt by a kick from a mare; and as prevention is better than cure, most careful grooms will not let the horse come near the mare until the hobbles have been fixed, however quiet she may appear. A light waterproof loin cloth should also be carried in case of heavy showers; this may be folded up neatly when not required.

The date of the travelling season varies slightly in different parts of the country, but usually continues for three months from the commencement. In England the first of April is the most common date for starting the horse on his rounds. Some breeders are anxious to have the foals early, thinking that if exhibited, the early foal will have a better chance to win. That, however, does not always happen. How often does the foal born in May, and exhibited at the autumn shows in full bloom, beat the early March foal which evidently had experienced a check and was looking stale. As there is greater risk in early foaling and more foals are lost in the early months of the year than after warm summer weather sets in, it is by no means worth the risk, just for the off-chance of having a prize winner, to have the mares foaling in the cold weather. May is usually considered the best time to have the mares foaling, so there is not often much for the horse to do in April. In many districts the farmer would prefer to have the

horse extend his visits into July, even if he did not begin till late in April.

The weather gets warmer in May and there is then a fresh bite of grass to turn the mare out to. If the mares are idle and have been lying out the winter, the point is not of so much importance, as the foal will usually stand as severe cold after birth as its mother was accustomed to before. But where the mare has to assist in the work of the farm, and is kept in a warm stable or box during the winter, it is better to have foaling deferred till summer weather sets in. When the farm work has to be carried on with the help of the mares, it is well to arrange their time of foaling, so as to interfere with the work as little as possible. And as the work varies in different parts of the country and on different farms in the same district, so also the time of foaling varies. The mares should be healthy and thriving when sent to meet the horse—not loaded with fat, and heated with rich food—but just in good working condition, even if not full of flesh. There is sometimes much trouble and annoyance in getting mares that have been highly fed, or got up for showing, to breed. A change of diet, by turning them out to grass for a few weeks, may cause a change in their system, and bring the desired result about.

There is some difference of opinion as to whether it is best to begin the mares at two years old to the work of the stud or to let them run till they are three, and much may be said on both sides. Circumstances, however, should decide individual cases. If a two-year-old filly is strong and well grown, and is not required for the work of the farm, she may as well be put to the stud, and the work of breaking her in to the collar postponed till after the foal is weaned. This course may cause her to be left barren the next year, as it is not desirable to break them in to work when pregnant. Neither is it desirable to miss a year, as it is sometimes difficult to get them to breed again when they run barren for a year. However, as most farmers like to collar their fillies at two years old, and get them steadied for work, even if they do not insist on them doing a full share of it, they do not find it convenient to have them foaling at three years old. On the other hand, some breeders assert that by starting them in the business when young they are more likely to make good mothers and more regular breeders than if they are allowed to live a maiden life a year longer. Those who practise this system are generally on farms where the horse work is not so pressing, and where they can allow the young brood mares to be idle most of the year. It is well, however, to mate a filly with a horse of more mature age, and it is of great importance that her

first mate be a horse of superior excellence. The practice of working the brood mares is common on nearly all arable farms. Farmers, as a rule, cannot afford to keep the mares idle. Yet in some of our best studs, where valuable mares are kept solely for breeding or showing, they are never compelled to put their heads through a collar; and, indeed, in some districts where most of the land is in grass and the horse work of the farm is light, many tenant farmers allow their brood mares to run idle all the year. The expense of keeping them is very small, and if they rear a colt every year, each mare is reckoned to be as profitable as a dozen or twenty ewes would be. They also breed more regularly, and have fewer mishaps than those that are highly fed and hard worked.

A curious problem, however, arises out of the practice, viz. whether horses which are bred for the heavy work of the farm and the streets will continue to inherit their powers of draught, their staying powers, their adaptability for the work, and their hardiness when descended from some generations of ancestors living a life of ease and luxury—ancestors who do not know what it is to do a day's work? Will the descendants of these ancestors lose the power and grit requisite for a hard day's work through being descended from a race of idlers? It will not pay to sacrifice stamina, ability, and willingness to work for the sake of size, symmetry, and all the other requisites of the show ring. We often observe the effeminating effects of idleness and luxury in the human race; whilst a life of pampering has a degenerating effect on most domesticated animals.

CARE OF THE FOAL

It has been observed also that there is sometimes a difficulty in getting well-kept mares to breed, and that the more highly-bred members of the stud are the shyest breeders. It is important, therefore, that when a mare is once successfully started in the business of breeding, and is safely in foal, no pains should be spared to give the future progeny every opportunity of developing on the right lines. If the mare is not required for the work of the farm, and can be turned out to roam the pastures without shoes, she will not require much attention until her time of foaling is approaching. The pastures need not be of a rich and fattening nature, as pregnant mares will maintain their condition during summer and autumn on very middling grass, unless they are suckling a foal. The field, however, should have no open ditches, no boggy or marshy spots. If two or more are grazing together they

will soon become friendly, and will do better than if grazing alone or in the company of some wicked colts. Hackney or pony colts should not be allowed in the same field; they are too active and excitable for the heavy mare.

Mares run out like this are more likely to have a happy foaling time than if shut up in a close stable all the winter. Even if they foal in the snow, the foal will take no harm if the mare has been accustomed to such conditions previously. Of course in the hard weather of winter the mare should have some extra feed; a little hay and a few pounds of oats given daily in a crib on the field will serve the purpose, and prevent her sinking in condition; her feet also should be watched and kept in form. Sometimes gravel causes trouble in the feet when going without shoes.

If the mare is required to help with the work of the farm, she should not be allowed to overstrain herself by hard pulling, neither should she be allowed to do any heavy shafting. If two mares are in foal, and will work together, it is a good arrangement to put them in charge of a careful ploughman, and keep them working on the land—ploughing and harrowing—and to let the other horses do the carting, rolling, and heavy cultivating. Working the land, if not too steep, is just the right sort of exercise for the in-foal mare, and she may be kept at it quietly up to the time of foaling, and will be quite as likely to have a good foaling time as if she were doing no work. Even in harvest time they may help a little, if not put to shafting or kept too long without food.

The mares may be fed the same as the other farm horses until Christmas, when a little more liberality may be advisable. The extra food should be given in the shape of bran mash daily. There is a considerable amount of nourishment in bran, and it keeps the bowels open and the mare in good health. It is well suited for mares as they approach foaling, especially when there is no grass and corn has to be used.

As foaling time approaches the mare must be allowed the use of a loose box for her night quarters. This box must be roomy, not less than 12 by 12 ft., so that she can turn about and lie comfortably, and there should be no projections that might cause injury to the mare or the foal.

Some simple arrangement should be devised by which the attendant can look in without opening the door or disturbing the mare. It is well to have the mare accustomed to the box some time before foaling, so that she may feel quite at home in it; but previous to turning her in the box should be thoroughly well cleaned, lime-washed, and disinfected with a strong solution of



CONNEMARA PONY WITH CROSS-BRED FOAL



Photo. Reid

DARTMOOR PONIES

carbolic acid, by which all germs of navel ill may be destroyed. The box must be kept clean and well ventilated, the temperature not being allowed to get too high, say from 40° to 45° F. during the night, all draughts being prevented. If the mare is kept too warm, the foal is apt to be tender and susceptible to colds; and if the box is too cold, a mare that has been accustomed to a warm stable, and has been at work all day, will feel the cold, and may contract a chill. Straw is preferable to moss for littering the foaling box, and short straw is preferable to long straw, the latter being more likely to hamper the foal in his first efforts to get on his feet. A rack and manger in one corner, similarly fixed to that in a colt's shed, with no supports under it that the mare or foal could knock against, is a good arrangement for feeding purposes.

As the expected time of foaling approaches, which is roughly calculated at eleven months, but with exceptional cases of ten months, twelve months, and any period between these extremes, the mare should be watched carefully, especially so after the appearance of a spot of wax on the teats. The symptoms of approaching parturition vary so much in different animals that it is difficult to prognosticate the foal's arrival with any certainty as to time. Some mares foal quite suddenly, without showing any symptoms whatever, whilst others may have milk dropping from their teats for a week or more. Some also get the business over easily in a few minutes, while others have a protracted time of it and require help. As it is not possible to tell beforehand, so much greater is the necessity for keeping a careful watch, and be ready to render assistance. If no assistance is required, so much the better; but even in cases of easy parturition, the foal is sometimes lost for want of someone being present to remove the cowl or covering from the foal's head. In those cases of easy delivery, when the foal has not struggled and the membrane does not break, the foal cannot breathe, and in a minute or two it is smothered. Then in difficult cases a little help sometimes saves the foal's life, and helps the mare in her labour. There is also the possibility of wrong presentations; these are always difficult cases to manage, and may possibly require the assistance of a skilled practitioner. Fortunately these difficult cases do not occur so frequently amongst mares as they do amongst ewes and cows.

A reliable man should be appointed to the task of watching the mare, and if the watching has to be continued for any length of time, it may be necessary to relieve him. If it is observed that the mare is likely to accomplish the task without help, it is much better to let her do so. Meddling and fussing about unnecessarily may

agitate the mare and make her irritable; and if no assistance is really required, it is much better to leave her and just keep watch from the outside. As soon as the foal is safely delivered, the navel of the foal and the part surrounding the navel should be dressed with an antiseptic lotion, of which there are various preparations recommended. Carbolized oil has been used successfully for this purpose, but a still more effective dressing is iodoform. The latter is now used by the principal breeders, and is usually successful in warding off the disease if applied at once to the portion of the navel string attached to the foal. The germs of the disease are supposed to enter the system of the foal by the navel soon after birth, and frequent cases of it occur despite all precautions of watching, cleaning, and disinfecting. If any symptoms of the disease appear, a qualified veterinary surgeon should be called in at once. The first symptoms discernible are stiffness and swelling in one or more of its legs, probably changing from one leg to another, and gradually getting worse. It is a difficult disease to conquer. Probably not more than 10 per cent of its victims recover, and of those that survive many are left with some unfortunate disablement, the result of the battle with the disease. "Prevention is better than cure" is an adage peculiarly applicable in cases of this sort, hence the importance of disinfecting.

When the mare foals out on the pasture, the risk of the foal contracting the disease is very much less than when foaling takes place in a building. In fact, cases are very rare of foals born out of doors contracting navel ill.

In all cases of difficult parturition the mare must be examined by inserting the hand, dressed with carbolized oil, into the womb, and carefully but thoroughly removing every vestige of the after-birth. The smallest portion of the afterbirth left to decay in the womb may cause blood poisoning and result in the death of the mare. An injection should also be administered by syringe of a very mild antiseptic in plenty of lukewarm water. Further directions relating to these and other matters connected with parturition will be found in Chapter V.

If the foal is all right he will soon scramble to his feet, and will get to business on his own account by exploring round in search of the teat. If the mare is quiet in temper and motherly in behaviour she will do what she can to assist him, and to further his schemes. In such cases it is the better plan to leave them alone together, and if the foal has all his wits about him, they will soon be on the best of terms. Too much injudicious fussing and interfering may make the mare irritable and the foal shy or stupid, and tend only to

delay matters. Sometimes, however, the foal may be stupid, or it may be weakly, and unable to find the teat. A foal of that sort is rather trying and troublesome, and requires any amount of patience, tact, and perseverance. It does not do to force it to the teat, as that is apt to make it more unwilling to try to find it; neither does it do to assist it very much, or it will not acquire self-reliance, and will lose the instinct of self-help. By patiently guiding it, and letting it feel its own way, it may be quietly started on the work of getting its living. Sometimes a slight smearing of treacle or syrup on the mare's teats will facilitate matters and induce him to suck. The task is rendered more difficult if the mare is not willing to be a partner in the scheme. Some mares are so irritable and nervous that they cannot bear the touch of the foal's mouth on the udder or teats, and are apt to kick or bite it, and either injure it or frighten it from trying to suck. The udder being very full, and being painful, may be the cause of irritability and unwillingness to let the foal touch it. If that is the cause, it may be advisable to relieve the tension of the udder by drawing a little of the milk off by hand; a little hand rubbing will also tend to deaden the nervous, sensitive feeling, and accustom the mare to be touched about the udder. Much tact and patience is required, and in extremely nervous cases it may be necessary to have one man at her head holding her firmly, another holding up a fore leg, so that she cannot kick, while a third manipulates the udder and gets the foal to it. It may even be necessary to continue doing this for some time until the nervousness abates and the foal has acquired courage and agility to manage the business himself. Occasionally mares are so vicious, and of such a vile temper, that it is both dangerous and difficult to manage them at these times, the foal frequently being the immediate cause and the victim of the bad temper.

It is doubtful whether it is wise to breed from an animal of this sort; as a quiet docile temper in a heavy horse is one of his finest attributes. An irritable, hasty temper is one of the gravest faults, which it is not prudent to propagate, and it requires a multitude of good attributes to cover the sins of a vile-tempered mare.

The foal during the first few days of its life must have a good deal of attention. Although there is an old saying that if a foal gets over the third day it will be all right after; yet the state of its bowels must be observed, and if troubled with costiveness, steps must be taken to relieve it. About a tablespoonful of castor oil may be administered with good results sometimes, and even an injection of lukewarm water in the rectum will help to relieve it. Costiveness may, however, be prevented best by the proper feeding

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of the mare. When the mare is kept on dry, hard food, the foal is more likely to suffer from costiveness, so it is important that at this time the mare should be fed judiciously, and in the absence of grass or other green food, there is nothing better than bran mashes, with which she should be liberally supplied. The bran mashes will keep both mare and foal right in their bowels, and will induce a greater flow of milk.

A foal may also be troubled with diarrhoea, the result of a cold, or the result of picking up something that has upset its stomach. A good cure for that is to give it first about half a tablespoonful of castor oil. When the oil has operated, follow with a glass of port wine, in which is mixed a little powdered chalk, and give it three or four times a day till the bowels assume their normal condition.

It seems all the fashion now to have the heavy horse docked, a fashion which has some reason at the root of it. It is decidedly very inconvenient when working heavy horses to have a long tail swishing in one's face, and getting entangled in the reins and harness. If the tail is docked, the hair that remains can be plaited and fastened up tidily out of the way, and it certainly improves the appearance to do so, by the better showing off of the muscular development of the hind quarters. When the foal is about eight days old the operation of docking may then be performed with the minimum of pain to the colt, and the minimum of trouble and risk to the owner. A piece of string and a sharp knife are all the implements required. The hair must be tied up firmly around the tail above the point of severance, and then with the knife snip it off at one of the joints of the tail, leaving the length of stump considered desirable. The disadvantages of this plan are felt during the summers of colthood when the young horses are being pastured, and no long tail is available to drive away the swarms of troublesome flies. For this reason some breeders postpone the operation till the horse is ready for work, and will presumably spend less of his time on the pastures among the flies. At that age docking is not quite so simple an operation, but requires a specially constructed knife and a searing iron, whilst the risk and the pain are doubled.

ARTIFICIAL REARING

The foaling time is always an anxious time for the farmer and for his horseman, and when the mare has foaled all right, and the foal got to run about and suck, both master and man feel relieved and thankful. Serious losses, however, sometimes occur at that time, and when a mare dies and leaves an orphan foal, the difficulty

of rearing that foal has to be faced. If another mare can be found within reasonable distance that has lost her own foal, and is willing to take the orphan, that is the simplest way of overcoming the difficulty. Or if another mare foals about the same time, and the orphan is smeared over with the mare's discharge and taken to her first, she will usually take to it at once, and if her own foal is allowed to get to her immediately after, she will generally acknowledge it and feel proud to be the mother of twins. The mare, if fed liberally and judiciously, will rear them well, and they will soon learn to help her at the manger. This is a much more successful plan, if it is carried out properly, than that of rearing on cow's milk, the next best alternative. When a foal has to be reared on the milk of a cow, the milk should be diluted with water and sweetened with sugar to convert it as near as possible to the character of mare's milk; a small quantity of bicarbonate of potash should also be dissolved in the milk. The foal should be fed with this very frequently during the day, and sometimes during the night, as the stomach of the foal is small, and it can only take a small drink at a time. This work involves a lot of time, trouble, and patience, and should be entrusted to someone who has the patience, can spare the time, and will take the trouble.

Around a farm in summer work sometimes becomes pressing, and the foal is apt to be forgotten or neglected. It is possible, however, to save a lot of this work, by teaching the foal to suck the cow. And a cow will rear the foal in this manner almost as well as a mare. The writer can vouch for two instances where that plan was adopted successfully. A quiet-tempered, upstanding cow was selected, one that had been accustomed to suckle a calf. As the foals in both instances had learned to suck before their mothers had died, matters were considerably simplified. The plan adopted was to tie up the cow in a place by herself, take the foal to her frequently, and stand by the cow meanwhile to prevent her using her heels or her horns. As soon as the foal discovered where the milk was to be had, which he did simply by exploring round, he quickly learned to help himself to it. After the first day the foal, being left in the same place with the cow, gradually got to stealing a drink, and she gradually became reconciled to allowing him the privilege. In about two days she got so used to the foal that she wanted him to come to suck. After this they were turned to the field together and accompanied each other all summer, the cow looking after him as carefully as if it were her own calf. As the foal gets older it may be helped on in growth and condition by a little manger food.

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When the mare foals indoors, it is necessary to be careful to select fine weather for the first outing of the mother and foal. When about a week old, if the day is fine and warm, they should be turned out into a nice sheltered paddock for a few hours to obtain a fresh bite of grass. If the ground is damp, the foal should be watched to see that it does not lie down and get a chill. If rain comes on they should be taken in at once, as it is not desirable that the foal gets its back wet for a few days until it becomes inured a little to outdoor life. The mare, if not required for work on the farm, may now be turned out to grass all summer along with her foal. If the land and pasture are of the best, the grass alone will be sufficient to keep them improving; on inferior land some help should be allowed in the form of a feed of oats daily. The foal will soon learn to pick at the crib along with the mare, an education which will prove advantageous to him when weaning time arrives, and he has to depend on his own exertions, and he will not be so likely to lose condition when deprived of his mother's milk.

If the mare is required to help with the work of the farm as well as rear the colt, she must be well fed, so that she may not only do her foal well but also gain strength herself. Besides good pasturage she should have a good allowance of oats. It is not desirable to set the mare to work until the foal is at least a month old, and it is not desirable that the mare should be kept too long at a stretch away from the foal. When the mare is at work, the foal should be shut in a roomy box where he cannot possibly hurt himself in his endeavour to get out. On the mare's return from work she should be allowed to cool a little, and just a little of the hot milk drawn off by hand before the foal is allowed to suck. If the mare is too long away, the foal will get very hungry, will be apt to suck too greedily, which may perhaps produce indigestion, and this may result in more serious trouble. Of course, as the foal gets older and gets to eating from rack or manger, the mare may be kept longer away, the same precautions about the heated milk being observed.

Foals are so fond of company that, if practicable, two of them should be kept together at these times, when it would be found that they would not miss their mothers nearly so much.

When the foal is in the box by himself it is a good opportunity to have him haltered and taught to be led about. A few practice lessons in the box will get him that he will lead anywhere. If trained when young, they learn more easily, they are much handier to manage, and more tractable when they get stronger.

The usual time of weaning is when the foal is five or six months

old. If the mare is not in foal again, the foal may be allowed to go on sucking a month or two longer; but if the mare is pregnant it is not desirable to let the foal suck any longer at the expense of his mother and younger brother. If he has been picking at the crib with his mother he will be able to hold his own when turned out in the company of other foals. There is seldom any trouble with the mare's udders at that time; if they are working hard the milk will soon disappear. The teats may be relieved a little by hand stripping. Foals should always have company at weaning time; two or more together will do much better than one by itself, and will sooner forget their mothers. A single foal taken from its mother and kept by itself is greatly to be pitied, and is likely to fret and lose condition. After a few days in a box they may be turned out together if kept out of their mothers' hearing.

After weaning, foals must not be allowed to sink in condition. Up till this time they have had a happy life; now they lose all at once the mother's milk and the mother's company; the autumn pasturage is getting less nutritious, and the nights are getting longer and colder; so altogether it is a change for the worse in the life of the foal—a change that may cause a serious check in their growth and development unless carefully guarded against. To some extent we must be guided in our management of weaned foals according to our plans regarding their future destiny.

If a foal is considered promising enough to keep for stud purposes he should be granted a little special treatment and attention, as mentioned already. If, on the other hand, the foal is destined to take his place in the team and assist in the work of the farm during the early part of his life, and ultimately succeed to the work of the streets, a more modified system of rearing may be adopted. Of course all foals should be well fed after weaning, and on through their first winter, with a liberal allowance of oats, bran, and good hay. Until there is plenty of grass for them in the spring, the quantity of corn should be regulated by the character of the pasture and the state of the weather.

THE GROWING COLT

To rear young horses successfully they must be kept constantly improving. No check should be allowed if possible. A check in growth or condition is serious, as it entails loss of time, and extra expense recovering that loss. Indeed, the results of a check may be permanent and continue through life.

The chief objects to aim at are the natural growth of bone and

muscle, the development of the respiratory organs, strength of constitution, and good sound feet. To attain these objects the colt must have a proper supply of good food and plenty of exercise. There is no economy in keeping a colt short of food, or in feeding him with what is at hand on the farm, whether suitable or not.

For the development of bone and muscle bran is one of the most useful foods, and as it can generally be bought at a reasonable price in the autumn months, it should always form part of the rations of the young colts. It may be given dry, mixed with oats, or it may be given as a mash. When there is plenty of grass, the best plan is to give it dry with the oats; but when grass fails during winter a mash should be given twice a day. In the grass districts of the west of England the colts are generally wintered on the dry food, half oats and half bran with hay; or it may be one-third oats, one-third peas, and one-third bran, having a run on grass all winter when weather permits.

The sheltered paddock with conveniently placed shed in it, as already referred to, is the ideal arrangement for wintering colts. This arrangement gives just the necessary opportunities for exercise, and enables the farmer to bring his colts through the winter in capital form, with the smallest cost and the minimum amount of labour. The shed should be left open during the day, so that the colts may go out or in at pleasure. At night, or in very bad weather, they may be shut in, although if they have the choice they will often be seen out browsing in the rain, or galloping or playing in the snow, and taking no harm. The cold winds when accompanied by rain or sleet drive them in, and cause them to appreciate the shelter.

In the arable districts of England and Scotland, where the sheltered paddock and shed are not available on every farm, a different system has to be adopted for wintering the colts. There is generally plenty of straw on these farms, and a large yard well littered with straw is the best available substitute for the paddock. If the bullock yards are all occupied a temporary yard may be improvised between the straw stacks, where the colts may play and take the requisite exercise. Of course they have to spend most of their time in their box, which should be roomy and comfortable.

Grass not being available, the feeding of the colts will have to be arranged on a different basis, and more of the food given as a mash. The morning feed may be half a pailful each of a mixture of boiled swedes, bran, and oats, or part oats and part peas, given

warm. When maize is cheap it is used in part with the oats; but being more inclined to produce fat than to grow muscle, maize is not to be recommended for growing colts. An improvement may be made in the mash by adding about 1 lb. of the fine siftings of linseed cake. Linseed cake, besides being valuable as food, is useful in keeping the bowels kind and healthy, preventing constipation, colic, and other stomach derangements.

As hay is not always available on these arable farms, the bulky food has to be got from the straw. In some parts of Scotland bean straw is the favourite sort; it is chopped short, mixed with bran and oats, and well scalded. After cooling it is given in a sloppy state, the quantity of straw being used to lessen the consumption of hay. When hay is not available some straw should be given in the racks, besides what is chopped; nice oat straw is the most suitable for filling the racks. Colts that are fed largely on mashes like a change, and appreciate something they can chew. Indeed, it is important they should have some long fodder which they are obliged to masticate. If fed entirely on chopped food and mashes, they are apt to get into the habit of bolting their food without chewing it; their powers of mastication become impaired for want of use, their digestive powers are weakened, and their health suffers accordingly. When fed on mashes they should not be allowed to satisfy their appetite completely with the pail food, but should be kept so that hunger will compel them to have recourse to the racks during the long night, and to chew some of the long fodder, whether it is hay or straw. Their loose box or yard should be fitted up with rack as well as manger, the rack being low down near the floor. It is not natural for a horse to eat from overhead: in their wild state they eat off the ground; so that besides the lessened danger of getting chaff and dust in the eyes, they can eat much more comfortably from a low rack. The practice of giving the unthrashed sheaves of oats to the colts is adopted on some farms. It is rather a rough-and-ready method of feeding, by which the quantity of corn used can only be guessed at, and is a practice that can scarcely be entrusted to boys or unobservant workmen. Of course where the farmer himself or some careful horseman undertakes the work, one who can estimate pretty accurately the quantity of corn used, can watch results in the thriving of the colts, and can guard against waste, the practice will work well, and has a good deal to recommend it. It saves a lot of labour in thrashing, chopping, mixing, and scalding; it also compels the colts to use their teeth, and it thus conduces to a much healthier and more thorough mastication of the food. Of course

the cribs must be made with close bottoms, so that the oats which are shed do not get lost.

The practice of chopping, mixing, and scalding the food has much to recommend it from an economical point of view, but it must be done with caution and with judgment. In rearing colts we must endeavour to develop fully all of their natural faculties. The power of masticating and digesting their food is an all-important faculty. If we attempt to do it for them by artificial means we do not encourage the animals to cultivate the power of exercising their faculties; and, as is well known, faculties not used will remain undeveloped and will degenerate, so that after generations of pail-fed colts have been reared in luxury, a toothless horse might be produced, which would want all its food chewed, cooked, and specially treated for a weak stomach. It is, of course, during colthood that the natural faculties are improved or impaired. We have an object lesson when we compare the teeth of the present civilized races of mankind, accustomed to living on cooked food and prepared artificial food, with the teeth of the uncivilized savage, who lives a natural (or what we would consider unnatural) life. We do not want to create a necessity for horse dentists, so that prepared food for growing colts must be used with caution.

The feet of the colts must also be watched; if standing much of their time on the accumulated litter and manure the hoofs may grow abnormally and lose consistency. The colts in the paddock are not so liable to go wrong in their feet as are those in a box or yard on straw litter. But all colts want attention, and if there is any tendency to erratic growth a visit to the blacksmith and a little judicious paring and rasping will greatly help in the development of a well-shaped hoof. It is important at those times to encourage widening of the heel, which may be done by paring the heel and encouraging an outward growth. Sometimes it is necessary to put tips on the toes to prevent undue wear, and to induce a more level planting of the foot on the ground. It is the shelly, quickly-growing hoof that will require most attention. Possibly a case may occur where it is considered advisable to put on a thin, light set of shoes to prevent the hoof from cracking and breaking. These shoes, however, should be frequently removed and the feet dressed.

The advantage of having had the foals accustomed to the halter will be appreciated now, when they have to visit the blacksmith. Indeed, whether they have to go to the blacksmith or not, it is well, when time permits, to renew their lesson and remind them of their schooling by haltering them about a little. If this is done occasionally they will soon become quite tractable, and are much easier

managed when wanted to work. It also affords an opportunity of training them to trot out and to show their paces, so that if wanted in the show ring or to offer for sale they can be shown off to greater advantage. Besides which, if the colts have not the benefit of a run in a paddock, and if the yard they run in is limited in size, this leading-out exercise should be practised frequently.

To develop limbs, joints, and muscle in growing colts, plenty of exercise is supremely essential; exercise of all kinds, walking, trotting, and even a little galloping, should be allowed.

Where a number of colts are together the constant personal supervision of the owner is all-important, to see that all the individual colts are getting fair play, to see that his instructions are being properly carried out, to see that nothing is going amiss with any one of them, and to compare progress of the different animals. The latter is always an interesting study when one knows the various animals, their history, and the history of their ancestors.

When just turned a year old the colts not intended for stud purposes must be castrated. A professional expert should be employed, the farmer and his men rendering assistance. There are various ways of performing the operation, each professional adopting the system he has been trained to and considers the best. Some operators recommend casting the colt, by throwing him on his back and fastening his legs securely. Others prefer to operate whilst the colt is standing, a system which lessens the risk of injury to the colt by throwing him, but increases the danger to the operator. Whichever system is adopted care should be taken that the operation is performed in mild, fine weather, easterly winds being avoided, and the colts kept in if rain comes on, as it is undesirable that they get their backs wet. It is undesirable also to have the operation performed when the animal is changing his coat. All being well, the colts will get over the effects of the operation in about a week or ten days, when they may be turned out to grass for the summer.

A bill was proposed in 1912 to compel the use of anæsthetics when performing operations causing pain on animals. The bill met with general opposition from farmers because of the great expense it would cause in the castration of calves, lambs, and pigs. If it had been confined to horses only, it would probably have met with no opposition. Indeed, the use of anæsthetics in the castration of colts is being adopted voluntarily by many advanced operators.

If the pasture is good, the colts should do all right on grass alone. There is a great difference, however, in the quality of soils

for the growth of colts. Soils on a limestone foundation are supposed to be suitable for the development of bone, and rich alluvial deposits will grow size and muscle. On arable farms, where grass land is not available, it may be found expedient to send them out for the summer to farmers, who make a practice of taking in colts at a charge of from 3s. to 5s. per week, according to the size of the colts and the quality of the pasture. There are many poor pastures, though, where the colts will have to be very busy to get a living on the grass alone, and where a little hand feeding is necessary if we want them to grow into heavy horses. A feed of oats and bran once a day will greatly assist them in their growth, and will prove a good investment. The quantity given should be regulated by the quality of the pasture and by the progress the colts are making. The "tail" oats from the thrashing machine may be utilized profitably in this way. The aim must be to keep them growing and improving all the summer. The following winter, when rising two years old, the colts, being stronger and harder than the yearlings, will stand rougher treatment through the winter. Indeed, in some favoured localities in England, the two-year-olds have to winter out, and if there is natural shelter and a good bite of grass on the land, it is wonderful how they will do. Generally speaking, it pays to help them a little even on the best land, whilst on poor farms, high altitudes, and in the northern climate it is necessary to do them through the winter in a similar manner to that described for the yearlings, using a larger proportion of the bulky food and comparatively less of the grain. On arable farms swedes may enter largely into their ration. These may be boiled and mixed with cut straw, light grain, and bran, or they may be given a few in a raw state when free from frost, as much straw or hay as they will eat being supplied in the racks. If straw and no hay is used, the pail food should be made richer or a little corn given dry. It is not a good plan to box up the two-year-olds and keep them warm. Although in stormy weather some shelter is necessary, yet it is astonishing what little use they will make of a shed if they have the chance of going into one. They seem to prefer being out unless the weather is both cold and wet.

The life of a heavy horse may be divided into three eras: say, two and a half years of idle colthood, three years of work on the farm, and the remainder of life on the road or street. Of course many continue all their life on the land. Females for breeding, geldings with some unsoundness or deformity, and others too small and light for the streets are kept on the land. But where horse breeding is worked on scientific principles, the farmer aims

at receiving a big cheque for his gelding when he has turned five years old. A good many of the best Shire geldings will realize the three figures at that age; so also will Clydesdales and Suffolks, if weighty enough. The demand for the best heavy horses continues very good up to the present time, large numbers of them being required to keep up the teams of the brewers, coal merchants, railway companies, contractors, and carters in all our large towns. These are the best customers for the farmer's heavy horse, and to supply these customers the farmer must breed and rear the right sort, make them serve an apprenticeship on the farm, and bring them out properly qualified for their life's work.

THE WORKING HORSE OF THE FARM

The breeding and rearing has been fully described; the play-time of the colt is over, now he must enter on his apprenticeship. Sometimes the colt has to begin work at two years old; but it is much better management to let him have another summer's run, break him in after harvest, give him just a little work during the winter; then, when the busy springtime arrives, the three-year-old colt is able to fill his place in the team. If the colts have been accustomed to be led about, the task of breaking them in to work is very much simplified. It is quite unnecessary to employ a professional breaker. The head wagoner or ploughman, with a little assistance, will do it better than any of these professionals. It may be well to put the colt at once into the charge of the man whose team he will have to work in. The stubble ploughing in autumn is a suitable job to begin the youngster with, and although the north-country farmers generally yoke the colt abreast beside a steady old horse, the English plan of putting a colt between two old horses working in single line is very much to be preferred. With a steady leader, and a quiet stager behind, the colt in the middle is compelled to come into line at once. After a little plunging and jerking for a round or two he will settle down to work immediately. The two old horses will keep him straight and pull him along, and in his position in the middle he can neither hurt them nor himself, which he may easily do when hooked abreast.

Half a day at a time is quite enough for the youngster for a few weeks. If two colts are being broken in at the same time, one may be worked in the morning and the other in the afternoon without any hindrance to the other teams. When they have been worked in this manner for a week or two they will have become

quiet and tractable, and may then be hooked abreast or put into the shafts. The ploughing and field work generally being done by two horses abreast in the north, the colts have to work in that manner, and if put alongside a strong old horse, and the work is a bit heavy, the colt may be relieved by using an adjustable main swingletree and letting him have the longer end.

In the Midlands and south of England much of the strong land is worked by the horses going in single file—two, three, or four in a team, according to the weight of the implement, the state of the soil, and the depth of cultivation. Much may be argued in favour of the system, although it is not the most economical, nor does it equalize the draught so well as when the horses are working in pairs abreast, attached to swingletrees; yet, from the horse rearers' point of view, the training of the colt and getting him fitted for after-life on the street, with the prospect of receiving a large price for him, is of more importance than the aim of getting as much work as possible out of him. Of course, the system involves the employment of more horses on the same acreage of land, but when each of these horses is annually growing in value, the increased number is not such a drawback as it might appear at first sight.

The character of the soil also sometimes renders it advisable to have the horses working in line in the bottom of the furrow, thus saving them from trampling the soil except as little as possible. The farmer who aims at economy by keeping the minimum number of horses and getting the maximum amount of work out of them, the type of farmer who, seeing ten pairs of horses ploughing in a field, exclaimed, "There goes a thousand a year straightway!", is not the farmer to bring colts up and make money of them. He may cultivate his land more cheaply and grow his crops more cheaply, but he will make no profit out of his horses; he will, on the contrary, probably have to take off for depreciation so much annually.

Young colts must not be overdone the first year, but must be accustomed gradually to the work; when four years old they can do their full share of it; when five years old they are fit for anything.

A farmer occupying an arable farm of strong land, fairly level, and working it with brood mares and young horses, must of necessity keep more in number. For instance, six brood mares may be expected with ordinary luck to rear four foals annually; there would thus be four five-year-olds, four four-year-olds, four threes, four twos, and four yearlings, besides the six mares, making twenty-

six head in all. The four five-year-olds would be expected to realize £300, which would be profit on the horse department.

Another farmer would probably work the same size of a farm with twelve seasoned horses able to do a full day's work. To keep up this stud he would probably have to buy two every year and dispose of two worn-out and old ones, which would probably result in £100 against the horse department. The one man would be employing eighteen horses to do his work, besides keeping eight youngsters, and gaining £300; the other would be employing twelve horses, and losing £100 on them. The first farmer would thus have about £400 extra for keeping the extra number of horses. Probably his risks would be greater in a breeding stud than in a working stud, and of course his capital invested would be greater; but as most, if not all, of the horses' food would be grown on the farm and obtained at the cheapest rate, £400 appears fairly good pay for the keep of fourteen extra horses. In other words, it is finding a profitable market for a quantity of the farm produce, besides making extra manure, and having the benefit of the extra horse strength when a busy time comes on.

In breaking young colts to work, care must be taken at first that the harness fits properly; the shoulders must not be allowed to get sore, or it may daunt a colt and make a bad puller of him. When the harness is put on at first it must be done quietly, so that he is not startled or frightened. The harness and chains must be strong, so that they will stand a sudden jerk; it is when breakages occur that accidents are likely to happen. The colts may have half a day's work all through the winter when weather permits; then, when the busy work of spring comes on, they will be steadied and seasoned, able to do a full day's work, and to keep up with the other teams. Of course a good manager will arrange the work so that the colts will have the lighter jobs, and the older horse have the heavier work of shafting, drilling, rolling, and cultivating. The work of rolling affords an excellent opportunity for getting the colt accustomed to shaft work. After a few days in the roller he will be fit to put in a cart or wagon, and when harvest comes on can take his place and his share of the mowing, reaping, and carting.

MANAGEMENT OF WORKING HORSES

The management of the working horses on the farm varies greatly in the different parts of the country. The most general system is to work them in pairs, each ploughman having his two horses to feed, groom, and work. In some districts the wagoner

has four horses to feed and groom, a boy or a labourer helping to work them during the hours they are in the field. This plan fits in with the system of the long single-file teams, and appears to work well on some farms where the teams are prepared for the work of the London streets. But for general economical farming the system of pairs is the best. Two horses is enough for one man to attend to in the morning and at night if he has to do a full day's work in the field. The most of the farm implements are made now for two horses; the old heavy cultivators are being replaced by lighter ones, so that, except in the districts of the long teams, nearly all the work of cultivating the soil and securing the crops is done by two-horse implements.

On some large farms the feeding of the horses is entrusted, as in contractors' stables, to one man appointed for the work; but on most farms the man who works the horses has to feed them, his corn being delivered to him weekly by the farmer himself or his foreman, each man having a coffer or chest sufficiently large to hold a week's supply.

With farm horses, whose work is not so regular as horses on the road, the feed must be regulated according to the work. In wet weather they may be idle many days; in frosty or snowy weather they may also be idle. Then, when fine weather sets in they may have to do a bit extra. Wheat sowing and mangel carting are trying times on the horses, so is turnip sowing and harvest work; so that it is advisable to regulate the feed according to the time of year and work on hand.

On most farms the horses have the chance of a run out on pasture during a few months in summer, when they can spend their nights and idle days out of doors. This is very beneficial to the health of the horses. On some arable farms, however, there may be no pasture available for the horses, so that they may have to remain in the stable or be turned loose into a yard, green food being carted to them. Vetches, clovers of the first and second mowing, meadow grass, or green oats come in handy for that purpose. When the second cutting of clover is finished, some long hay should be given to the horses. On some north-country farms, however, the horses have to eat oat straw or bean straw, no hay being available. The feed of corn has thus to be regulated by the quality of the fodder, as well as by the pressure of the work. A sort of standard for the horses when busy, and having straw only in their racks, would be for each pair per week, a mixture made up as follows:—112 lb. oats (crushed); 56 lb. maize (cracked); 84 lb. beans (cracked); 30 lb. bran—mixed with chopped hay. This makes



Photo, Reid

EXMOOR PONIES



Photo. Reid

FELL PONY

a capital feed for a busy time, and might be safely reduced in an idle time by docking them of all or part of the beans.

In summer when on green food the maize and the bran might be omitted. When maize is dear there is no need to include it, but add a few oats instead. The only reason for using maize at all is its being usually a cheap form of supplying a nutritious food. As it is not grown on the farm it is never advisable to buy it except when it is at a low figure, unless it is wanted to improve the condition of the home-grown grain. Farmers as a rule are acting in their own interest when they use food grown on their own land to feed their own horses, and they should aim to grow the oats and beans necessary for the purpose. It happens sometimes, of course, after a bad harvest, that the home-grown grain is not in a dry enough condition for bruising or cracking; then a little dry maize mixed with it would correct matters. If very damp, a slight drying on a kiln may be found necessary.

If a grass run is available the cart horses should be turned out about the beginning of May in the south of England, the time graduating to the beginning of June in Scotland. The early summer grass has a medicinal benefit on horses working hard and fed on corn all winter. To modify the change and lessen the risk of catching cold at turning-out time, it is a good plan to turn them out for about two hours in the evening for a few days, bringing them in all night. Then on Sunday they may be turned out after a good feed of corn in the morning and left out all night, thus beginning their lying-out time.

If the work of the farm permits, it is a good time during June to give a colt a little rest for a few weeks; he will be all the more fit for the work of the harvest. On strong land farms where there is much work on the fallows this opportunity might not occur; but on light land farms sometimes a few weeks intervene between turnip sowing and hay time, when some of the horses might have a little rest and run on grass. Now that the horses are required to do all the harvest work, they must still have their feed of corn, although on the pasture, the quantity being regulated by the quality of the pasture and the amount of work expected of them. Oats crushed, say about 140 lb. per pair weekly, or about 20 lb. of beans in addition, if the work is heavy, is the most suitable food on grass. Maize or bran is unnecessary.

The horses, when required to work, should be got in early, so that they will have an hour and a half to feed in the stable and get well groomed. Some chopped hay should be mixed with the corn. If no good hay is available, or if straw has to be used, it is a good

plan to mix some green rye grass or clover with it. Good wheat straw and green Italian rye grass in equal parts and run through the chaff cutter will make an excellent mixture for giving with the corn. Of course it must be cut frequently, as if allowed to lie in a heap for any length of time it will heat and get musty. If the custom is to make one long hooking daily, the horses should have their nosebags filled with some of the chop and corn and taken with them to the field, so that they may have a feed whilst the men have their lunch. The custom of making one long hooking a day is prevalent in many parts of England, and no doubt was intended to save time coming home to stable in the middle of the day when the land lay a long way off, and save also a big slice in the best part of a short winter day. It is, however, a much better plan for both men and horse to stable for an hour and a half or two hours in the middle of the day if the field is within reasonable distance of the stable. The men can have their dinner comfortably and time to attend to the horses. The horses will have time to eat a good feed, rest a little, and be ready for a good afternoon's work. By adopting the latter system the horses will do more work, and do it with greater comfort during the long days of spring and summer; during the short days the other system has its advantages.

During hay time and harvest hours have to be forgotten sometimes, and the horses fed as convenient, care being taken that they are not kept too long without food or water. There are also sometimes certain operations going on when the time of the horses must be made co-temporary with that of the labourers, as for instance potato planting and potato digging, when the withdrawal of the horses from the field would stop a number of the men from getting on with the work.

After harvest, it is not good policy to let the horses remain out too late in the autumn if working hard; the grass is deficient in nutriment, the nights get long and cold, with frequent stormy weather. They will sink in condition and grow heavy coats and lose stamina if kept out too long. Some aftermath clover comes in very useful, and horses will do well on that as a supply of bulky food at the end of harvest. It should be mowed fresh every day and given to them in the stable, their allowance of corn being continued. This season of the year is generally as trying to farm horses as any time. The work of autumn cultivation, wheat sowing, root carting, and the many incidental jobs which fall to the share of the farm horses at this season, make it an arduous time. Much of the work has to be done on soft land in close muggy weather; the horses probably having heavy coats, and being in what is technically called

"soft" condition. They now want a little extra attention and a little extra corn to keep them up to their work. As the winter comes on the work will be less arduous, and the horses will gain in condition.

During long idle spells in wintry weather there is a danger of overdoing them with corn, to the detriment of their feet and legs. If possible, it is better to give them some little work to do. It may be a difficult task, perhaps, to find work for a lot of horses on some farms during a long spell of frost and snow. But the corn then had better be curtailed, the racks may be filled with straw instead of hay, and a few roots may be given when free from frost.

In many of the farm stables in Scotland a pailful of boiled food is given to each horse at supper time, and another in the morning for breakfast. The boiled food consists of chaff, turnips, and grain the inferior barley, beans, or oats being utilized in that way. The food is made better at busy times and poorer in idle times by adding to or withholding some of the grain. This system of using so much boiled food (almost unknown in England) is not altogether to be commended, and is accountable for a great amount of colic and constipation.

The writer has had considerable experience of both systems, and has no hesitation in giving preference to the English system as being much the healthier. The horse has a comparatively small stomach and ought to have food in small quantities at a time. The bulky nature of the boiled food, often swallowed too greedily and without proper mastication, no doubt is responsible for the frequent stomach troubles. The bulky food of the farm horse should always be given in a form that it must be chewed and the concentrated food given in small quantities. The water supply is important, and should always be pure; as a rule soft water is preferable, and horses often prefer the half-muddy water of a pond to clear spring water from a well. Doubtless horses acquire a taste for certain water, and often refuse to drink at a strange place although the water appears to be better. The time of watering and amount of water allowed are of special importance. Water should be offered to horses in the stable first thing in the morning before anything else, and at that time they may have as much as they will drink. They are then in good trim for breakfast, and when drawn out to work an hour or two afterwards they should be allowed only a few mouthfuls. When returning from work the horse should again have water before being fed, care being taken that he does not drink too much cold water when he is very hot and perspiring, a little less

than a pailful being allowed. If water is conveniently near, a little drink when at work is very refreshing in dry hot weather.

If horses are in good health, regularly worked, and properly attended to, no spices or condiments are necessary, nor should the wagoners be allowed to give any.

It is possible that a horse may be a shy feeder and does not carry condition, and when desirous of getting him up we may have recourse to a condiment, of which there are any number on the market. It is not desirable to use them if it can be avoided, and they should only be given by the master or responsible foreman. For cases of illness it is much the best plan to call in a veterinary surgeon in time. It is false economy to postpone sending for a skilled man until the animal is past his skill. But for emergencies, a case of useful remedies should be kept at hand in charge of the master or foreman. The case should contain some colic drinks, some purging balls of varying strength and distinctly labelled, some healing oils for external application, a bottle of carbolized oil, and one of iodoform for foaling time, a large tin of hoof ointment, and a little saltpetre. A box of soft soap should also be kept at hand. Sometimes a bottle of linseed oil is required, and may effect all that is desired. Simple coughs may be relieved in this manner. The use of boiled linseed in a mash every Saturday night when the horses are on hard keep is also beneficial and should not be neglected. If a horse has any difficulty in passing water, a teaspoonful of saltpetre given in the mash will help to relieve him. A farmer may do a good deal in the way of first aid among his horses by keeping these simple remedies at hand; but if a veterinary surgeon is available within a reasonable distance, it is best to call him in when anything serious threatens.

The grooming and cleaning of horses is an important part of their management. The stallion, and the carriage and saddle horses, generally get well attended to by their respective grooms; but the working horses of the farm are apt to be neglected, or done over very superficially in this respect. The hairy-legged Shire horses when working on clay land in wet weather find the wagoners some extra work. Each wagoner should be provided with a good currycomb, manecomb, and dandruff brush, and should be made to use them. It is of importance that the horses' skin be kept clean; the use of the currycomb and brush has a pleasing and stimulating effect on the horse. During the time the horse is eating his morning feed the wagoner should give both his horses a thoroughly good grooming, put on the collar and other gears, except the bridles, give them their additional feed, and then get his own

breakfast. It is wonderful how the grooming and harnessing helps the appetite; the horse seems to know that he has to go to work, and he sets to with renewed vigour to clear the manger.

When the horses come in at night their legs require first attention; probably they are in mud up to the knees. If a running stream is available a wade in it for a few minutes helps to get rid of a lot of the dirt; but it is important that the legs be well rubbed dry as soon as possible after they get into the stable and have their food given them. For this purpose nothing is better than a firmly wrapped wisp of straw; with a wisp in each hand, coat off and shirt-sleeves rolled up, the wagoner must vigorously rub each of the legs up and down, applying plenty of elbow grease, till he gets them dry. By the time he gets the eight legs dry he is probably not very dry himself. The rubbing with the straw, however, causes an improved circulation of the blood, prevents chill from the cold water, and cleans the legs. When suppering the horses last thing at night the wagoner should again give them a good dressing with currycomb and brush, removing all traces of perspiration and mud or dust. The horses will rest all the better for this finishing touch.

The harness must also be attended to with care. Collars should be well fitting, and when soaked with perspiration should be hung for an hour in the midday sun. The leather should be kept soft and pliable by occasional oiling. Wagoners should be encouraged by prizes or bonuses to take care of the harness, and to turn out their teams in a tidy, workman-like style, without too much ostentatious display of brass and ribbon. There are many recipes for making harness compositions; these may be bought ready-made, or may be made at home more cheaply. If properly made they give a nice polish to the harness, and help to preserve the leather.

The style of making harness for heavy horses varies greatly over the kingdom. Some of it is unnecessarily heavy, with no addition of strength at the wearing parts. A farmer may prefer one style before any other; but he is almost at the mercy of his local saddler, who will pertinaciously adhere to the local type. It is a difficult task to change local customs in country districts. The useless and pernicious bearing-rein sticks to us in many districts just because saddlers will not make a bridle for a cart horse without one. But whatever style is in fashion in the district, the farmer must see that the collar is not only well fitting but well stuffed, until it is quite round and hard. A badly stuffed collar is a frequent cause of sore shoulders. One may appreciate the difference it makes to the horse by carrying a round pole on the shoulder and then carry a flat-sided pole. The excellent galvanized-iron collars,

which never hurt the shoulders, although introduced twenty-five years ago, have never come into general use, just because of the prejudice of local saddlers and wagoners, who will adhere to the old fashion.

THE STABLE

The stable accommodation is an essential item in the management of farm horses; unfortunately on many farms the stabling is very poor. In some districts the farm horses are turned into yards to lie at night, the advantage of the system being that they rest better than when tied in a stall; some horses will not lie when so tied. The disadvantages are the greater quantity of litter required, and the greater risk of hurting each other; horses that have not been reared together do not always agree. The better plan is to have them in proper stables, each one in his own stall. The stalls, to be comfortable, should be 6 ft. wide, and separated by wooden partitions or "travises", extending 8 ft. back from the front wall, and high enough to prevent a wicked horse from teasing his neighbour. The building should be 18 ft. wide, the length according to the number of horses required. The best floor is cement, grooved to prevent slipping, the floor of each stall being dished slightly with a channel in the middle to drain off urine. No underground drains should be constructed, the urine being swept out on the surface. A manger of 4 ft. long and 1 ft. wide should be fixed about 4 ft. high in front of the horse, a rack about the same height being fitted in the spare 2 ft. of the stall. The manger may be made of wood, iron, or fireclay, the latter being preferable, because of cleanliness and durability combined. The overhead rack is objectionable for the reasons previously given. A lump of rock salt should be kept in the corner of each manger for the horse to lick.

Horses are more comfortable, warmer in winter and cooler in summer, if there is a loft overhead. There should, however, be plenty of air space, and plenty of ventilation and light; dark stables are bad for the horse's eyesight and dismal for the men to work in.

There is not much benefit derived from having water brought into the stable; it soon gets impure from the absorption of noxious gases, and has to be frequently cleaned out. The loft is useful for the storage of hay and straw. At one end of the stable should be a small room for chaff, at the other end a room for harness, the loft extending the full length, and in it and over the chaff-room a small chaff cutter, which would be found very convenient to cut a small

quantity of chaff as required. The corn coffers would also be better kept in the chaff-room than behind the horses as is frequently done.

The stable should be well swept out twice a day and washed out once a week, a spare man being appointed to do the washing when the wagoners have the horses out at work.

The above description is that of an ordinary farm stable, as well fitted as can be expected consistent with economy. On some model farms now we have stables lighted by electricity, and fitted up with every convenience imaginary. That style cannot be attained, however, by ordinary farm horses.

When horses are working on the land flat shoes are the most suitable; caulkers are quite unnecessary, and are undesirable for farm horses. Of course, in slippery frosty weather the caulkers have to be used, and sharpened if necessary. Shoes do not wear out so quickly on the land as on the road; but it is necessary that they be removed occasionally and not allowed to remain on too long; the hoof will require to be pared and trimmed into shape. In frosty weather some of the horses may have to be sharpened but no more of them should be done than is absolutely necessary.

The great essential in the management of farm horses is to have capable, intelligent, conscientious wagoners, teamsmen, or ploughmen, by whatever term they are known—men who take an interest in their horses, take a pride in their work, and can be trusted to attend to them if the master is not in sight. Unfortunately that class of wagoner seems now to be very scarce. Farmers generally complain that, even with advanced education and the higher rate of wages, the wagoners of the present generation are very much behind their predecessors in capability, reliability, and adaptability; that they do not find their pleasure in their horses, but rather in leaving them and getting away on a bicycle. The local ploughing match, which used to be such a potent influence in creating enthusiasm in country districts, seems to be losing its power to infuse a spirit of healthy rivalry among country youths; and in many districts farmers are hard put to find the men for the work. Dare it be said that very often the employers show a bad example?

THE STREET HORSE

After leaving the farm, the happy scene of his colthood and his apprenticeship, the life of the heavy horse is one monotonous round of drudgery on the roads and streets. He has to bid farewell to pastures green, to joyous scenes, to old acquaintance, and to happy

companionship; and if there is any sentimentality about a heavy horse he must figuratively shed floods of tears at the great change in his life. Fortunately he is more philosophical than sentimental, and generally adapts himself quietly to his new home, his new work, and his new surroundings. His new home may be a very happy one if he happens to be bought by one of those large companies or large contractors who keep a great number of horses, and place in charge of them an intelligent superintendent, who sees that they are well fed, properly harnessed, worked regular hours, and placed in charge of a careful carter. It is usual also in those large stables to have a properly qualified veterinary surgeon to look after those laid aside by sickness, and to advise on the feeding and treatment of those in health and at work. One man is generally appointed to feed a certain number of horses; he prepares the feed during the day when they are out at work, has it ready for them when they come in, and sees that each has what he requires, not given all at once but supplied in small quantities as it is eaten up. This man has to be at work early in the morning, so that he has the horses all fed and ready for work when the carters arrive; and if they are not returning for a midday meal, he has to fill their nosebags ready to be taken out with them.

The owners of the horses are in a different position from the farmers who reared them, having to buy all the food required. The farmer had to use chiefly the food produced on the farm; he could not always follow strictly scientific lines in his feeding, but had to be guided by experience and circumstances. The owner of the street horse can be guided by science as well as experience in the feeding of the horses. The market prices of the various descriptions of corn probably causes slight variations in the menu.

A heavy horse at street work is supposed to require food per day from which he can digest albuminoids 3.5 lb., carbohydrates 16 lb., fat 1 lb. A ration of 14 lb. hay, 12 lb. oats, 2 lb. beans, and 2 lb. bran each per day, would produce something approaching the above digestive results. The quality of the hay makes some difference; if clover hay is used the proportion of beans may be reduced or substituted by maize; if meadow hay is used the beans may be slightly increased. Timothy hay is a great favourite with horse owners, and is now in great demand. When hay gets very high in price it may be substituted in part by oat straw, and a little additional weight of concentrated food added. If beans get dear, peas may be substituted in part, and if oats get very high half the quantity may be used and the other replaced by 4 lb. of maize and 2 lb. of barley crushed. Of course the grain used is of good quality,

all being crushed, and mixed with the cut hay. A pound of molasses may be added for each horse.

The points to be kept prominently in view are that the horses must be kept in strong muscular condition, that the albuminoid constituents of the food are necessary for this purpose, and that albuminoids are provided in their most concentrated form in beans and peas. The hay must not be cut very short, or part must be given in long racks to induce the horses to masticate it. In town stables it is not always convenient to give long hay, so that if it is all cut it should be cut long enough to make the horses chew it well.

The constant work on the hard road and the continual heavy feeding is very trying to the constitution. The average duration of life on the street will not exceed eight or ten years. The feet and joints fail first; if the horse fails in either he is unfit for the work and must be disposed of, another being brought in to take his place. Although many of our patient, hard-working, noble friends, are shipped off to the Continent to be slaughtered for human food when they have finished their work on the street, yet a few may have the good fortune (or misfortune) to be sold back to some farmer to work on the land, and finish their days in comfort (or in misery) according to the disposition of their last owner. It is cruel beyond expression to drive an old horse to death after he is unfit for work; and the R.S.P.C.A. is doing a good work in putting a check on such practices.

PROFITABLE HEAVY-HORSE BREEDING FOR FARMERS

It is obvious that, as the great wear and tear of the street work shortens the lifetime of the heavy horse, there must of necessity be a supply kept up of recruits from the country districts to take the place of those that are worn out or pensioned off. Although much of the heavy work of the roads and streets is now done by mechanical power, there has been such an expansion of trade in the country that every suitable horse is readily picked up for the work at high prices, from £70 to £100 each, many of the best making over the latter figure. These are paying prices, and if all that are bred and reared realized similar figures, the horse breeders would soon realize large fortunes. Unfortunately, however, there is a large number that do not reach those figures; misfits, unsound, undersized, unfit through a variety of causes for the hard work of the streets, these have to be sold for smaller prices, or kept on the farm until they are worn out. There is a certain amount of

speculation in the work of horse breeding—much more so than in the breeding of cattle and sheep. The profits from horses may be much larger than from cattle or sheep, but so may also the losses. The rank and file of farmers have to look to their herds and to the flocks for the rent. If the rent depended on the horses, the poor farmer would many times be at a loss on the approach of rent day.

It must not be assumed, however, that horse breeding does not pay. In almost every county we have examples showing that it has proved a most profitable system of farming.

On most farms where horses are required to do the work of the farm, a few are bred as an auxiliary branch of the management of the land; in such cases the profits are not very readily identified. But on some farms the department of horse breeding takes the first place; it is worked as a speciality on scientific lines, the young horses being the principal source of revenue. In such cases the whole system of managing the farm is arranged with the aim of making the best of the horses. Although the system appears too much like the placing of all the eggs in one basket, yet it may be, and frequently is, done successfully, provided all the necessary factors for success are in combination and co-operation. Needless to say, the principal factor is the man himself. He must be specially gifted, a born horseman, a keen, shrewd judge, enthusiastic and enterprising, not readily daunted by losses or failures, and unremitting in attention to the business. Then the farm must be suitable, the land fairly level, the soil not too light nor deficient in lime, the buildings convenient and adapted for the business, the fields well fenced and supplied with pure water. The farmer must have capital to get the right sort of stock, and he must have assistants enthusiastic like himself. Success is safe under these conditions. This, however, is not a system to be recommended for adoption by everyone. The most successful breeders are those who combine horse breeding with farming other stock as well. Cattle breeding and horse breeding go well together. Sheep and horses do not fit in so well, hence a sheep farm is not an ideal horse-rearing farm.

For producing geldings for street work the system adopted by many farmers in the North of England of mating the Shire mare with the Clydesdale stallion ensures a horse with the weight and constitution of the Shire, combined with the grand feet, strong fetlocks, and splendid action of the Clydesdale. The drawback to the system is that neither sex is eligible for entry in the stud book, hence the fillies are depreciated in value, and the colts are of only gelding value. For profitable breeding it is better to breed

from the best of eligible stock on both sides, so that the produce may be registered. In a certain district of Montgomeryshire where the best Shire stallions have been in use for thirty years, a large number of tenant farmers have made a profitable business of horse breeding. Among so many it may appear invidious to mention names, but the champion male and champion female at the London Shire Horse Show of 1914 were both bred in that district, the colt having been sold, as indicated in an earlier chapter of this volume, for the record price of 4100 gs. Such success as this is not attained by all, but this, like other examples that might be given, not only in Shires but in the other heavy breeds, notably Clydesdales, shows what may be done in heavy-horse breeding by a little enterprise, careful breeding, and good management. That heavy-horse breeding may be made a profitable business for farmers, if conducted on proper lines, the experience of the last few years has abundantly proved.

CHAPTER IV

THE MANAGEMENT OF LIGHT HORSES

By W. SCARTH DIXON

THE BROOD MARE AND YOUNG STOCK

One frequently hears it stated, and sometimes with great emphasis, as if it were an indisputable fact, that the breeding of light horses is unprofitable to the farmer. There cannot be a greater fallacy. Breeding light horses under the conditions that too frequently prevail is undoubtedly a risky business; it could scarcely fail to be otherwise. It would, perhaps, be an exaggeration to say that the light horses on an ordinary farm are neglected; it is no exaggeration to say that if the other stock on the farm were treated in exactly the same way as the light horses, the profits attendant on breeding them would be reduced to a minimum.

At a busy time—and busy times crowd upon one another rapidly at certain periods of the year—what is everyone's business becomes no one's business. The care of the light horses is passed on from one to another till it rests with the least responsible of the farm servants. This is no exaggeration, I have seen it scores of times; and there is only one remedy for it, the close personal supervision of the master.

Concrete examples are better than whole pages of generalization, and I will give two which came under my own personal knowledge as examples of the profit which can be made out of light-horse breeding. A little over a quarter of a century ago there lived at Wilstrop, near York, a man named George Easby, whose name is written large in the horse-breeding annals of his time. He married a neighbour's daughter, and on the wedding morning his father-in-law told him he had no money to give the bride, but that he would give her a young brood mare, which was perhaps as good as a dowry. The brood mare proved very much better than any dowry that could have been looked for from a man farming a compara-

tively small farm. Her first foal brought 300 gs.; another colt sold for 200 gs., and so on; and in the long run the mare and her descendants made her owner a very comfortable little fortune. And George Easby had one policy. He would never sell a filly off any of his mares until he had another filly from her that he liked.

The other case is of a man who is still living, and for that reason I do not give his name. He was a hard-working and industrious young man, willing to turn his hand to anything, and he did a good deal of leading. He saved a little money and bought a good brood mare of a famous strain. She bred him a filly and another foal or two. The filly he kept for a brood mare. He took a small farm and kept on breeding. The filly's first foal was a filly, and he was offered 30 gs. for it. He refused, though he could have done well with the money, and 30 gs. is not a bad price for a foal. But his policy was the same as George Easby's; he sold no filly till he had another from the mare that he liked. His resolution did well for him. The mare bred six colts before she bred a filly, and all of them were sold as stallions. Then she bred a filly that was a better than her dam. When the filly was old enough to take her dam's place the latter was sold. Needless to say that, good as she was, she has always had to take second place to her daughter. It must be emphasized that these two men were horse lovers. They delighted in their horses; nothing was a trouble in connection with them. I have been at the house of the latter gentleman, and seen all his horses out. In the course of conversation afterwards, when some point was being discussed, perhaps it was suggested that a second look at one of the horses would be appreciated. The suggestion was no sooner made than acted upon, but instead of the horse in question, the whole lot were had out again. And my friend's sons are as keen as he is.

Now, the point I would emphasize is this, that unless a man really loves horses, and takes a keen interest in their progress and wellbeing, he will be well advised if he has nothing to do with the breeding of light horses. There is nothing of the kodak policy—you press the button and we do the rest—about light-horse breeding any more than there is about any other branch of the farming industry. The unremitting attention derived from a love of horses is the great factor which is necessary for success.

It is a matter of common knowledge that the supply of light horses in the country has been rapidly decreasing during the last few years, and that it has been given as a reason that, since the introduction of motor traffic, it does not pay to breed light horses. Consequently the Government has taken the matter in

hand, has given premiums to stallions of various breeds, has encouraged the loaning of brood mares, and has generally undertaken the encouragement of horse breeding. It is no part of my task to comment on these various schemes, but I would point out that, though the premiums given to the stallions are *comparatively* small, this policy is far-reaching in its effects, and it is scarcely possible to estimate the ultimate benefit which may be derived from it. There would have been no necessity for the brood-mare scheme if breeders had adopted the wise policy of the shrewd men referred to above.

There never has been much difficulty in selling really high-class horses of any kind, and perhaps good horses never realized so much money as they do now. But, necessarily, really high-class horses are comparatively scarce, and the price realized for misfits has much to do with the economic aspect of light-horse breeding. The omnibus and the cab provided a good market before motor traffic did away to a considerable extent with horses in the streets. A well-known breeder, and a successful one too, has been heard to say that if he can be guaranteed the cost price of his misfits, he will do all the rest himself without any Government assistance. He has undoubtedly touched upon the real crux of the question. "Misfits", of course, means horses in the second or third class—not unsound horses.

It has been shown that the omnibus and the cab no longer provide the outlet for these horses that they did. There remains the Cavalry Remounts department, which gives the same amount of money for remounts that it did forty or fifty years ago. If an appreciable increase were made in the price given for remounts, there would be, at any rate, a greater inducement to breed light horses.

The brood mare is too frequently bred from because she happens to be on the farm. She has been a good servant, has for many years served the master as a hack or a harness horse, or both, and now she can no longer work. Her legs have given way, or something has happened, and so, says the owner, "We will take a foal off her". Sometimes, if the breakdown is the result of an accident, she makes a very good brood mare indeed; but too frequently she never breeds anything so good as herself, and is a constant source of disappointment to her owner. In the majority of cases an old mare such as this had better be sold to someone who would give her a good home or else put off. Though somehow sentiment does enter into horse breeding, it is dangerous to give way to it, for it frequently entails serious loss.

If a farmer decides to breed from a Cleveland Bay or a Yorkshire Coaching mare, he will find that his brood mare will be able to do a considerable amount of the light work of the farm up to within a very few days of foaling. A good deal of work, too, can be got out of a Hunter mare during the summer months, especially if she be a weight carrier. I have seen many a Hunter mare scuffling turnips, but it is necessary to insist that the man who is sent with her is a steady, capable man, and good-tempered withal.

If the object be to breed pedigree stock, it is important to select as a brood mare one that has in a marked degree the characteristics of her breed. It is unnecessary to insist that the brood mare should be of the best and the soundest. That does not consequently imply that she should have cost a great deal of money. It is essential that the greatest care should be taken about the mare's legs and feet, for it is a common enough experience in breeding to find a little defect in the parents considerably increased in the offspring.

It is unnecessary to dwell upon the necessity of avoiding hereditary unsoundness. It seems absurd to hedge round with safeguards and restrictions the stallions of the country, whilst men continue to breed indiscriminately from all kinds of decrepit and unsound mares. It is, of course, desirable that both parents should be sound, and it is as well if they are so sound that the question of heredity has never to be raised. It is, however, of far greater moment that the mare should be sound, for somehow the mare is supposed to be more likely to transmit unsoundness than the stallion. It is a difficult subject to generalize upon, for we have the case of Pocahontas, a bad roarer, who did not transmit that infirmity to her descendants. In the female line I believe there was some trace of it; but Stockwell, Rataplan, King Tom, and Knight of Kars were sound horses, and sired good stock. Mr. Adye gives it as his opinion that hereditary unsoundness is more likely to be transmitted through the dam than through the sire, and gives some notable instances of this in his book, *Horse Breeding and Management*. But, as already indicated, it is a very difficult subject to generalize upon, and the man who runs no risks and avoids unsoundness on both sides will be wise. There are many examples on both sides of the question, but the writer is of opinion that soundness in the mare is of the greater importance.

The mare should have a good pasture during the summer. During the early months of her pregnancy she may do a little light work, but it should always be done at a slow pace, and she



Photo, Reid

HIGHLAND PONY MARE "CULVA"



Photo. Sport and General

NEW FOREST PONY STALLION

should be kept out of the shafts if possible. In the latter case my "preaching" has not been "followed by my practice", and I have frequently driven pregnant mares, and I cannot say that I have ever had any perceptible loss from so doing. But I have known ill effects happen from it, and if the mare has a foal at foot, she should certainly never do fast work to any appreciable extent. A pregnant mare that is not suckling should be no worse for a little work. In case she is worked, it should only be by her owner or under his eye, and she should never be overdone or excessively heated. Nor should she, when she is lightly worked, be left to the tender mercies of an attendant when her work is over. Her comfort should be seen to by her owner himself if he would have everything go well.

When the pastures are done, and the frosts and bad weather have come, the mare should have shelter, and, though grass may be sufficient food for her during the summer *if she is not suckling*, when it begins to lose its nutriment it should be supplemented by good sweet hay and a little corn. A man's judgment should tell him how to apportion her ration better than any generalization in a book. Much depends on her constitution, whether she is a good "doer" or not, and a good deal depends upon her size. What is an ample ration for one mare would perhaps be starvation allowance for another.

The condition of the mare is an infallible guide. She should be in good condition, for during the later months of her pregnancy the foal will take a good deal of hold of her, and weakness in a foaling mare is a source of considerable danger and perhaps ultimate loss. But if the mare should be in good condition, all approach to fatness should be avoided. Internal fat, lending itself to a clogging up of the passages, is frequently a source of danger to the dam or her foal, or both. Exercise is absolutely necessary, especially towards the end of the pregnancy. A paddock, of course, affords plenty of opportunity for this, but unfortunately, on ordinary farms, paddocks are not frequently found. A mare may be turned out into an ordinary pasture, but if she is, care must be taken that it is one in which no other horses are there to excite her to gallop. A mare will not get sufficient exercise in a fold yard, and indeed, unless she is by herself in a fold, or a loose box with a yard to it, she should not be turned into one at all. I have seen pregnant mares running in a fold with cattle. It is a plan which should never be adopted, and I only mention it to show how careless many men are with their brood mares. It is, as has already been stated, necessary that the mare should have plenty of exercise, and the

best way of ensuring this towards the end of her pregnancy is to have her led out every day.

During the last few weeks of her pregnancy the mare should be moved into a foaling box, of which there should be one or two on every farm on which horses are bred. There is no necessity for anything out of the ordinary way in this foaling box. One thing necessary is that it should be capacious—18 feet square is an excellent size—not a bit too big. The foaling box should be in a quiet place, so that the mare may not be disturbed by any outside commotion. Both before she foals and for a few days after she foals the mare cannot be kept too quiet, especially if she is a young mare with her first foal. It is *absolutely essential* that the door of the foaling box should open outwardly, otherwise it is quite possible that a mare may be laid so that the door cannot be opened, and so perhaps much-needed assistance may be unavailable. I prefer the foaling box to be without mangers—the mare will easily eat her food from a vessel on the floor. The foaling boxes should be so arranged that the attendant can see into them without opening the door and so disturbing the mare.

Where there are large studs frequently there will be as many as half a dozen foaling boxes. Under such circumstances there is generally a room provided for the attendant. This is situated in the middle of the boxes, and a corridor enables him to go round to see that all is right without being exposed to the wet. This is not necessary on an ordinary farm, but I would emphasize the fact that it is as well to have the foaling box “handy” to the attendant’s cottage. The mare will be all the likelier to get properly looked after under such conditions. Besides, it is scarcely reasonable to expect a man to turn out in all weathers and trudge half a mile several times during the night. And unless the mare is looked after pretty frequently it is no use looking after her at all. A happy-go-lucky system is as bad as no system. It must be remembered by every owner of a brood mare that, with a mare, the pains of labour come on very suddenly, and that it is quite possible that a mare may be feeding quietly and within half an hour she may have a foal making more or less futile struggles to get to his feet. So that the visits to the mare during the night and also throughout the day should be frequent.

FOALING AND THE FOAL

A mare's period of gestation is generally considered to be eleven months, but there is no certain rule. I have known some mares—certainly not many—that foaled at the ten months' end. Some mares never carry their foals the full eleven months; others again will carry them a week or more over that time. Fortunately the signs of parturition in a mare are plain and unmistakable, and the time when she has to be closely watched is reduced to a minimum.

About a month before the mare foals her udder begins to spring, and in the mornings it will be very full, but will be reduced in size by exercise. Soon, however, the udder gets more and more distended, and exercise does not reduce it. Then the quarters begin to fall in, and a waxlike substance appears at the end of the teats. In one, or at the outside two days, that is, from twenty-four to forty-eight hours, this wax drops off, and milk begins to drop away from the surcharged udder. Now is the time when the mare needs closely watching, for when once the milks begins to drip away she may foal at any moment.

It is more with the foal than with its dam that the attendant will be troubled. As a rule, parturition with the mare is speedy, and it is in the majority of cases got over without any assistance being required. Indeed, it may pretty safely be said that no ordinary assistance is ever required by the mare, and that when she is not speedily delivered, a veterinary surgeon, well skilled in obstetrics, should be sent for at once. I hasten to say that I have bred a good few foals in my time, but I never experienced any difficulty, and never gave any mare I had the least assistance.

Some mares are very nervous when a light is brought into their box, but with a little use this nervousness disappears. I never had any trouble with it myself. When I looked into the box, after the first two or three nights, when probably the mare would "blow her nose out", she took no notice of the light we carried. If the nervousness continues, it is easily obviated by having a light carefully placed the night the mare may be expected to foal. It stands to reason that everything which tends to excite the mare should be carefully avoided. It also stands to reason that the greatest care should be taken to ensure cleanliness in the foaling box. It should be well disinfected before the mare is put into it and thoroughly ventilated, and there should be an ample supply of wheat straw to bed it with. Everything in the shape of dirt and all the manure should be regularly removed every time the box

is visited. Many a good foal has been lost through the neglect of these very necessary precautions.

If the mare does not require much of the attendant's care, the foal calls for his attention, but it would be as well to point out, to begin with, that it is essential that he should be careful and steady. A fussy, excitable man is just as likely to do wrong as right; and he should bear in mind that he is there to help and not to hinder. Your fussy man will lose his ligatures amongst the straw, and will not remember where he has put his scissors until they remind him by pricking him.

The first thing a groom has to do when the mare is delivered is to see that the enveloping membrane which covers the fœtus is broken. This he can easily do with his fingers if necessary. If it is left undone for long the foal may very easily be smothered. Then it often happens that the umbilical cord is unbroken; and perhaps it is better for the foal when this is the case. There is no necessity to get into a bad hurry. The first thing to do is to bind a catgut ligature very tightly round the umbilical cord, about 1 or $1\frac{1}{2}$ in. below the foal's belly. Then tie another ligature 3 in. lower down, and cut the cord between the two with a pair of sharp scissors, and when this is done, wash the stump on the foal with a disinfectant. The foal will now be free from the mare, and may be pulled round under her nose so that she may lick it freely. Care, of course, should be taken to put the back of the foal next the mare, for it would never do for her to lick the disinfectant off the navel. I would point out here that the greatest importance is attached to getting the navel properly dressed as soon as possible, as it is a fertile source of mischief, and is remarkably sensitive to infection. The mare may now be left engaged in licking her foal, and if she continues lying down, which most mares will if matters have been skilfully managed, she will recuperate all the more quickly.

One thing must not be forgotten. The mare, when her labour commences, and for some little time afterwards, is in a violent perspiration, and it may have been advisable to increase the ordinary ventilation of the box. But she soon cools down, and care must be taken that no windows are left open which may cause a chill. The nights are frequently very cold in the foaling season, and a moment's forgetfulness may have serious and even lasting consequences.

If the mare and her newly-born offspring are left to themselves for a time, it does not mean that they should not be under the eye of the attendant, who should carefully watch all that takes

place. For the trouble is by no means at an end when the foal is born, the umbilical cord secured, and the recuperating mare is quietly licking her foal. There are after pains, and the after-birth, and the foal must get on to his legs and have his first meal before the attendant can flatter himself that his day's or night's work is over.

"After pains" are caused by the contraction of the parts after their abnormal expansion during labour. Sometimes they are scarcely noticeable, and in my own experience I have never had any occasion to use remedies for them. But sometimes they are very severe, and then prompt measures must be taken or serious results may follow. The symptoms are similar to those of colic. The mare will paw and "look at herself"—a sure sign of a horse being in pain—and if the pains are severe she will lie down, roll, get up and lie down, and roll again, sometimes very violently, sweating and blowing hard. When this is the case she must be seen to at once and a sedative given. Two oz. of chlorodyne in three gills of water is perhaps as good as anything which can be given; but it is a golden rule in all cases where the foaling mare does not go on as she should, to have veterinary assistance. If the mare is unattended to under these circumstances it is possible for her to bring on labour again, which may, and probably will, mean an inverted womb and the end of the mare's career as a brood mare. But this need not be seriously dreaded. In my own experience I not only never had a case of severe after pains, but I never knew of one in my neighbourhood or amongst my friends' mares.

The afterbirth will generally come away of itself within about twenty-four hours of the mare foaling. It is generally unnecessary to interfere with it unless it should be dragging on the ground. Under those circumstances it should be tied up on about the level of the mare's hocks or rather above them, as, if by any chance the foal should step on it and break it, it may lead to serious trouble. But in general the afterbirth will take care of itself.

I have frequently seen farm servants, even men who have had a considerable amount of experience, make the mistake of hurrying the foal on to his feet and getting him to suck. No sooner have they bound his umbilical cord, and the mare has made a few perfunctory licks at him, than they hurry to see him well fed. They will urge the foal to suck, pushing his nose against the mare's udder, the while making sarcastic remarks about his "stupidity". Now, as a rule, Nature will teach him when to take his natural sustenance far better than his anxious and perhaps fussy attendant.

Generally, a foal will be on his legs in from half an hour to an

hour. Sometimes he will be longer, but he should be on his legs in an hour and a half at the outside. Naturally a big "gawky" foal is longer in finding his feet than a more compact one. I am convinced from my own experience that it is a mistake to hurry Nature. If a foal is helped on to his legs before his muscles have begun to act, and when, as I have often seen, his legs double up under him, and he falls to the ground, it means exhausting him, and it is decidedly better for a foal to struggle on, gradually finding his strength as he struggles, and find his dam's teat for himself, than for him to be unduly interfered with. The temptation to help the struggling, awkward foal, I admit, is very great, but in the majority of cases it should be resisted. A foal is particularly aggravating to the onlooker when he is endeavouring to find his dam's teat, and her efforts to help him are pathetic. When he first feels the contact of her body he "noses" her all over, and his stupidity seems marvellous. But if he is fairly strong and healthy, any attempt to help him makes him only more stupid. Of course sometimes assistance must be given him, but more harm is done by over officiousness on the part of the attendant than by postponing assistance too long. It is very natural, I admit, to hurry the foolish young animal on, but it is not very wise.

There is one thing that the man who is so keen in going to the foal's assistance fails to realize, and that is that any interference with him rouses the mare's instinctive jealousy respecting her offspring; she resents the interference, and not improbably, and certainly not unnaturally, "goes for" the meddling assistant, or threatens to do so. Then she is caught and either held or fastened up, and the foal is caught and taken to her, resisting, of course, all the time. Nothing is so stupid or so stubborn as a foal under such circumstances, and I am quite certain that in the majority of cases the foal would have got its hunger satisfied and have been laid peacefully by the side of its dam much sooner if Nature had been allowed to take her course.

Mr. Harry Sharpe, who has had a wide experience as a stud groom, and whose book, *The Practical Stud Groom*, may be commended to those who wish for further information on an interesting subject, describes the amusing scene which is frequently taking place in the foaling box. "The mare, her maternal instincts aroused, and misinterpreting the designs upon her foal, places herself between the man and her foal, and, with ears laid back, indicates plainly 'hands off'. This entails calling in another assistant, who, by threats or cajolery, catches the mare. The chief operator then catches the foal, which more often than not, being startled by this

new experience, struggles, bucks, and squeals like a young porker, to the no small alarm and distress of the mare, and apparent banishment of all sucking instinct from the foal. A newly-born foal being forced to suck is perverseness typified; in some cases its lusty struggles to escape from its would-be helper alternate with spells of stolid sulking; in others it will suck the assistants' fingers, buttons, clothing, &c., ignoring the mare entirely, following the man round the box, whinnying after him as though in fear of losing him. The chief difficulty arises from the fact that to secure the teat and swallow with any comfort the foal has to hold its head at right angles to its body. Left to itself in its foraging for refreshments, it will sooner or later discover the trick of it; but if distracted by a fussy attendant trying to force its head into the necessary position, it will stubbornly resist coercion, with the result that it is soon in that frame of mind best described by the proverb: 'One man may lead a horse to the water, but a dozen can't make him drink.'

There are cases, of course, in which it is imperative for the foal to be helped, but they are happily few and far between. Sometimes a foal is weak and would exhaust himself unduly in his endeavours to get his natural sustenance. In such a case a small quantity of milk may be drawn from the mare, and the foal induced to drink it by allowing it to suck the fingers placed in the milk. But the sooner the mare and the foal each take up their allotted parts the better for both of them.

Then there is the case of the mare with her first foal. It happens sometimes that a mare with her first foal is somewhat awkward with it, and if it is weakly, as a first foal sometimes is, it may require some assistance, and the mare and the foal will need to be very closely watched for a few days. Whoever is responsible should be *sure* that the foal is duly suckled. Strange as it may appear, I have known instances where this apparently imperative duty has been carelessly neglected, and sometimes with serious results.

It is essential to see early on that the foal's bowels are properly moved. An old and favourite plan in my young days was to insert a tallow candle up the fundament. It is not uncommon for some hard fæces to be lodged just at the fundament of a newly-born foal. These must be carefully looked for and removed or the foal will surely die.

Constipation and diarrhœa are the two most tiresome complaints which trouble the young foal, and his attendant must look out sharply for symptoms of both. In cases of constipation a glycerine suppository may be inserted; or, if that should not have

the desired effect, a mild clyster may be administered. Occasionally the diarrhœa is merely a transitory ailment which may disappear without any treatment. It must, however, be carefully watched. A dose of castor oil in a little gruel may be given, and then small doses of bicarbonate of soda with a few drops of tincture of iron, or if there be straining or evidence of pain, a few drops of laudanum may be given; but in obstinate cases it is as well to have professional advice.

The mare and foal should be kept in the foaling box for at least a week or ten days, but they should have plenty of exercise every day. If the weather is at all genial, an hour in a dry pasture during the heat of the day is an admirable way of securing this. If the weather is inclement and wet, an opportunity should be taken to walk the mare and her foal out for a short time, choosing a place sheltered from the wind if possible. I am no advocate for "coddling" young horses. It is a plan which will assuredly bring with it delicacy and all its attendant evils. But the brood mare and her foal should be gradually hardened off, and certainly in ordinary spring weather they should not be turned out till the foal is three or four weeks old. If the weather is favourable they may be turned out earlier, especially if the foal is strong and healthy. Some people advocate a hovel in the field, but horses when they get hardened off can stand a lot of inclement weather, and it is no uncommon thing to see mares and foals grazing contentedly in the pouring rain without taking any notice of the hovel erected for their especial benefit. The grease which accumulates in their coats is a capital protection against ordinary cold.

The food of the mare should be plentiful. She should have the best of hay, bruised oats and bran, and a mash at least once a day. The latter will be all the better for having a little treacle mixed in it. Of course when she is turned out to grass altogether there is no need for the mash, and the hay may also be dropped; but if she is a very good mare, and the foal is a very good one, it may be advisable to continue the corn ration, especially if the mare and foal are good enough to show. The owner, however, is the best judge of the expediency of this, and it is a subject on which it is not advisable to lay down any definite instructions.

In turning a mare and foal out care should be taken to put them in a quiet pasture; and on a change of pasture, or a change of food, the foal should be carefully watched lest diarrhœa should set in.

"Now, my lads, it's a nice fine night, let us go and handle these foals a bit," I have many a time heard a foreman say to the younger lads on the farm, and away they would all go, eager for the fun,

which would be "fast and furious" enough in its way till it was nearly dark. A hemp halter would be fixed on the foal's head, and to that one or two more would be attached. A couple of lads would be told off to attend to the end of the rope, and instructed to throw all their weight into it. The foal would throw all his weight into the halter at the other end, and so the "tug of war" would go on, the foreman helping matters a little by putting his shoulders against the foal's quarters and pushing. After some time spent in this manner—in what appeared to be an impasse—the foal would move on a few inches. This was something gained. Then the same state of impasse would arise again, but the struggle would be shorter in duration, and the foal would move on a few more inches. And so the game would go on for a few nights, and then the foal would lead—in a fashion.

Now this was a great deal of unnecessary trouble, and the foal could have been taught to lead much better at the same age if a common-sense method had been adopted from the first. A foal being intended eventually for the service of man, should be well handled from the very day he is foaled. By this I do not mean that he is to be made a fool of and petted unduly or teased and taught tricks. A man who would do either of these things is not fit to come amongst horses, and when caught should be instantly dismissed. But the foal should be made familiar with his future partner. He should be handled sensibly and carefully every time the man who waits on the mare enters the box. If this is done there will be no difficulty in putting a halter on him when he is five days old. It goes without saying that this must be done in such a manner as to give the foal confidence that it is not intended to do him any harm. Each part of the process should be done slowly, and the foal should be well "gentled" and soothed with kind words. He will not like the halter at all when he gets it on, but he will soon get used to it. I prefer at first to have the halter shank knotted up so that he cannot touch it with his feet, but when he gets well used to the halter on his head, I would put on a long shank which will trail along the ground for some little distance. He will constantly be stepping on it and brought up sharp by so doing. When his head is checked by his standing on the halter shank he will naturally yield to the pressure, when he does not quite know where it comes from, and so a very important lesson will be learned. The foal, when he has got so far, will soon learn to lead. Let the mare be led away from him, and though he may not care to be led alongside her at first, he will be eager enough when she is some way in front of him—perhaps so eager as

to try to take the running into his own hands, so to speak, which he must not be allowed to do. It is obvious that the earlier this plan is adopted the greater will be the success attendant on it. Not only will the foal have less strength to resist his teacher, but what is of much greater importance, he will have much less inclination to do so. And it must be firmly impressed upon the owner of a foal, that when once he is taught to lead he must have constant practice, lest the lesson, once learnt, should be forgotten. This means serious waste of time, and it is needless to point out that on a farm time is money. Nothing can be more absurd than to teach a foal useful lessons and allow him to forget them almost as soon as they are taught. Once well taught a little judicious handling from time to time will keep in his memory the valuable lessons he has learnt.

When the mare and her foal have got thoroughly strong and are turned out "for good", the question arises as to what hand feeding they shall have. Undoubtedly the mare will be all the better for a few crushed oats, and if the foal learns to eat them along with her, he will gain in growth and be all the better for it. But after all, this is an economic question which can only be determined by the prospective value of the foal. As, however, I do not suppose that anyone would attempt to breed anything but good horses, I shall unhesitatingly advise that both mare and foal be liberally treated, which, it may be pointed out, is a very different thing from being extravagantly treated. A foal should be kept growing, which is a different matter from having his growth forced—a custom which is far too prevalent at the present day.

As to how far the mare and foal should be helped when the foal has once got thoroughly established, this can only be ascertained by actual observation. If they are both doing well, and the pasture is good, and especially if it is on a limestone soil and well looked after, for some few months no assistance may be needed, but the man who looks after the foal is the best judge of that. A month or five weeks before the foal is weaned some bruised oats may be given to both mare and foal at each end of the day. The extra food will enable the mare to get into some condition for the work which may be her lot when her foal is weaned, and it will strengthen the foal and enable him to bear better the sudden change in his diet and surroundings when he is deprived of the maternal care and the sustenance he has derived from his dam.

WEANING THE FOAL

A foal should be weaned at from five to six months old according to circumstances. An early foal generally gets the advantage of a full six months' run with the mare, and I think that it is an advantage. As a general rule on farms, foals are run with their dams till the grass season is over, and they are sometimes, perhaps it would not be any exaggeration to say that they are often, neglected and left too long with their dams. Many a time I have heard a man say, "It is time those foals were weaned; they must be looked to to-morrow", and on visiting him three weeks later I have found the foals still unweaned. The fact is, that as with foaling time, so is weaning time a busy time on the farm. In late districts there is harvest to clean up; there are potatoes to lift and turnips to pull; and autumn seed time is at hand. There is only one thing to do: as soon as the time comes when it is necessary to wean the foals, wean them then and there; do not wait till to-morrow.

The mare will have been gaining in condition if she has been liberally treated. It should be needless to say, that as soon as her foal is taken from her she should be removed as far as possible out of his hearing. Missing his accustomed milk he will make no small noise about it, and should the mare hear and answer him, they will both be all the longer before they settle. The mare should be shut up for a few days, and her diet be a little more spare if she is not being hard worked, so that she may secrete less milk. She should be given no green or sloppy food, and her supply of water should be limited. Milk should be drawn from her udder twice a day, or even oftener if it gets very full, which is perhaps scarcely likely, but *she should never* be milked clean out. If the milk does not begin to "go away" in a few days a slight dose of physic may be necessary, but this is seldom required.

The foal should be treated liberally. If he is not, he will slip back and much of the good work of the summer will be undone. Care should be taken not to give him too much food at one time. "Little and often" is the motto for feeding foals. A small quantity of cut grass, as sweet as can be obtained, should be given frequently. The allowance of bruised oats should be about 3 lb. per day and should be given at twice. A mash should be given occasionally. Bruised oats, bran, and beans make a capital mash, and it is none the worse if a little boiled linseed is added. A plentiful supply of sweet water is essential, and *everything out of which the*

foal feeds should be scrupulously clean. Too much care cannot be taken in this respect.

In a few days the mare and foal will forget each other, and then the foal may be turned out to grass. He should, however, be helped with some hand food, for this is a very critical period of a foal's life, and it is possible for him to lose now what he will never be able to recover. The Hon. E. Coke recommends, as a ration at once good and cheap, 2 lb. boiled barley, 2 lb. of bruised oats, and 2 lb. chaff per day, which will cost about *6d.* It is always advisable to have another foal for company, and if there is only one foal on a place another should be bought. Horses like the company of their fellows and do best when they have it. Care, however, should be taken not to turn the foals together till they have lost their desire to suck. It is very injurious when foals take to sucking each other. Foals should not be put amongst older horses if it can be avoided. Certainly they should not run in a fold yard with them.

THE CARE OF YOUNG HORSES

One thing which is frequently neglected is the care of the feet of young horses. A close observer, even at a good horse show, cannot fail to notice the number of horses that turn their feet—one or both of them—in a little, which is called “pigeon-toed”, or out a little, which is called “splay-footed”. In some cases this is a malformation which cannot be avoided, but not infrequently it is the result of neglect and the overloading of the growing limbs of a young horse. If you take a larch pit-prop and allow too big a weight to accumulate on the top of it, you will find that it will bulge outwards or inwards. Similarly, if the weak soft joints of a foal or young horse are weighted with an overgrown body—if the limbs are not able to bear the weight superimposed upon them—the joints must point either one way or the other to get the necessary relief. Then negligence comes in. I wonder how many young horses in England have their feet regularly dressed. Yet it is essential for the horse's future wellbeing that the feet should be regularly dressed, and in such a way as to put right any disposition there may be to stand out of the exact line of correctness. The dressing should be commenced in his early foalhood and continued till he is able to wear a shoe. It should be done also at frequent intervals, and regularly, or it will not have the desired effect.

If a horse stands correctly, a plumb line dropped from his fore-

arm to his toe will divide the hoof equally, that is, there will be as much foot on one side of the imaginary line as on the other, and when the horse stands, his foot will be pointing *straight* in front of him. But suppose, as frequently happens, the inner side of the wall of the foot should be more worn than the outer side, he must turn his toe out, or in other words become splay-footed. Similarly, if the outer side of the wall of the foot is the most worn the horse will turn his toes in, or will be pigeon-toed. An excessive weight of the body will naturally accentuate these defects. It is the farrier's business to keep these outer walls of the hoof level, and if there is any great difference he will have no very easy time in the early period of his visits, for it is obvious that he must never pare down the wall of the foot to such an extent that the foal becomes footsore. When there gets sufficient wall to allow him to put on a small light plate his task will be easier.

When a foal has been weaned a few weeks is the most critical period of his life, for it is then to a considerable extent that it is decided what his future is to be. I know a well-known breeder and exhibitor who was asked one day how it was he never showed or had a bad young horse. His reply was to the effect that a few weeks after his foals were weaned he judged them as if they belonged to someone else, and he were going to buy them. Those that did not come up to a certain standard were ruthlessly drafted; they were sold at some price, or if they could not find a customer, were given away. If they could not be given away, they were destroyed. As their owner put it tersely, it did not answer his purpose to keep horses on to sell at £45 when they came to be five years old.

Such drastic measures are scarcely likely to be adopted on a farm where but two or three foals at most are bred, but it is very desirable that a breeder should try to copy the example of the gentleman I have quoted, and if his foals do not approach a certain standard of excellence, to sell them even at a moderate price, and try again. And if it should so happen that you have bred moderate ones, sell them at the earliest opportunity; the first loss is always the best. I may give a personal experience by way of example. A friend once paid me a visit, and we were walking round the farm, when he chanced to see a foal. He asked what the foal was, and went to look at it, which I did not want him to do, as it was a very bad one, and in my inmost mind I knew it was. My friend said it would have been better foaled in a ditch, but I insisted that it would make a horse. How I hated that filly before I got rid of it! I finally put it into a sale when it was

about twelve months old. I sent it to the sale with instructions that it was not to come back. I got 12 gs. for it. I would have taken four. I had three bids in the morning, and would have sold it, but gambled on the sale. Now, the *same meat and trouble would have reared a yearling worth four times the money.*

The first winter is a crucial time for a young horse. With respect to shelter, the happy medium should be hit upon. In the south I know young horses are turned out all winter, and even lie out at nights. Though I do not believe in coddling and making hothouse plants of young horses, I do not approve of that plan in our variable climate. I think it essential for a horse's wellbeing and future development that his back should be dry sometimes. It is also much easier to notice what progress he is making when he is brought in at nights.

The best sort of building to put foals and yearlings, and indeed all young horses in, is, in my opinion, a roomy covered-in fold yard, which should be well watered. The young horses should be sorted according to age, and care should be taken, if there are three or four young horses together, that there is not what they call in Yorkshire an "under lout" amongst them; that is, that the majority of them do not combine to push a weaker one from the manger and the rack till they have satisfied their greed. If there is one of this sort amongst them a watchful eye will soon discover it, and it is easier discovered under cover, where men are constantly passing about, than in the pastures. For if the foals are turned out in the pasture for their first winter they must have something in the way of hand meat given them if they are to do any good. Nothing is more pitiable nor more fatal to success than to see a foal losing during the winter the bloom he had got in the summer, and repeating the process year after year.

Need I say that mouldy, bad hay should never be given to young horses? I am afraid it is necessary to say it, and that on many farms it will continue to be given unless the master keeps a very sharp lookout. Many a time I have heard the expression used, "It is good enough for them; they have not to work," the speaker being of course utterly oblivious of the fact that the mouldy trash he was giving them was probably making them unable to do the severe work they would be called upon to do some day, and certainly lowering their value. If, unfortunately, as sometimes happens, there is not any good hay, or what comes to the same thing practically from the standpoint of the young horse, there is none to spare, it is better to give no hay at all, but to mix chopped wheat straw up with the bruised oats instead. Some people give

oat straw for their young horses to pull at. I knew a farmer in the East Moor dales, who, when asked what he gave his horses to make them look so blooming, replied, "Badly thrashed oat straw," by which he meant oat sheaf. In spite of his experience, I do not care for oat straw for horses unless it has been cut very green, when I believe it makes an excellent ration, though I have had no personal experience of it.

A very excellent ration for young growing horses, yearlings and upwards, is boiled peas, which may be given with advantage two or three times a week. I have never tried them with foals, but I do not see why they should not answer well if given in moderation. The hand meat given to a young horse has been valued at something like £24 from the time he is foaled to four years old, and of course it adds considerably to his cost. But the breeder does not set out with the intention of breeding £50 horses, and with good material, though it is injudicious to overforce, it is fatal to lose growth.

SHOWING

Showing is greatly in vogue in these days, and there is no gainsaying the statement that for the promising young horse the showyard makes the best market. Unfortunately, the requirements of the modern show ring include show condition, and it has also become a fashion to estimate height in horses at much more than its real worth. So if a horse is considered good enough to show, a special preparation is required. He must be big, full of flesh, and upstanding if he has to have any chance of making a name.

If a yearling is shown early—a plan which is certainly not advisable, for reasons which will shortly appear—it is necessary to begin to get him ready soon after Christmas. It is not possible to give a ration, or to do anything more than indicate the lines on which the youngster should be trained. His food should be good in quality, and care should be taken not to give him too many mashes, lest he should get soft and run too much to fat. Firm handling on his neck is a great essential, and he should carry as much muscle as possible in one of his age. He will require regular exercise and regular handling.

Anyone who watches the yearlings closely at the early shows cannot fail to notice how frequently a promising yearling will "alter" as the season progresses. One that has carried all before him at first is seen to lose character, his hind legs seem to have grown away from him, and he stands very differently from what

he did when he seemed to show so much promise. That is one reason why I am opposed to the early showing of yearlings. There is, of course, a cause and a remedy. The cause is generally over-training; the remedy is to turn the colt (or filly) away. Some few years ago there was a colt that won golden opinions wherever he went. He won prize after prize, but at last came the day when he was third to horses he had beaten before. His owner was advised to turn him away. "Don't see him for two months," said his friend. He followed the advice, and brought him out later to have an unbeaten career to the end of the show season.

A yearling, or any other young horse for that matter, frequently suffers for the training of the winter weeks afterwards, when less forcing methods can be, and are, used. There is considerable skill required in taking the condition off—as much as in putting it on. The young horse should be turned away into a bare sweet pasture, where there is plenty of room. Nature will do the rest. When he comes up again a few feeds of corn will put him in good heart.

A word of warning may be given. Training horses for show is a speciality, and it is unnecessary to urge the risk that is entailed by happy-go-lucky methods of high feeding alone. High feeding is necessary, but it should also be judicious. Some grooms arrive at a wonderful proficiency in all the details attendant on the show training of a horse, but they are seldom to be found in the class of men usually employed on a farm. With them abundance, otherwise too much, of the best of everything is the right way to get a horse ready for either show or sale, and it is impossible for a horse to be too fat. If a man has a really good horse, then—one which is worth taking round to the leading shows—it will pay him to engage a man to look after him, who can train him, and also show him as he ought to be shown, which is no easy task. If this is not done, and if it is only intended to show the horse "about home", the owner's son is the best possible man to undertake the charge provided he be enthusiastic enough.

BREAKING AND MARKETING

To the ordinary farmer, who only breeds one or two light horses, the breaking in of his young stock can scarcely be commended as a rule. He has perhaps no special aptitude for the job himself, and amongst the farm hands there will scarcely be found anyone fitted to undertake it. The village "breaker" is frequently a capable man, but when a horse comes back after a month's tuition at his hands to fall into the charge of a "mutton-fisted" ploughboy,



Photo. Sport and General.

POLO PONY—“RE-ECHO”



Photo, Sport and General

SHETLAND PONY STALLION—"HELMET OF EARLS HALL."

he cannot expect to develop the best of manners. Of course if a breeder is also a horseman, matters are simplified, and if he is, he knows as much as I can tell him. I know of many farmers who are fine horsemen, who breed young hunters, and never sell them till they are five years old, when they make big prices. And these farmers are always ready to buy a good young horse, two-year-old, three-year-old, or even yearling or foal. It is not so very long since I saw one give well on to £150 for a three-year-old, and many instances of the farmer who "grazes" a hunter or two giving big prices for young unbroken horses occur to the memory. The large hunter dealers, who are generally, though not always, large exhibitors as well, are also good customers for good horses, but they must be good.

Of course the breeder gets the most out of his horse when he keeps him till he is five years old, and sells him to some hunting man; but it must not be forgotten that if his profits are greater than those of the man who sells earlier, his risks are greater in proportion.

But there is plenty of money to be got out of selling a good young horse, and many dealers are always on the lookout for those that come up to their standard. And it is astonishing how they find where there is a good one.

There is not much difficulty in selling a good three-year-old for £60 or upwards, and by a good three-year-old I do not mean here a high-class show horse with a reputation, but a three-year-old likely to grow into a good "wearing" horse—a horse that is described in the words: "So and so has a goodish colt like making a hunter". And I think that a three-year-old sold at £60 leaves a fair margin of profit. Of course there are those that go wrong to take into consideration. But against them we have to set the real good ones, those that make £100 or more at three years old. And if a man begins with good sound brood mares, mates them with something like knowledge, and manages them and their offspring intelligently, it will go hard with him if he does not breed a good one sometimes.

I have heard it insisted with some acerbity that the dealer gets all the profit and the breeder is put off with a poor and insignificant sum. The breeder, unless he is a horseman, and is willing to conduct his business on the same lines as a dealer, cannot expect to realize the prices which a dealer does. In the first place, the dealer is always ready to change a horse that does not suit his customer, of course under certain conditions. Then he generally gives credit—sometimes long credit. And if

the horses are good the dealer does not give insignificant prices for them. I have seen many a dealer give from £250 to £300 for a horse, and then he was to "make". The breeder will find that the dealer is a very good friend to him if he breeds good horses. The dealer is the last man to forget where he has bought a good young horse or where he has seen a promising brood mare, and I know of many cases in which it is useless to visit a breeder until his "pet" dealer has been through the horses, and equally useless afterwards, for he is about certain to have bought them.

There are some men who have a habit of asking unreasonable prices just on the offchance of getting them. It is a very unwise policy, and sends away many a would-be customer. The breeder is not the only one who errs in this direction, but he frequently does err, and through ignorance of values. "I can't get it if I don't ask it," I once heard a man say when tackled on the subject of asking an exorbitant price for a hunter. This is quite true, but it is scarcely the way to inspire confidence in a customer. I once went to look at a hunter in a farmer's hands. He was four years old, and younger than I wanted, but I thought he was a serviceable horse, and I would put up with that. I rode the horse, liked him well enough, and asked his price. I was told £200. I thanked his owner and went away without bidding. If he had asked me £100 I should have bought him. As it was he had to keep him for many weeks and then he did not make the money I should have given him.

The old-fashioned Horse Fair is practically a thing of the past nowadays. It has been slowly but surely going down the hill for the last quarter of a century. The multiplication of Horse Shows have had much to do with this. Then most big dealers have agents in all the principal breeding districts, and these are generally pretty well cleared of horses fit to go to work. Another powerful rival of the old Horse Fair is the Auction Mart, which is either a very good or a very moderate market for the breeder as the case may be. If the latter is an unknown man, and his horses are unknown, it may easily happen that only a relatively poor price will be realized. If, on the contrary, they are well-known horses with a high reputation and a good record, and are the property of a well-known man, quite the opposite will most likely result. Of course there are exceptions in all cases.

The horses, the marketing of which have so far been under

consideration, are those which are required for service, hunters, harness horses, or hacks, for practically the same general rules apply to all horses of these kinds.

But with many light-horse breeders the object is the formation of a pedigree stud of some sort. If really good horses are bred, there is no difficulty in disposing of them at remunerative prices. Trade fluctuates, of course, but there is always more or less of a demand for pure-breed breeding stock either for foreign countries, or the Colonies, or both. A breeder will be well advised to get acquainted with some of the agents for foreign buyers, and to keep himself well in touch with all the latest movements of the society which looks after the interests of his special breed. He should get to know the officials, and avail himself of every opportunity of visiting the shows held under the management of the society. If he would succeed, he must be *au fait* with all the latest movements. It is not necessary that he should be an exhibitor at the society's shows, and it will answer an equally good purpose if his exhibits can hold their own at the district and county shows, *unless they are of the very highest rank*, when they should of course be shown at the breed society's show. There they will meet the very best market if they are high-class.

The county shows—and sometimes the district shows—are very good markets for pure-bred stock, but scarcely so good as the Royal, which is perhaps as good a market as the breed society's show itself.

Auction marts, or, to be more correct, Horse Repositories, also provide an excellent market. There are several well-known ones in the country, and it may safely be said that no horse-breeding district of importance is without one of high character.

An effort has been made, it is to be hoped not quite unsuccessfully, to show that the prejudice existing in some quarters against breeding light horses is without foundation. Care and attention are necessary, as well as regularity and method. Attention one day, followed by a fortnight of neglect, can only end in disappointment. But if a man breeds carefully from sound stock, and manages his young horses well, he should have cause to be satisfied with the result of added profits to his farm.

THE FEEDING OF LIGHT HORSES

There is no more difficult subject to generalize upon than the proper ration to give light horses. There are a few general principles to go upon, it is true, but a man's own experience and his own

observation will be his best guide. One horse will eat and need four quarters of good old oats per day; another will do the same work, and do it quite as well, with three. And this rule applies to the racehorse as well as to the hunter.

There is one hard-and-fast rule which should always be observed, and that is, that the proper food for racehorses and hunters is oats or beans. Maize and barley should be avoided, but peas may be given. Nothing but the sweetest and the best of old hay should be used, and new corn should be carefully avoided, unless swollen legs with their attendant disadvantages are desired. Bran mashes should be given twice a week—some give them oftener, but I think twice a week is quite often enough. They are no worse, but better for being mixed with linseed gruel.

A few carrots once a day are very appetizing, and if they cannot be got, part of a swede turnip cut up and mixed with the corn will answer a good purpose. A little change of diet occasionally when horses are very hard worked is sometimes beneficial, inasmuch as it stimulates the appetite. I have given a horse a handful of linseed cake amongst his corn after a very hard day, but this sort of thing wants doing with discretion.

One thing is a certain guide to a proper ration, and that is, the faster the work a horse is doing the more stimulating food he requires. But what the proper quantity is the owner must judge for himself. The quantity a horse requires is entirely a "personal equation".

When a young horse needs a little help when at grass it is not so essential to confine him to oats, beans, and peas. A little maize may be mixed with his corn, or a little barley, though I must admit that I don't care much for either, and like the latter the worse of the two. Prejudice, perhaps, but so it is. All the different kinds of food I have mentioned may be mixed in a split or crushed state with a little coarse bran added, and the mixture makes a capital feed for young horses at grass. From 5 lb. to 8 lb. a day should be a good ration for such horses—perhaps a liberal one, but here again a man must be guided by the way in which his horse is thriving. I would give long hay to all horses, except to hard-worked horses who are only a comparatively short time in the stable.

PROFITABLE LIGHT-HORSE BREEDING FOR FARMERS

Can the farmer, and especially the small farmer, breed light horses profitably? I have already shown how two small farmers made a competency from breeding light horses, but these were exceptional men. They bred pedigree horses, and they were adepts at the business. The question, Can the small farmer make light-horse breeding an additional source of income on his farm? is yet for me to answer; and after due consideration I answer it in the affirmative. Of course much depends on the farmer himself. If he has not the instincts of a horseman it may be advisable for him to keep from light-horse breeding. But an old farmer of wide experience once said to me that there was room on every farm for one brood mare, and I am inclined to think he was right.

The small farmer who wants to breed a light horse or two should be very careful in the selection of his brood mare. He should, in my opinion, select one of the lighter cart breeds—they are not so plentiful now as they were, though they can still be found. Or he might select a powerful Cleveland Bay or Yorkshire Coaching mare. He had better take a mare of this kind than a hunter, and for more reasons than one. In the first place, his brood mare will be able to earn her own keep and that of her foal. To ensure a profit she should be a worker the year round, and if she does that she will certainly keep herself and her foal.

It is advisable in buying a mare for this purpose to keep in view the short-legged, wide type with good shoulders and well-carried head. If one of the light draught type should be selected care must be taken that the bone is flat and clean, and the sinew well developed, and she should have as little hair as possible.

A short-legged, short-coupled, high-couraged Thoroughbred stallion is the best horse to mate such a mare with. A tall narrow horse should be avoided, and the breeder should remember that there is no real advantage in any horse standing over 16 hands. There is one advantage in breeding from a short-legged powerful mare of the old-fashioned carting type, and that is that in case her offspring may be a misfit it is generally powerful enough to work on any but the very strongest land.

The man who breeds an odd light horse should bear one thing in mind, and that is, that when a mare breeds regularly there is soon quite a lot of horses on the farm. He should take care that there are not too many of them, for it does not do to stock a farm with light horses. But if he is fortunate enough to breed fairly useful horses he will not in these times, have much difficulty

in selling them at three years old or even earlier, and if his first youngsters turn out well he will be not unlikely to fall in with a regular customer. Unless he is a horseman himself, or has someone about him who is a horseman, he had better not attempt to *make* a horse, as he will be pretty sure to meet with disappointment. In my younger days there were several young farmers—four or five of them, perhaps—who met one evening a week or so in spring and had a ride out together, every man riding every horse, which of course were four-year-olds. I am afraid the same love of horses and horsemanship scarcely prevails in these days.

Let me impress upon the breeder the wisdom of not keeping the bad ones. When a man breeds a bad horse the sooner he gets rid of it the better, but of course he must first be sure that it is a bad one. And unless he has been lucky enough to get into a good strain which has got a name, he will probably find that the younger he sells his horses the bigger profit they leave him. Above all, let him avoid making the breeding of army remounts his object. Forty-five pounds for a four-year-old is no encouragement to anyone. If our Government were to give £60 for three-year-olds, as the German Government does, this branch of horsebreeding would be worth consideration.

CHAPTER V

COMMON DISEASES OF THE HORSE¹

BY T. EATON JONES, F.R.C.V.S.

I. HEREDITARY DISEASES

Hereditary diseases are those transmitted from parent to offspring, and must be distinguished from those which, on the other hand, are known as acquired diseases. While it is of the first importance that the breeder should assure himself of the soundness of the sire and dam, it is also of importance that the sire and dam's parents should be sound, even going back to remoter generations if at all possible to do so.

Hereditary means, practically, like producing like, and from the foundation of all breed societies, certain diseases have been scheduled on their lists which debarred animals affected with them from competition in the various classes. It is therefore of paramount importance that, no matter how trifling the unsoundness may appear to be, the breeder should start with a fair chance of producing sound stock, so that when the young animal is born he may be satisfied that it will be through no fault of his own, should it prove unsatisfactory from a soundness point of view. In addition to the diseases which are scheduled as causing unsoundness, such as ringbone, sidebone, roaring, &c., it has, in the writer's opinion, been lost sight of that there are other constitutional diseases which should be included in the category of hereditary diseases, such as tuberculosis (consumption), rheumatism, &c.

The diseases scheduled by the breed societies, the leading shows, and the Government (i.e. the Board of Agriculture and Fisheries) are as follow:—

Roaring, whistling, unsound wind, shivering, stringhalt, ringbone, sidebone, navicular disease, spavin, cataract, and unsound feet.

There are also other diseases which, although not scheduled, must be included in the breeder's own list, such as curb, curby hocks, splint, small feet or odd feet. Some breeders also include

¹ An index to the diseases will be found on p. 259.

bog spavin and thoroughpin, but these, there is no doubt, are more often acquired. The reader must not imagine for a moment that foals are born with the various diseases enumerated. Such a condition is extremely rare, but should it occur it is known as congenital.

An hereditary disease, then, may be said to be that condition in which an animal is born with a predisposition to inherit the disease with which its parents are affected, and if bred from parents not affected with the disease, in an ordinary way it would escape. The unsoundness may be evidenced sooner or later, but it usually develops before maturity is reached.

It will be better to refrain from going further into details at present, but to describe the various diseases more fully under separate headings.

Roaring and Whistling

These two diseases are practically one and the same, or perhaps they may be said to be slightly different forms of the same complaint. They are caused by disease of the muscles in the inside of the throat, due to the nerves which supply these structures becoming paralysed and unable to act.

To the lay reader it will not be of interest to give further details. Suffice to say, that the free admission of air into the lungs is greatly impeded, at least by one-half, so that the lungs cannot receive their normal supply of air. It may also be well to mention that in health, and normally, the horse breathes entirely through his nostrils, which fact may be quickly verified by placing a lighted match to his mouth, which he will not be able to blow out.

Symptoms.—When a horse is galloped for his wind, roaring may be described as a groan or snore, and whistling as a kind of suppressed whistle of a human being. The terms “roarer” and “whistler” are applied to animals suffering from these diseases. To test a horse affected with them it is only necessary to put a man on his back and give him a short gallop up a hill, or a fast gallop on a field; or, in the case of harness and cart horses, a short gallop in harness or a trial in a wagon with the brake on, sending them preferably up a hill. The person making the trial has only to put his ear close to the horse’s nostrils, when the disease will become manifest to even the most unskilled observer. A further excellent way of testing an animal is to lock the wheels of a country cart by placing a stout pole through the spokes and making the horse pull on soft ground. Another infirmity of the wind which comes under the same category is that of “grunting to the stick” or “making a

noise". Such an animal is commonly known as a "bull". These terms imply that the animal is defective in the wind, but may not either roar or whistle in its gallop, although the chances are that it will do so if pushed to any extent.

To test a horse for these defects, it is only necessary to put him against a wall whilst wearing only a hemp halter or open bridle and pretend to strike him with a stick; the quicker and more suddenly he can be surprised the more thorough the test will be. It is quite unnecessary, and it is at the same time cruel, for horses to be thrashed, as is very frequently done, in order to test them for "grunting". Usually, after the first startled grunt, and when they know what is about to happen, they will not do it a second time. It is amusing, and at the same time may be instructive, to the uninitiated to learn the various expressions which are applied to animals suffering from any wind infirmity. By dealers they are said to be "musical", to "belong to the band", to play the "drum" or "cornet", and are often called by the name of any singer who at the moment may be popular. Unsoundness of wind very greatly depreciates the value of animals affected, in some cases rendering them absolutely useless and unable to do any work. There are, however, various degrees of the disease, from the extremely bad case, roaring at the slightest movement, to the slight whistler which the infirmity seems to affect very little in any work he may be asked to perform.

A horse which "grunts to the stick" may also perform his ordinary work quite satisfactorily without the defect becoming apparent, but as a rule they will be found not to thrive or "do" as well as they should. Great care must be taken in trying horses, and every chance given before they are condemned. I have come across numerous cases where the horse has been condemned, and found a tight collar responsible, causing the noise by pressing upon the windpipe and thus precluding the free access of air; or again, by a tight bearing rein pulling in the throat and altering the natural position of the neck. The high-mettled horse will sometimes whistle in his gallop from courage, and a nervous horse will frequently "bull" to the stick from pure fright.

Breed has considerable influence with regard to the incidence of the disease; the most frequently affected is the Thoroughbred. So common has it become among racehorses and high-class hunters that it has nearly amounted to a calamity. Some of our finest and best-known racehorses of the immediate past and present are defective in their respiratory organs. Next in order to the Thoroughbred comes the breeds more or less nearly related to them, such as

the Hunter and Hackney, the most free being the cart horse and pony. A peculiarity of the disease also is that it affects stallions much more frequently than geldings, and these again more frequently than mares. It also occurs in large animals more often than in small ones, and is rarely seen in any under 14 hands. The larger the animal the more susceptible it is to the disease.

As already observed, "roaring" and "whistling" are most certainly hereditary, but, on the other hand, may be also acquired through various causes, the most common of which are strangles, abscesses in the throat, which press upon the nerves and so cause them to lose their function, severe colds, catarrh, influenza, inflammation of the throat, and in fact almost any disease of the respiratory organs, particularly if they are of a protracted character.

Over-exertion is believed by many to be an exciting cause of wind infirmity, particularly if at the time the animal is suffering from any slight ailment of the upper air passages which may not be apparent to the owner. Thus a horse driven or ridden to distress, by either being sent too far or too fast, may very soon give evidence that he has become affected in his wind. There is no doubt that many cases of broken wind—that is, when the lungs and not the throat become affected, and are unable to properly perform their functions—are caused in this way. In fact, this is the common method of causing broken wind. These sufferers are popularly called "wids".

The latter defect is not hereditary, but it is even a worse ailment than either roaring or whistling. It produces such a state of exhaustion if any work is attempted that the animal is left practically useless to its owner. Such a one in the hands of an unscrupulous person becomes most dangerous to the unwary or unexperienced horse purchaser. As there are drugs and devices which, when administered, cause temporary relief, and unless expert knowledge is brought to bear when the examination for soundness is made, the defect may easily escape detection. The following is a narrative the truth of which can be vouched for by the writer:—

Several low-class dealers obtained possession of a very good-looking Shire-bred mare. She was, however, badly broken-winded. Their method of procedure was to put her in a fair, use certain measures to give her temporary relief, and then sell her for sums varying from £60 to £80. The buyer, of course, did not discover the fraud until he had paid his money and had tried her as a good worker, when she was discovered to be absolutely useless and hardly able to pull an empty cart. The next act in the comedy,

as it may be called, would be a visit to the buyer from one of the confederates, and after some parleying she would be bought back for about one-quarter of the sum paid for her. This kind of thing went on for over two years, the unscrupulous dealers making a good living from the proceeds of their various conspiracies, when eventually the mare got into the hands of a farmer, who, to his amazement, recognized that he had bought her before and had been done a second time. Surely enough one of the conspirators turned up to repurchase the animal, but the farmer stated that neither he nor any other man should be victimized again, and declined to sell. Although £100 was eventually offered, he remained staunch and had her shot.

With roaring or whistling in mares that have become affected after having suffered from some affection of the throat or lungs, and which may be said to have acquired the disease, practically no risk is run by using them for breeding purposes. It would, however, be a dangerous course for the stock-owner to pursue unless he was absolutely convinced that such was the case—that is to say, that a hitherto well-known sound mare had suddenly become affected after an attack of strangles or other throat trouble.

A noise is sometimes produced by the flapping of the nostrils, but this occurs during respiration. The term "nasal flapper" is applied in such cases. In finally deciding whether an animal is a roarer or whistler considerable skill is required, and it is necessary to call in the veterinarian.

Treatment.—The remedies for roaring and whistling are not numerous, there being only one or two that will afford permanent relief. The best-known remedy is the insertion of a tube of about 1 in. diameter into the windpipe in its upper third, between the throat and the chest. There are various kinds of tubes, the selection of which should be left in the hands of the owner's veterinary adviser.

This method, while enabling the animal to perform pretty well its ordinary work, does not in any way help to cure the original trouble in the throat. The disease either remains as it was, or more often progresses in its course. The horse receives the air into the lungs for the oxidation of the blood through the aperture of the tube. That this is so may be easily ascertained by blocking the tube with a cork and testing the animal for his wind. The administration of blisters to the outside of the throat or of electuaries by the mouth to the chronic sufferer is, for all practical purposes, useless and only a waste of time.

Another remedy that has been adopted of recent years, and

with a considerable amount of success, is an operation on the cartilages in the inside of the larynx or internal throat. It consists in stripping the lining membrane of the affected cartilage, so that as it heals the cartilage is pulled out of the air passage. The disease invariably attacks the left cartilage, and when the membrane is removed the healing process causes a contraction of the tissues, which pulls back the paralysed cartilage from obstructing the middle of the air passage to the side, and thus allows the air to enter unimpeded. The operation demands very considerable skill, and at present is only carried out by a few veterinary surgeons. It involves great expense, and should not be carried out except on valuable animals.

In order to enable sufferers from wind infirmity to carry out their work in a satisfactory manner, very careful feeding is required. As much nourishment as possible must be provided, with a minimum of bulk. Concentrated food must therefore be used, such as oats and beans, with small quantities of hay, the most suitable being well-grown best-quality meadow hay. Clover and rye grass are not good, as they contain too many fat-producing substances. They should therefore be avoided where possible; but if no other kind is procurable care should be taken to see that it is of the best quality—clean, sweet, and not in any way dusty or damaged. Indeed, dusty and musty hay is supposed to be one of the most frequent causes of unsoundness of the wind. Where a choice is possible, hay containing very little or no clover should be used; that containing the most rye grass is to be preferred; the second or third year's ley would also be desirable, as it approximates nearer to meadow hay. Bulk in any form must be avoided before work; small quantities of concentrated food and only a little water should then be given. This can be compensated for by an increased quantity when the day's work is over.

Shivering

Shivering is a disease of the central nervous system, that is to say, of the brain or spinal column, and with our present knowledge little can be said as to the actual cause that will be of interest to the lay reader. The disease is fairly common, and once acquired it is usually progressive in its nature; it reduces the value of the animal probably more than any other disease of an hereditary nature.

Symptoms.—Its chief characteristic is a loss of power, and a quivering or twitching of certain groups of muscles of the body when the horse is asked to back, or when the legs are picked up.

On attempting to back an affected animal the tail is sharply raised, and has the same quivering movement, or, as it is sometimes called, the "pump-handle" movement; this being a sudden and spasmodic raising of the tail muscles at each step taken in a backward direction. Various degrees and different forms of the disease are known. The most common type is what may be described as an "ordinary" shiverer, which, when backed, causes the muscles of the quarter to be thrown into a quivering spasm and the tail shot out with the same quivering movement, or lowered and raised at each step, with a pump-handle-like action. This kind of animal, when put to work, is in the great majority of cases quite unable to back its load, and therefore is useless as a shaft horse. When put into chains, however, it will be able to walk ahead and perform this class of work practically the same as if not affected. There are, of course, exceptions, and numerous instances have occurred in which horses, although confirmed shiverers, were quite able to do all that was asked of them more or less as if they were perfectly sound.

Shivering of this nature commonly affects both hind quarters, but occasionally only one quarter is affected. It may be most marked and easy to see, or, on the other hand, it may be extremely difficult to diagnose, so much so that the expert has to carry out a series of experiments before satisfying himself of its existence or absence. To test a "shiverer", particular notice should be taken of the first backward movement in the stall after the animal has been at rest for some time. The observer should stand at the side of the horse on a level with the quarters and tail, and any slight tremors in the regions indicated should be viewed with the utmost suspicion, particularly if accompanied by any raising of the tail. Further confirmation should then be sought by getting a man, preferably a blacksmith, to pick up the hind leg as in shoeing, extend the limb as far back as possible, when the muscles of the quarter will be found to quiver or shiver. Both hind legs should be raised, as there may exist what is called a "one-sided shiver".

Accompanied by spasms of these various muscles and shooting of the tail, there is an all-round stiff movement about a shiverer when it is backing. It frequently does so in what is known as "all of a piece", and appears to drag himself back with the hind legs stiff, and if pushed violently may even fall down. Such a horse does not step back with that free-and-easy movement and bending of the knees and hocks which are the attributes of soundness. Another and much rarer form of shivering is that which is found in the fore limbs, and the horse is then known as a "fore-end" or "front shiverer".

This form has not been observed or looked for by horse owners as it should be, and is not detected in the ordinary way, as no convulsive movements of the muscles or tail take place when the horse is backed. Should, however, an attempt be made to lift up a fore limb, as though to examine the foot, a most pronounced shivering, which the observer cannot possibly mistake, will occur. At the same time the muscles of the shoulder, neck, and often those of the lower lip, are thrown into a quivering spasm.

Very considerable difficulty is sometimes experienced when an attempt is made to pick up the legs of a shiverer, and the buyer must always view with great suspicion the animal that will not allow its legs to be lifted. In some cases it is impossible to pick them up without slinging, and as excitement aggravates the disease, the animal, if this is done, usually makes a determined resistance and is seized with violent spasms. If the foot is hit with a blacksmith's hammer a similar spasm may ensue. Another method of detecting the disease is by offering the animal a drink of cold water. On attempting to drink, particularly if the bucket is placed upon the ground, affected animals will show considerable excitement, will be seized with the muscular tremors, and will shoot their tail in an unmistakable fashion. These symptoms must not, however, be thought to be always constant, as some of the worst shiverers show no excitement whatsoever on being offered cold water or tapped with the hammer.

Shivering is in every sense a chronic disease, and in the great majority of cases progressive; that is to say, once a shiverer always a shiverer. It may be stated definitely, that any attempt to cure or alleviate the disease is useless.

On a farm the animal may be found to remain in the same condition and become no worse if kept there, but on being brought into the town and put on slippery stones the disease invariably becomes aggravated. Debilitating diseases frequently cause the symptoms to become much more evident.

After such affections as strangles, influenza, prolonged cases of lung disease, &c., the owner may be astonished to find his horse has developed into a shiverer; no doubt the latent form already existed, or he may have been a slight shiverer before the influenza or other disease occurred. The effects of the illness on the system bring out the already slightly existing or latent shivering. It is also well known that a railway journey has a most marked effect upon a slight shiverer. In the writer's opinion it is never directly responsible for producing the disease, but there is no doubt whatever that not infrequently it tends to develop the latent form; and many

cases have occurred in which a horse has been bought and passed as quite sound, and which, after a railway journey, on being examined again, has been found to be a marked shiverer.

The deterioration in value of a shiverer is very great. Most horses that are worth when sound from £80 to £100, would realize not more than £20 to £30 even if only slightly affected. Those showing pronounced symptoms would fetch from knackers' prices to £10.

The class of animal affected is chiefly the heavy draught horse, and the disease is comparatively rare among the lighter breeds.

Stringhalt

Stringhalt is another disease the direct cause of which is as obscure as that of shivering.

Symptoms.—It is characterized by a sudden snatching up of one or both hind limbs, and is most prominent when the horse is backed or turned round, or even during ordinary progression. It is best seen at the walking pace.

It affects all classes of horses. In the writer's own experience it is most common in Hackneys, but it is also fairly common in cart horses, Hunters, and Thoroughbreds.

In cart horses it is not infrequently associated with shivering, the difficulty being to separate one from the other, although no twitching or tremors of the muscles may occur. Upon being backed the horse will snatch the limb, and at the same time shoot his tail with either the quivering movement or the spasmodic pump-handle action. In some cases the disease is extremely difficult to detect, as one has to decide between extravagant action on the one hand and undue spasmodic flexion on the other. Excitement in an extravagant mover has also considerable influence upon the flexion of the limbs. A horse in a showyard, under strange and exciting circumstances, will behave in a far different manner from what he will when near his own stable and under ordinary conditions.

With regard to deterioration, it affects different classes of animals in diverse ways, and whilst in a cart horse it enormously reduces the value, it is not regarded in so serious a light in the lighter breeds. Some of our most valuable racehorses have been badly affected, but it has apparently had very little effect on their racing career. Indeed, winners of classic races have been most prominently affected.

To the horsy man stringhalt is variously known as "cocking", "lifting", "snatching", or "pulling a leg".

In a cart horse, if the animal on being made to move over or on being backed, lifts its leg, and at the same time shoots his tail, it is called a "bobby-backed", a "bobby", or a "policeman". As already stated, the best time to diagnose stringhalt is when the horse is moved after standing at rest. The observer should always turn the animal over in the stall both ways, and should see him when he is backed out, as not infrequently the disease appears to be of an intermittent nature, and will only be evident at certain times. After being brought out of the stable the horse should first of all be backed, and after that turned sharply round, first to the left and then to the right, one hand of the attendant having short hold of the bridle, the other being placed on the flank, and a turn made in as small a circle as possible. Any undue snatching of either hind limb should be looked for. The snatching may be of any degree, from slight undue flexion of the hock to the hind foot being brought up nearly to the animal's belly. Further confirmation may be sought by walking or trotting him 20 or 30 yd., and then suddenly turning first one way and then the other.

In addition to the spasmodic lifting of the limb, it is commonly banged down with great force to the ground, which causes the shoe to be worn out rapidly and a good deal of wear and tear to the limb. In animals working on soft ground, and in the lighter breeds, the condition does not appear to affect their working capacity to any great extent; they will frequently do as much work as their sound companions, provided too great a strain is not put upon them and they are kept fit and in good condition. Should they be brought into the turmoil of hard town work, and placed upon slippery setts, then the condition will become greatly aggravated; they will rapidly lose flesh and deteriorate.

This applies particularly to the cart horse, which soon becomes useless for shaft purposes. The cost of such an animal in any case entails a great increase in maintenance to his owner by having to be shod very frequently. This, in addition to cost, also causes loss of time necessitated by repeated shoeings.

Another great defect in what has been alluded to as "bobby-backed" horses is their refusal to lie down (this also applies equally to the shiverer), thereby losing the recumbent rest so essential to the animal, and causing it to be worn out long before its time.

Finally, while one may tolerate certain degrees of stringhalt in a harness horse or hunter, and not view it with much alarm in a racehorse, a cart horse should always be refused, as one never knows how the disease may develop so as to render the sufferer a comparatively worthless animal.



Photo, Sport and General

WELSH PONY STALLION — "BLEDDFA SHOOTING STAR"



Photo, Jones

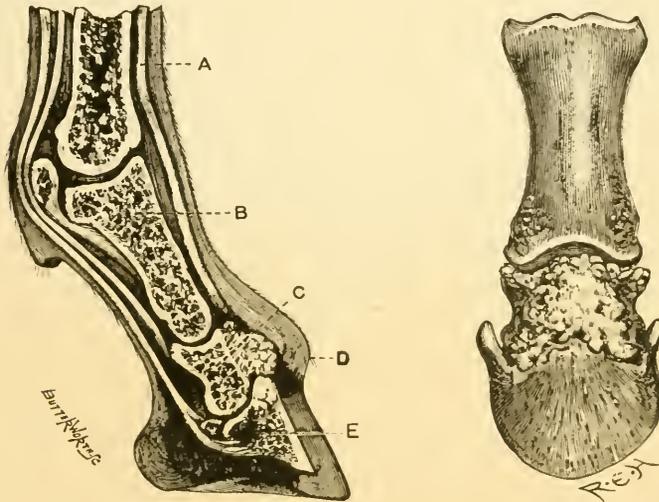
WELSH COB STALLION - "KING FLYER"

Treatment.—Treatment has been tried, and occasionally proved a success. It is, however, of a complicated nature, and involves either the severing of a tendon in front of the hock or a cutting of the fascia of the thigh. This can, of course, only be performed by the veterinary surgeon.

Ringbone

Ringbone is an exostosis on the pastern bones; i.e. a deposit of bone on any of the last three bones (not including the small navicular) of the limb.

These bones correspond to the last three of those of a man's



Ringbone

A, Extensor pedis tendon. B, Os suffraginis or first phalanx. C, Os coronal.
D, Ringbone. E, Os pedis.

middle finger or toe. Thus the fetlock joint represents the knuckle of the human being. Starting from the foot, they are known as the coffin bone, which is contained in an unresisting horny box, the hoof; the coronet, or short pastern bone, which is partly inside the hoof; and finally the pastern, or long pastern bone, which, with the cannon bone, unites to form the fetlock joint.

Ringbone is known as "true" and "false": true when it interferes with the action of any of the joints, and false when it is simply deposited on the bone without impeding the action of the joint. It is also known as "high" or "low" ringbone: high when it affects the bones above the hoof, and low when it occurs on those inside.

It occurs more frequently in the fore limb than the hind, and is usually more serious in its nature there.

The conformation of the pastern is a great predisposing cause of the disease. A short pastern favours its production by allowing undue weight to be placed upon the terminal bones of the leg; and a too long pastern is also found to be a favourable site. In a short-pasterned horse ringbone usually occurs in the fore limb; in the long-pasterned animal it usually affects the hind.

Symptoms.—The deposit of bone may be either large or small; it may extend completely round the pastern—hence the term ringbone—and cause great disfiguration of the limb, being evident to even the most casual observer; or it may be of a very slight nature, and not easy to detect even by the expert.



"High"
Ringbone

Lameness is caused sooner or later. The degree of lameness, however, does not depend upon the size of the growth, but upon its position and the parts affected. The deposits of bone that cause lameness must interfere with the articulation of a joint by either interfering with its action mechanically and thus stiffening it, or else by causing an inflammation of the inside of the joint on either end of the bones. The latter condition is, of course, a most serious and almost incurable disease, which causes the animal to suffer great pain. On the other hand, the ringbone which causes lameness by uniting the bones together, and thus stiffening the limb, is not a painful disease, and only interferes with the mechanical action of the limb. This state of affairs is, of course, the termination of the disease, and it may have been painful during its production.

A simple deposit of bone that is not connected in any way with the joint is practically only a disfiguration, and the term "ankle bone" is often applied to this condition. It is advisable, however, to regard it with a considerable amount of suspicion, and when occurring in a horse with badly-formed pasterns, one never knows how soon other deposits will appear which will ultimately involve the joint.

Ringbone may occur on any part of the pastern; it may be in front or behind, or on either side, that on the side being usually of a less-serious nature.

Low ringbone, or that affecting the bones that are contained in the hoof (it is also known as pyramidal disease), is the most

serious, on account of the unresisting nature of the structures involved. Much pain is occasioned, while relief is most difficult to effect. In the young animal, considerable differences in the size of the bones of the limb are frequently met with which may be mistaken for ringbones. The pasterns will be found not to be pairs, and one side may be larger than the other. These differences occur on the roughened surfaces of the bone, where certain ligaments are inserted, and are really small deposits resulting from the deposition of lime salts; as maturity advances they are absorbed, and the bone eventually "fines" down to its normal condition.

The lameness arising from ringbone, if in the fore limb, and particularly on the front of the joint, causes the horse to go on his heels, as though affected with inflammation of the feet; if on the hind limb, he goes on his toe. The exciting causes of the disease are no doubt concussion and any uneven distribution of weight upon the terminal bones of the limb.

Thus a horse with badly-shaped pasterns—either too long or too short—although he will be all right as long as he is in the country or worked on soft land, will soon develop ringbones when brought on to the sett-paved town. Bad shoeing must also be reckoned as a factor, as by paring the hoof undue weight is thrown upon the limb, eventually causing inflammation of either the membranes of the joint—those which secrete the oil—or the bone and the covering of the bone, any of which may be responsible for the ultimate bony deposit.

Treatment.—Treatment consists either in trying to fix the joint, which may be done by firing and blistering, or removing all feeling from the pasterns by severing the nerve just above the fetlock. The latter is a somewhat risky operation in heavy horses, as after the operation there is a tendency to degeneration of the foot, in which case slaughter is necessary. Appropriate shoeing, such as a plain or rocker round shoe, particularly if the case is on soft ground, often gives relief.

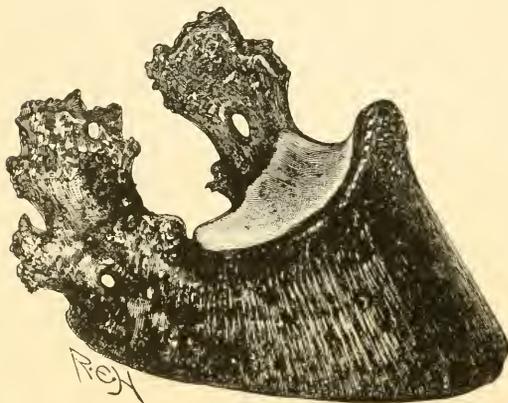
Sidebone

In describing this disease, it is necessary to consider very briefly the construction of the foot.

The terminal bone of the limb, known as the coffin bone, is contained entirely within the horny box of the hoof, and corresponds to the shape of the latter. Besides this bone there are two others. One is attached to the supero-posterior border, and is the navicular bone. Above this, partly within and partly without the hoof, and articulating at its upper extremity with

the pastern bone, is the coronet bone. Other important structures which the hoof contains are the bloodvessels, nerves, tendons, some of the membranes which secrete the horn, and the elastic structures, in which are included the lateral cartilages.

The back and lower part of the foot is made up of the horny frog. Above it is the sensitive frog, and above this again more elastic tissue, i.e. the plantar cushion. The sides of the foot are continued backward to the heel, from what is called the wing of the coffin bone, by two irregular elastic plates, known as the lateral cartilages, contained partly within the horn, their upper borders being entirely free. To the touch, they should be resilient or elastic as though



Pedal Bones, showing ossification of lateral cartilages, constituting "sidebones".

composed of india-rubber. The function of the whole of the elastic structures is to prevent concussion, and thus protect the delicate tissues of the foot from the effects of concussion, and also, by expanding and contracting as the weight is on the foot or otherwise, to maintain its shape.

Sidebone occurs when the elastic lateral cartilages become

hardened and converted into bone. The causes of the disease are no doubt hereditary. In addition, the method of shoeing plays a most important part, and in some cases injury to the cartilage, such as by a tramp or a tread, or some mechanical object may be responsible. Under natural conditions, or when the horse is shod with flat shoes, the frog should assist in bearing its due proportion of the body weight. When unnatural conditions have to be adopted to enable the horse to perform his work, and calkins or high upright heels are put upon the shoes, as they have to be in towns, then the frog is out of use, and undue weight is thrown upon the heels.

In a great measure this will account for the much larger percentage of sidebone occurring in town horses compared with those in the country, where flat shoes are generally used.

The disease is found most commonly in the heavy draught

horse, and usually in the fore feet, although the hind are sometimes, but rarely, affected. Any number of the cartilages may be attacked, but if only one or two, it is more commonly the outside, although why this should be so is rather difficult to explain, as the weight of the horse would appear to fall more upon the inside. The sidebone when complete invariably takes on the same shape as the original cartilage, although it may be considerably enlarged. Its position and shape and the condition of the foot are of vast importance in deciding the future usefulness of the horse. In light horses, the anterior part of the cartilage, i.e. about the middle of the side of the foot, just above the coronet, is almost the constant seat of the disease; in heavy horses it is formed more towards the heel, and frequently the whole of the structure is converted into a hard unyielding mass of bone. In the former class of animal the condition must always be viewed with the utmost suspicion, as sooner or later it will cause lameness, and so render the animal useless for any work where speed is required. As regards the heavy breed, sidebone is an entirely different matter, and if a number of town horses be examined, particularly those which have been working two or three years, at least one-half of them will be found affected. The proportion suffering from lameness, however, will be infinitesimal.

Some owners look upon the disease as beneficial, as it enables them to procure horses at a less price than they would have to pay for sound animals. They also contend that, sooner or later, the disease will develop. With a good foot, composed of sound horn, wide, deep, strong heels, with plenty of width round the coronet, the sidebone need not be taken seriously into account as regards the future wellbeing of the horse, although it will to some extent affect the seller. The reduction in price is from 15 to 30 per cent. With the blocky upright hoof, narrow round the coronet and across the heels, or in the flat, shelly hoof, weak and fleshy in the heels, sidebone is a serious defect, particularly if it is prominent anteriorly. It should further never be taken lightly if accompanied by the slightest suspicion of ringbone, as in time they tend to coalesce, and often cause incurable lameness.

The degree of elasticity or resilience of the cartilage will be found to vary very much in different animals. In some they have the feel of soft indiarubber, in others they will be found to be as hard as the rubber tire of a trap. The latter are sometimes condemned, but to the writer's knowledge this condition often exists in two-year-olds, continuing without the slightest change after

a long working life on town stones. So long as there is any degree of elasticity or resilience to the touch, ossification, or the formation of bone, cannot be said to have taken place. The prophet who declares that such and such an animal will put up a "knot" (as sidebone is invariably known in the north of England), will in many cases find himself held up to ridicule as time goes on and no change takes place in the condition.

Symptoms.—During the formation of the cartilage into bone, i.e. while the "knot" is being formed, lameness, more or less, is occasioned, although there cannot be said to be any very characteristic gait. The horse will put his toe to the ground first, and be short and stiff in his action. He may be said to go in a pottering manner, and will lie down whenever opportunity offers, to relieve the pressure in the inflamed parts, and will not show any inclination to get up unless compelled to do so. If kept at work his condition will fall away; he will go over, or knuckle, on his joints, become worn on his tendons, and soon assume an entirely worn-out appearance. In this bone-forming stage care and attention will usually avert serious developments. Work should be ceased immediately the stiff gait is noticed, the shoes should be taken off, and the horn in the region of the sidebone rasped as thin as possible to remove the pressure on the sensitive parts. The hoof should also be kept moist all over, and for this purpose castor oil, well rubbed into the coronet and applied over the surface of the horn, is an excellent remedy. The animal should be turned out to grass or put in a loose box, and bedded on some soft material, peat moss for choice, and kept there until the bone-forming process is complete.

In many cases the lameness will be hardly noticeable, a slight stiffness only being present. In such cases, appropriate shoeing and light work on soft land will be found beneficial. When the sidebone has fully developed, the lameness will usually disappear, but if it still continues, various remedies may be used.

Treatment.—A very simple and, as a rule, satisfactory method is by shoeing with a round shoe, thus relieving the heels of pressure and transferring it to the frog. On no account should the operation known as springing the heels be allowed, i.e. removing the horn at the heels so that the wall in that region does not touch the shoe. The result of this is that with every step taken considerable concussion is caused by the weight of the animal pressing the diseased part on to the shoe, and thus adding to the pain and aggravating the disease.

Should the lameness still persist, the operation first introduced

by Col. Fred. Smith, and known as "Smith's operation," is by far the best remedy. It consists in sawing grooves down and through the wall of the hoof, just without the limits of the sidebone, from the coronet to the sole. The latter is then separated from the wall, the result being that the portion of horn bounded by the sidebone becomes perfectly loose and movable, and pressure upon the sensitive parts is relieved. After the soreness of the operation, which disappears in three or four days, is over, the horse is fit for work, and in a week or so is perfectly sound.

This operation requires considerable skill, and all antiseptic precautions must be taken, or very serious consequences in the shape of abscesses in the foot will ensue.

Firing and blistering after the sidebone is complete are useless as well as cruel. They may be sometimes very slightly beneficial in hastening the process of formation, but as all efforts should be directed to relieve pressure, one fails to see how other methods can benefit. In light horses, frog and bar pads are useful, as they bring the frog into play. With a good foot charlier shoeing may be tried.

Navicular Disease

This is a condition in which the small bone known as the navicular, or shuttle bone (situated behind the coffin bone), becomes diseased. In addition to this, one of the tendons, commonly alluded to as the "back tendons", passing at the back of the cannon bone, and finally inserted on to the coffin bone, is also implicated. In its course inside the foot this tendon passes under the navicular bone, which acts as a lever, but it is separated from actual contact by an oil sheath, or bursa, which supplies oil to reduce the friction. This also shares in the disease.

Various causes have been discussed; the only one, however, on which there is unanimity of opinion is that of heredity. Rheumatism is stated by some to be responsible, whilst prolonged rest, fast work in heavy shoes, injury to the frog by a stone becoming impacted in its structure and setting up an inflammation which extends upwards, compression, bad shoeing, &c., are blamed by others.

The disease is found most frequently in well-bred horses and those that are about five years of age and upwards. It seldom occurs under this age or in coarser-bred animals. It is very rare in cart horses. The fore limbs are invariably affected, and no case is on record of the hind being affected. The class of feet prone to suffer are those described as donkey feet, i.e. narrow feet with long

toes, high contracted narrow heels, and too concave soles and frogs. Those in which the frog has apparently been thrown entirely out of action, and become wasted through loss of use, are especially liable.

The reader must not imagine that all feet similar to those described are bad, as some of the best light horses in the writer's experience have had feet answering to this description, with the exception of the too concave sole and frog. The fact remains, however, that what are known as open feet, or those with weak heels or prominent soles, do not become affected.

Symptoms.—Diagnosis is not easy, and requires a good deal of observation. It may be, and often is, put down to shoulder lameness or rheumatism, as in the later stages the muscles of the shoulder become atrophied or wasted through confined action, and the symptoms during progress are similar. Pressure on the frog, with one of the jaws of the pincers on this organ and the other on the wall of the frog, will often cause pain, but as horses which are perfectly sound will flinch with even a good strong thumb pressure, and also with a tap of the hammer, this method is anything but certain. The animal should be seen on several occasions, as the symptoms vary under different conditions. The first noticeable signs are usually that he goes a bit short on first being brought out of the stable, but after a few steps this disappears. He begins to lose his action and go badly downhill. When at rest, and if the trouble is confined to one limb, the animal will point the foot, either by extending it with the fetlock only bent, or with the toe upon the ground and the heel raised. If both limbs are affected he will point or rest them alternately.

A resting or tired horse often behaves in this manner, but in such a case he will also rest his hind limbs as well, whereas in navicular disease the weight is constantly borne by them, and they are not rested at all.

As the disease advances the symptoms become aggravated. When put to exercise the animal takes longer to get sound, goes on its toes, as may be readily proved by examining the shoe, which soon becomes worn out in this part, while the heels are barely touched. The patient becomes very confined and pottering in its action, and gives the impression that it is suffering from rheumatism or shoulder trouble. After doing a journey and resting for an hour or so it will come out of the stable very lame. The foot in the meantime shows marked evidence of the disease, the sole becomes more concave, and the frog, through not being used, retracts still further, while the heels become higher and more

contracted, and eventually the animal is so lame that it can only perform slow work on soft ground, and even at this it will not last long.

Treatment.—If on account of the construction of the feet the owner considers there may be danger of the horse becoming affected, every precaution should be taken to prevent it. The frog should be allowed to exercise its proper function and bear its due proportion of weight, heavy shoes should be avoided, and thin plates worn. Charlier shoes, if the condition of the horn will allow, are excellent.

If the disease is suspected in its early stages and taken in time, there is hope that with proper treatment the animal may be fully restored to soundness. I have already mentioned that it originates as an inflammation of bone, tendon, or oil sheath. The first steps must be to subdue this as speedily as possible. For this purpose the shoes must be taken off and the horse put to stand upon a sloppy, wet bed of clay, where his frogs will touch the ground without causing him much pain. He should not be allowed to lie down in the daytime, but at night changed on to another good bed made up of broken peat moss, mixed with sawdust and fine shavings, which will keep it nice and open and not too solid. Usually he avails himself of every opportunity to lie down.

If the case progresses satisfactorily, and the lameness disappears, iron tips or three-quarter shoes with a tapering end may be put on, the coronets well blistered, and at the end of a month or six weeks the animal will be ready for light work.

If the treatment is unsuccessful, however, light work may be performed by appropriate shoeing, and as by this time it will be useless to try to bring the frog into play, a thick-heeled shoe must be worn which will relieve the tension upon the diseased tendon. A good method at the same time is to remove a piece of the toe, and use a bent toe to the shoe in such a way that the horse practically rocks on its toe. In all cases the latter must be kept short, and the soles fairly thin, to relieve pressure. Leathers with tar dressing are also beneficial.

The old treatment used to be that of setoning the frog, i.e. passing the needle in at the hollow of the heel and bringing it out on the sole at the point of the frog, and dressing the tape with turpentine or other blister; but this practice has been discontinued. In advanced navicular disease the only method of removing the lameness is by neurectomy, an operation which must be performed by a veterinary surgeon. It necessitates the cutting and removal of a portion of the nerve which runs down the limb on each side

between the bone and tendons. It takes away all feeling from the part below which they are severed. There are two methods, known as the high and low operation, but the latter is liable to fail.

For a successful operation the horse should not be too old, and have good thick horn with strong heels. He requires to be cast and hobbled, and an incision is made in the groove about an inch above the side of the fetlock, and not less than an inch of the nerve removed. This process takes place on both sides of the fetlock, but is performed a little higher on the inside to avoid interference by the other limb should any thickening ensue. After the operation all feeling should be entirely removed from the foot. This can be ascertained by pricking any part below the seat of operation with a pin. Unnerving does not in any way alleviate the disease in the foot, and it either remains stationary or probably advances. Should the result prove satisfactory the horse will go sound for a year or two, when a return of the lameness will usually take place. The operation may then again be performed, but a little higher up the limb.

Unsound Feet

To act on the old saying, "No foot, no horse", is the best advice the buyer or breeder can have. However good the animal may otherwise be, if the feet are not good trouble is being sought in a most certain fashion. They should be good in every respect and composed of sound horn, the tougher the better. Dark horn is usually better than light; the best is of a dark-blue colour. It must not, however, be supposed that light or white horn is bad. In many cases a good white foot will wear quite as well as those of a darker hue; but, all things being equal, preference should certainly be given to the darker colour as being more likely to stand the wear and tear to which it will be subjected.

The wall requires to be of a good uniform thickness, greatest at the toe, and gradually getting thinner towards the heels, with a slope which attains its maximum in front. This should be an angle of 45° to 50° , gradually getting more upright as it recedes towards the heels. The whole wall should be smooth and even, without rings or depressions, as these are symptoms of previous disease, either constitutional or of the foot itself. It should be of medium depth and, most important of all, wide round the coronet.

On the ground surface the sole requires to be nicely concave and united firmly to the wall, and likewise composed of a good quality of horn. The frog should be bold and well defined; the

heels strong, a fair depth, and a good width across. In shape the whole foot should approach the oval rather than the round, as calculated to better resist wear and prove altogether more serviceable.

The round open foot is often not of the wearing kind; it is likely to become flat-soled. This kind readily bruises, and gives rise to difficulty in shoeing; has weak, fleshy heels, and has in addition a tendency to separation of the wall and sole, or of the layers of horn composing the wall.

With regard to general conformation, the hind feet are more upright than the fore, and not infrequently a little narrower and a trifle longer. In all cases, however, both fore and both hind feet should be pairs. Odd feet should always be regarded as a grave defect, as almost invariably there has been some cause for the discrepancy, and a horse showing this defect should not be entertained for either stud or work.

Seedy Toe is a condition in which a cheese-like material makes its appearance between the layers of fibres of horn at the toe, causing a separation in the wall. This disease often extends a considerable distance up the wall, sometimes nearly to the coronet. It also extends round the foot as far back as the heels. In the round flat foot the quarters are frequently affected as well. They are then known as seedy feet, and are readily detected by removing the shoes and paring the foot between the wall and sole, when the cavities caused by the disease are easily exposed. If a wall in this condition is tapped with a light hammer, mallet, or any other suitable instrument, a hollow sound is produced instead of that solid tone one should find. It may be tried in the same way as a barrel is rapped to determine how much liquid it contains.

Shelly or Shaley Feet are those in which the horn is of a brittle nature, and easily breaks, chips off, or wears until it is unduly thin, and will not carry the nails properly. Sandcracks are liable to occur, and trouble from shoeing is frequent in such a condition.

Contracted Foot is that which appears to have shrunk or become smaller than its fellow; particularly is this so at the heels, causing a squeezing together of the various structures in that region. If picked up the frog is found to be small, and may be distorted in shape, according to whether the contraction has occurred on one or both sides. In deciding as to the unsoundness of a foot, the buyer or breeder must use his discretion, whether the disease or defect is hereditary or acquired, and if the latter it may not be a difficult matter to remedy.

Seedy toe is often caused by the toe-clip being too tight; brittle feet by over-rasping; contracted quarters by bad shoeing. Care

should be exercised in estimating the size of the foot as to whether they are small or merely broken through lack of attention. In many young horses a ringed condition, just below the coronet, will be found, but this is comparatively common, and indicates a growth of new horn. It appears to overlap the smooth horn below it, and shows that the foot is spreading out. Sometimes the wall is allowed to grow much too long and the sole is neglected. Until it is cut down and removed to the level of the sole, one may easily be deceived and imagine that separation existed, because numerous cavities will be found. They all disappear with the use of knife and rasp, and perfectly sound condition is found.

The frog may also be thrown out of use by overgrowth of the wall, and appear small and undeveloped. With proper attention, and allowing it to come in contact with the ground, it will soon become restored in shape and size.

Treatment.—Seedy toe or seedy feet should be dealt with as soon as detected. The whole of the unsound horn should be removed and the cheesy material cut away until not a trace of it remains. To do this, it may be necessary to remove a very great deal of the crust of the wall; in some cases it seems almost like removing all the outside wall of the foot. This, no doubt, appears drastic treatment, but it will undoubtedly pay better in the end.

In removing the unsound horn the operator must cut away until all the horn is perfectly sound, and for this purpose he will require to almost draw blood. This will, however, not be quite necessary, as he will recognize the sound material by its elastic nature. The whole of the parts operated upon must be then well dressed with a 10 per cent solution of carbolic acid. A light bar shoe should then be put on if it is possible to find room for nails; if not, a leather boot will be necessary, and a smart blister is to be applied round the coronet. This may be repeated two or three times, and afterwards the coronet and hoof may be dressed with common castor oil.

Such treatment, together with careful attention, should result in the foot growing down quite sound.

Contracted foot may be treated by several methods. If it is caused by improper shoeing, it will usually assume its natural proportion with appropriate methods. If, on the other hand, it is contracted from disease, surgical treatment is necessary. Some veterinary practitioners fire the coronet deeply all round, afterwards blistering and putting on a bar shoe, but unless the firing goes very deeply into the coronet little relief will be given to the squeezed-in contents of the back part of the foot.

operation which is very much to be preferred is performed in a manner to that described under Sidebone. The operation is performed on one or both sides according to the nature of the affection; two grooves should be made, one at the quarter and one about the middle of the heel, severing the horn from the coronary band to the sole. The latter need not be separated from the wall as in the operation for sidebone. By this means the inflammation is allowed to take place at the contracted side of the hoof, where the pressure is reduced. With antiseptic precautions the wound will heal in a few days, after which a blister may be applied to the coronary band and shoe put on. In many cases, after operation, the horse will walk quite sound in about a week or ten days and be fit for work.

The foot will then grow down quite sound, and when the grooves have grown out all trace of the operation will have disappeared.

Shelly or shaley feet, in which the horn is of a brittle nature, or over-thin, may be greatly improved by applying blisters round the coronet, and afterwards rubbing castor oil well in daily. The wall may also be treated similarly with the oil. A leather sole covered with tow well dressed with Stockholm tar will greatly benefit the horny sole and frog.

Splint

The fore and hind limbs, from the knee and hock down to the fetlocks, are each composed of three bones, one large, long, partially round bone known as the cannon or shank bone, and two smaller bones situated behind on each side of it and separated from the large bone by ligamentous structures. All three bones articulate with those of the knee and hock and so take their part in bearing the weight of the body.

A splint may be described as a deposit of bone on any part of those three bones. It is the result of inflammation of the bone itself or of the membrane covering it.

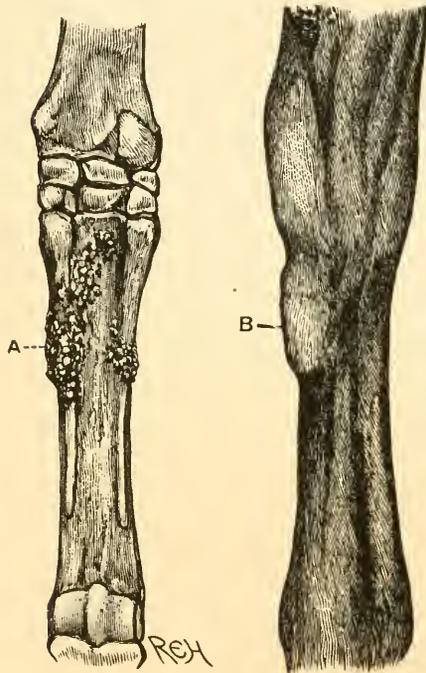
Several varieties of splint are known. One is a simple deposit of bone between the small and large bone, or on the large bone itself. Three or four knobs occurring between the large and small bones are known as a "chain" splint. One small knob on the inside and another on the outside is called a "peg" splint; sometimes a small bony bar connects these at the back of the bone—a "fusee" splint. The last three forms are generally small knobs about the size of a pea, but occasionally comparatively large deposits of bone occur, which are up to the size of a hazel nut and can readily be seen by looking at the leg.

Splint, although undoubtedly hereditary, is not nearly so serious a disease as any of those previously enumerated. Indeed, in the majority of cases, it causes very little trouble, and in some animals may be entirely disregarded. The class of horse and the position of the splint must be the guide in determining whether the animal's usefulness will be interfered with. In cart horses, splint seldom or never causes lameness; in a long ex-

perience in the examination of a very large number of cart horses the writer has never known it to cause any trouble, so that in dealing with this disease it is not proposed to include heavy horses in the following observations.

The class of animals affected are light horses, particularly finely-bred ones with long cannon bones and pasterns, narrow in their knees and chests. In short, while all light horses are subject to it, and many do suffer slightly, the "weed" is infinitely the most susceptible to the disease.

Splints may be found on any part of the cannon; they occur more often in the fore than in the hind limbs, and also on the inside more often than the outside. The posi-



Splint

A, Exposed splint. B, Splint covered by skin.

tion in which they occur determines whether or not they will cause lameness. In most cases they must be regarded as a throwing out of bone, the result of inflammation of the bone or its covering, caused by injury or overwork. Especially is this so in young horses whose frames have not arrived at maturity. They do not cause any trouble when placed in a forward position on the bone, but they must be regarded as serious when so far back as to interfere with the action of the tendon which runs down the back of the leg.

The chief cause is concussion, and the reason for their being

found more frequently on the inside, is the fact that more weight is thrown here than on the outside of the limb.

Apart from being nearer to the centre of gravity the whole of the inner splint bone comes into contact with the bones of the knee, while only part of the head of the outer splint bone does so. Remembering that concussion is the chief cause, great care should be taken not to put undue stress on the bone whilst it is still in the process of formation.

Young horses, if they are to be given a fair chance of reaching maturity with their development unimpaired, should not have any great strain put upon them. Thus, a three- or even a four-year-old should not be put into regular work on town stones, or be driven regularly long distances on macadamized roads. A young hunter should not be required to do a hard day, or expected to gallop at top speed when the going is heavy. Such are certainly the most fruitful causes of splints. I am not for a moment an advocate of keeping young horses idle—in fact, I consider they benefit largely by being broken soon after they are two years old—but they should only be required to do such light work as will not interfere with their growth and conformation, and help to bring them slowly and gradually to maturity; so that when they attain five or six years of age, they will be able to resist the extra strain of hard work. A six-year-old that has not been worked is quite unfitted to perform hard work, and is not in any way as suitable as a five-year-old, or even a four-year-old that has been accustomed to work judiciously from two years of age. It is similar to asking a boy to perform the work of a man.

The size of a splint has seldom any great bearing upon the question of whether or not lameness may be caused. The position is of the greatest importance. They may be so small as to escape detection except by the most experienced veterinarian; they may be so large as to be easily seen. It is the small splint at the back of the small bone and three or four inches below the knee, or higher up at the head of the same bone, that is most often responsible for lameness either by its pressure upon the tendon or upon the bone or its covering.

Symptoms.—The symptoms shown are much more manifest at the trot than when walking. In fact, an affected animal walks sound, but when trotted it will go very lame indeed, with much dropping of the head. Lameness increases with exercise and the animal will go worse downhill, particularly on a hard road. On a level road, soft or hard ground does not

seem to make any difference. There is a confined action of the limb from the knee downwards, and he will appear to take a short step with very little elevation of the leg. If the splint is at the back of the limb, the lameness is only slight, and if work is continued he will tend to go over at the knee and rest the leg in the stable to ease the tendon or ligament.

The detection of splint is sometimes easy and sometimes difficult, but to make a thorough examination, the hand should be passed down the limb with the middle finger on the edge of the inner splint bone and the thumb on the edge of the outer splint bone. It should be done when the horse is standing naturally with the opposite fore leg held up. This will cause the tendons to become tense, and any unevenness on the bone will be more apparent. The suspected limb should then be held up with the knee of the horse placed upon the bent leg of the observer and the thumb of either hand run down the whole length of the cannon bone as far behind it as possible. If the horse is sound, nothing in the shape of an obstruction should be encountered.

It has previously been stated that splints situated on the front of the large cannon bone very rarely cause unsoundness, and need not be taken into serious consideration except when it is so prominent that it is likely to be bruised by the other limb.

Treatment.—Unless lameness is caused, it is much wiser not to interfere with a splint in any way, and any attempt to do so will probably result in the would-be buyer having his suspicions aroused by the blemish arising from the treatment.

When lameness is caused, however, it should be dealt with immediately. Cold-water applications should be used for three or four days, and if the deposit is small and situated on the large bone, a little red blister about the size of a hazel nut should be rubbed in for a few minutes every third night for ten days or so, the horse being put in a box with a cradle on, or his head tied up. It should be observed that in all cases of firing and blistering, the parts operated upon must be protected from the animal's teeth, by its head being made fast as above directed until the irritation has subsided. This will generally have to be done for from three days to a week, according to the severity of the operation.

If the splint is situated between the large and small bones, it is usually advisable to have it punctured with a needle firing iron and afterwards apply the red blister. This course, although more severe, will save a lot of time and trouble, and it is more

certain in its action. Swelling will occur, but in a few days cold-water bandages may be used, and finally the horse will be sound with very little or no blemish.

Other methods used with varying success are shaving the hair from the limb over the splint and frequently painting with strong iodine liniment; the application of setons; by passing a knife in underneath the skin and cutting the covering of the bone over the splint. These operations, however, are not generally adopted, and it is not necessary to go into further details regarding them.

A word of warning should be given regarding the use of liniments and other liquids of a like character. The application of these does a great amount of harm, by causing irritation and increased inflammation to acutely-inflamed parts, and their use cannot be too strongly discouraged save when under veterinary direction.

Spavin

Spavin is a deposition of bone on the lower anterior and inner aspect of the hock; the joint itself is composed of six bones, but in addition to these, the large bone, known as the tibia, which runs from the stifle, forms its upper boundary, and the cannon, or metatarsal bone, with which we may include the two splint bones, forms the lower part of the joint. Flexion of the hock is carried out by the tibia and the upper bone of the hock. This joint seldom or never becomes affected with the disease.

The deposit of bone takes place on or between the lower small bones where only a little gliding movement takes place. In reality spavin is an inflammation of the bone or its covering, and this causes the bony deposit to be thrown out; and eventually leads to fusion or welding together of two, or even all, of the small bones. Sometimes the inflammation occurs on the articular surface of the bones without any bony deposit being discernible. The term "occult spavin" is applied to this condition. It is the most difficult to diagnose, and is often only suspected when the observer has failed to find any other cause for lameness in the limb. Conformation is undoubtedly a predisposing cause, and the horse with a strong, well-formed hock is much less liable to the disease. A coarse hock, i.e. where all the prominences are large and well developed, is far less susceptible than the clean, fine one. The best hock is broad and long, and when the hand is passed over it, it should glide without perceptible obstruction to the cannon bone. This condition is usually met with in a fine,

narrow hock, but it will not stand strain or wear, and the same applies in a less degree to the moderately broad and short hock. "Sickle hock" is a term applied to a condition where the limb from the thigh downwards describes a curve, so that the point is usually too far behind the animal. "Cow hock" is a similar condition with the angle of the hock sharper than ordinarily, the points being turned inwards and the cannon bone running outwardly and slightly forward. Literally speaking, the hocks are turned in and the toes out. These latter conditions also favour the production of spavin. The exciting causes are concussion, pressure, and sprain. These are produced by overwork, a sharp pull up, a false step at starting, jumping, rearing, and many other causes.

Symptoms.—Spavin is diagnosed by passing the hand over the lower inside portion of the hock, when an undue prominence will be encountered, which if only present in one limb must be viewed with grave suspicion. If this prominence exists in both limbs, however, and on being put through his paces the horse moves well, and especially if five years of age, little fear need be entertained that unsoundness exists. If, on the other hand, the condition described is found in one limb only and the hocks are not a pair, it is always wise to consider the animal unsound. Odd-hocked horses are among the most dangerous purchases, as any horseman of experience can testify.

Another method of diagnosis is to stand a few paces in front of the animal, stoop down and look between the fore legs, when frequently the difference in size will be seen.

In examining an animal for spavin, particularly when dealing with a stranger, care must be exercised where coarse hocks exist, as it is no uncommon thing for the unscrupulous dealer to tap the other with some instrument until it attains the size of its fellow. In this case the latter will be soft and fluctuating, while the former will be hard and bony. Sooner or later spavin produces lameness, which in many instances is characterized at the commencement by being intermittent in character.

An animal will start slightly lame; this soon wears off. Upon being pulled up, and after standing a little while, it will again show lameness. Such an animal will also be noticed to turn over lame in the stall. If now the hock is examined a slight swelling will probably be discovered, together with some amount of heat. The animal may then be taken out of the stable, the leg lifted up to the belly and held there for a couple of minutes, when on being asked to move it will likely enough be very lame. and if the disease is of

the occult kind, it will, for the first few steps, be hardly able to put its foot to the ground.

As time goes on the sufferer will become more lame, and when trotted will carry his quarter on the lame side low, and will drop very much. It will drag the toe, thus causing the shoe to become very much worn, whilst the heel may hardly be touched. Care should be exercised in the purchase of an apparently sound horse that has one hind shoe worn at the toe.

Treatment.—When one is satisfied that spavin lameness exists, the earlier the animal is treated the more satisfactory will be the result. If it is allowed to remain at work the deposit of bone may attain to a very large size and cause complete disfiguration.

Rest, of course, is the first essential, and for this purpose the shoes may be taken off and the horse put into a loose box on a good bed of spent tan or peat moss. Cold-water applications may be then used for as long as may be considered necessary. If in a month or six weeks a satisfactory result has not been obtained, then one of several operations should be tried. The most successful, in the writer's opinion, is firing with a fine-pointed iron. Other operations successfully performed are those of line and needle firing. After each of these it is necessary to blister a day or two later, and again once or twice during the treatment. Setons are often used, and have proved very successful in many cases.

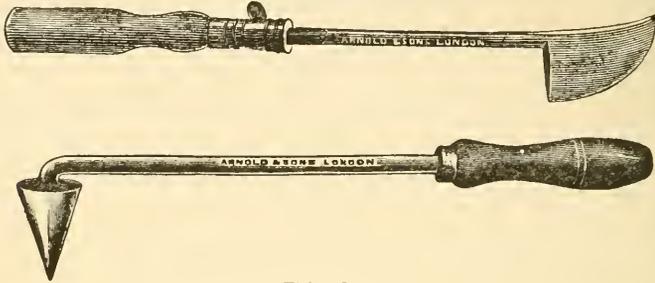
Another operation is that known as tarsal tenotomy; it consists of dividing a tendon which passes obliquely over the hock. It is very good treatment where large spavins exist, particularly when the horse is doing slow work. After any of the above operations a rest of two or three months is necessary, in order to give the horse a fair chance of recovery.

The best method is to give him a summer's run at grass; or if not in the grass season, turn him loose in a box with his shoes off and feet carefully rasped. At the end of that time it must not be expected that the spavin will have disappeared; it will probably be as large as ever, but the affected bones will have become united, the hock action greatly limited, but the lameness gone.

Occult Spavin may be said to be an inflammation of nearly the whole hock with the exception of the true joint, and may start between two of the bones or in several places at the same time. It occurs more often in well-bred animals than in the coarser and heavy types. The long narrow hock is particularly susceptible. Lameness varies when compared with that of bone spavin, and is not lessened by exercise, but persists continually for months. There is also very limited movements of the joint, and on resting

in a stall after a gallop an affected animal will show great uneasiness of the limb. At the trot it will be found to go very much on its toe.

Treatment.—This should be similar to that of bone spavin, but a longer time and more severe measures are necessary. The hock



Firing Irons

should be fired all over, inside and outside, with the exception of the cap, and afterwards blistered several times. Even after this is done, and from three to six months given, it is quite likely that the patient will only be fit for slow work.

Curby Hocks

Curby hocks are those which, although not actually diseased have every predisposition to become so. They may be described as over-bent, and are of the "sickle" and "cow-hocked" kind. Generally they have the bone known as the calcis, which forms the point of the hock, unduly long and altogether too weak.

The reader must not confuse "curb", which arises from a sprain of the ligaments at the lower aspect of the back of the hock, with "curby" hock, which is really a point of defective conformation. The latter is extremely liable to disease, and will not stand wear. Horses showing such defects will be very deficient in power of the hind limbs, and if asked to move heavy weights will be found to screw their legs, causing them to twist round on their hind toes with the point of the hock turned outward at each step.

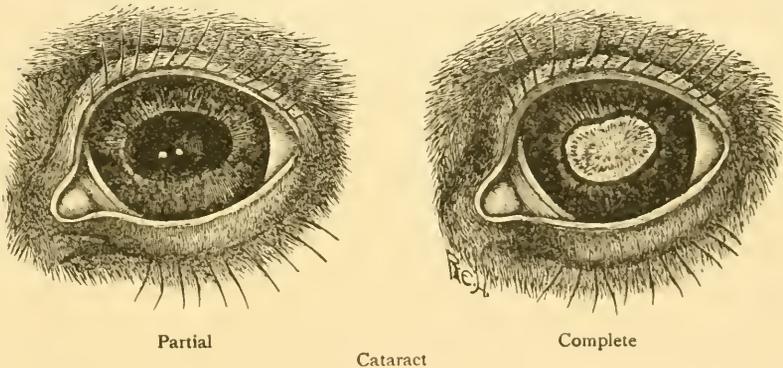
Some people are inclined to doubt the wisdom of including curby hocks in the schedule of hereditary diseases, but experience has proved that there is little doubt of this defect being transmitted from parent to offspring. However good the sire or dam may otherwise be the breeder will always be well advised in declining those with curby hocks for the stud,

Treatment.—As previously remarked this class of hock is invariably weak, and although it may appear unnecessary and even cruel, the kindest thing to do is to fire the hock practically all round as suggested for occult spavin, afterwards blistering several times. This has an effect similar to placing a permanent bandage round the structure, and enables it to resist wear and otherwise greatly lengthens its period of usefulness.

In some countries it is a common practice to fire the hocks of young horses even if quite sound and well formed, for the purpose of giving them strength, so that the buyer need not always assume that a fired hock has been treated in this manner for some disease; particularly is this so if they happen to be young hunters or well-bred horses from the Emerald Isle.

Cataract

Cataract is a disease of the eyeball, and affects the lens, which to the lay reader may be described as the transparent partition in the eyeball. This when looked into in a dark box with a candle



should appear quite clear, no opacity of any kind being seen. Cataract is an opacity in this clear part of the eye, i.e. the crystalline lens. There are two forms of the disease, known as true and false, but it would not be of interest to the reader to describe them, and we shall not attempt to distinguish between them.

The common method of examining the eye is to place the horse in the shade and interpose some dark object between the eye and the rays of light. A good method is to place the crown of a black felt or silk hat just in front of the eyeball and look into it, when a perfectly clear space should be visible.

Symptoms.—An opacity or cataract may take the form of a pin head, streak, triangle, star, or it may involve the whole lens, so that the whole space that should be transparent will appear cloudy or milky-white in colour.

Another method of examination is to place the horse in a dark box and examine the eye with a wax match or candle, when three images should be seen; two moving in the same direction as the candle is moved, the third upside down and moving in the opposite direction. These images in a fully-expanded healthy pupil should be perfectly clear and distinct. Should an opacity form, the inverted image will become indistinct; as the disease progresses it will disappear altogether, and in complete cataract only one image may appear. Cataract, if acquired, is usually preceded by several attacks of inflammation of the eye. Generally the experienced man who has an animal twice affected in this manner considers it advisable to dispose of him, because when a cataract has developed there is no cure.

Before, however, deciding that the animal is affected, it must be distinctly understood that an opacity such as has been described, exists inside the eyeball and not on the outside transparent covering. The latter form is fairly common, and is usually caused by an injury or superficial inflammation, and it will soon clear up when the surface of the eye recovers. Such a condition is of very little detriment and need cause no alarm.

Complete cataract may cause total blindness, but however slight the disease may be, vision is bound to be interfered with. Some cases of shying are caused in this way.

Treatment.—In the case of the human being, where spectacles can be worn, there are several methods of operating, but these are rarely if ever applied to the lower animals.

Rheumatism

It is very probable that considerable dissension may be expressed as to whether rheumatism should be classed as hereditary, but in the writer's experience it is most certainly transmissible.

Opinions differ as to its cause. By some it is stated that a microbe is responsible, but up to the present time this has not been absolutely proved; by others, that it is due to an excess of lactic acid in the blood. It is much more common among the lower animals than is generally supposed, and in many cases of lameness that are attributed to sprains, and in animals that will not thrive, rheumatism is responsible. Colour has apparently something

to do with the disease, as greys, light chestnuts, and washy bays appear more prone to its ravages than the darker-coloured horses, such as browns and dark bays. A characteristic of rheumatism is that on its first manifestation it appears and disappears, or moves from one part of the body to another. A horse may be lame one day in the shoulder and sound the next; he may be lame in the fore limb, suddenly become sound in that leg and become lame in a hind one. Climate has a considerable influence, and wet weather will frequently cause its appearance.

After one attack it is liable to recur. It causes a great deal more trouble in young horses than it does to those of some age, and if not treated in its first stages it is prone to become chronic.

Constitutional diseases, such as influenza, strangles, and chest affections, appear to be predisposing causes particularly in young horses, and if the latter are not given the best of attention as regards stable management, and they are exposed to wet or cold, an acute attack is quite likely to supervene.

Symptoms.—Acute rheumatism is marked by fever, and the temperature may rise several degrees. Hot and painful swellings occur on the tendons or joints; in this condition the horse will be hidebound, constipated, and will move with difficulty.

The chronic form is distinguished by an absence of fever. The swellings are not so large or painful at first, but as time goes on the joints become enlarged and deformed, the tendons thickened, and the animal is spoken of generally as being a bad doer. A typical case may be described as follows:—

The horse will first be noticed to lie down at almost every opportunity, not in an easy, comfortable manner with his legs partially under him, but on his side, with all his legs stretched fully out. On getting up he will show a certain amount of stiffness and stand with his legs under him. He will begin to lose the healthy feel on being touched, and become more or less hidebound. The stiffness will disappear after a little exercise, but he will again show it after rest. If put into a loose box he will lie down directly he has finished his feed, and will remain so until he is again forced to get up. As the disease progresses, on the animal being walked round the box a crackling of the joints will often be heard, the sufferer loses condition rapidly, becomes tucked up in his middle, and soon becomes a complete wreck.

In such a case the writer has very often noticed a great increase in the height of the horse. Five-, six-, and seven-year-olds have grown a hand in less than twelve months. Whenever such rapid

growth is observed the owner will be well advised to limit the animal's work and put him on a light laxative diet.

A five- or six-year-old requires to grow down, or as it is commonly called, to "drop himself". A little increase in height is natural, especially when fed as he should be for hard work, but the growth should be gradual, natural, and an all-round development.

Treatment.—In the acute stage associated with the rise of temperature and hot and painful swellings, alkaline treatment is indicated to counteract acidity. A ball containing bicarbonate of soda and salicylic acid may be given three times daily, and 2 oz. of Epsom salts in the drinking water first thing every morning will be found to act as a nice laxative.

The swollen joints or tendons may be rubbed with arnica or camphor lotion, and dry flannel bandages applied. Hot fomentations are also used, but in rheumatism I am not an advocate of water of any kind, and under no circumstance should cold water be used.

After the acute stage has subsided and the temperature is reduced, and also in the subacute stage, a full dose of aloes should be administered, 4 to 6 drachms, depending upon the size and class of animal—4 for a cob, 5 for the 15- to 16-hands harness horse or hunter, and 6 for a full-grown cart horse.

When the bowels assume their normal state salicylic acid may be given until apparent recovery. Even when this appears permanent, one must remember that it is always liable to recur, and due precautions should be observed.

Upon resuming work the diet must be carefully regulated, and no dry corn should be given; Indian corn or maize in any form must be avoided. The best food is steeped oats. Sufficient for the following day may be placed in cold water, just enough to cover them overnight, and mixed with the requisite amount of chopped hay next day. Two pounds of bran and half a pound of linseed may be added with benefit. A handful of Epsom salts in the drinking water, first thing in the morning, is an excellent preventative. Where rheumatism has progressed so far as to become chronic and not amenable to the above treatment, such as when the tendons and joints have become swollen and contracted, the joints enlarged, and the pasterns straight, firing must be resorted to, and in all cases a long rest is required.

After such operations the result will be far more satisfactory if the patient is placed in a well-ventilated loose box, with plenty of fresh air, for a month or six weeks, than if turned out to grass, because if the weather is at all wet or cold it will have a most

detrimental effect. In all cases where hereditary predisposition is indicated, or previous attacks have occurred, prevention is better than cure; careful dieting should be observed, precautions against chills should be taken by good grooming, well drying when wet, and not allowing the horse to cool quickly after getting hot.

Tuberculosis

In the human subject tuberculosis is known as consumption. In the strict sense of the word tuberculosis is not hereditary, and it is even stated by well-known veterinarians that under certain conditions there is no predisposition to inherit the disease. These conditions are, however, of a very exacting nature, and would not appeal to the ordinary stockowner. In addition, it is a comparatively rare disease among horses, and is not, as a rule, suspected until too late for remedial treatment.

If an animal is suffering from a wasting disease of the nature of which the owner is doubtful, it is advisable to apply the tuberculin test, which will prove the existence or otherwise of the disease. Needless to say, an affected animal should be isolated, and as it will usually be hopeless for treatment, the best course is to have it destroyed.

II. SOME COMMON DISEASES OF THE HORSE

Catarrh or Common Cold

This is an acute catarrhal inflammation of the membrane lining the nostrils, which may be the only part affected, or it may arise as a complication to other diseases of the head, throat, and chest. It is similar in character to that which in the human being is known as cold in the head.

Symptoms.—First of all there is a thin, watery discharge from the nostrils, which gradually gets sticky and thicker as the disease advances. The mucous membrane lining the nostrils becomes reddened and slightly swollen; the glands underneath the jaw become enlarged, tears flow from the eyes, and there may be a slight cough; the temperature may rise one or two degrees, in which case the coat will be more or less staring, with some disturbance of the general system, usually not of a serious character.

Causes.—A sudden change in temperature is undoubtedly the most common cause, and it frequently occurs in cold, damp weather. A young horse brought from the country into the town invariably becomes affected, either through indifferent stable management in

the shape of badly-ventilated and insanitary stables, or by some of the microbes which are floating about in the air getting into the respiratory tract.

Treatment.—If taken in the early stages it is usually soon cured, and this with very little trouble, but a neglected cold in the horse, as in all other animals, may become serious. Complications may occur; the throat and even the lungs may become affected.

It is wise to isolate the animal as soon as its illness is detected, because if this is not done other horses in the stable will very likely become affected, particularly those that have not had a previous attack. It is usual to regard cold as being caused by microbes, and therefore it is infectious. As most people know, if one member of a household contracts cold in the head it usually runs through the whole establishment. The affected horse should therefore be placed in a well-ventilated, well-lighted loose box; plenty of fresh air should be allowed, light, warm clothing and bandages put on, and the animal fed on easily digested, laxative food, such as bran and chop. Any green food that may be in season should be offered, as well as long hay. A certain amount of concentrated nutriment is also necessary, and this may be supplied by giving a few pounds daily of steamed or macerated whole oats.

The nostrils require to be well sponged out both outside and inside several times daily with a weak solution of some disinfectant. The eyelids also require similar attention, or the face will become scalded. Very little internal treatment is necessary, and under no circumstances should the horse be drenched. Two ounces of Epsom salts twice daily may be administered in the drinking water, and in a few days the patient will generally make a complete recovery. If, however, the process is not satisfactory, and at the end of three days the discharge increases and becomes thicker, steaming of the head must be resorted to.

This may be done by placing some loose hay in a bucket and pouring over it boiling water, to which has been added half a tablespoonful to the gallon of carbolic acid, or one tablespoonful of almost any coal-tar disinfectant. The horse should be made to hold his head as low as possible over this whilst partially enveloped in a piece of clean sacking.

The process should be repeated frequently during the day. Under no circumstance whatever must a nosebag be used for this purpose. Should the appetite not be good oatmeal gruel can be given with advantage.

Sore Throat

This indicates inflammation of the membrane covering the upper part of the throat, or to give it its proper name, the larynx. In addition, the back part of the mouth (pharynx) frequently shares in the trouble, and consequently considerable difficulty is experienced in swallowing.

Causes.—The commonest causes are cold; sudden changes of the atmosphere from dry to wet; damp, muggy weather; badly-ventilated, insanitary stables, when inflammation is caused by ammonia and other emanations arising from decomposing urine, &c.; neglect of stable management, whereby chills may be contracted, such as bringing in the horse hot from a journey and allowing him to stand without being groomed, or neglect of grooming before he goes out; drenching with hot water or other irritating fluids; injury in the administration of balls; mechanical injury from outside; and last but not least, micro-organisms.

Symptoms.—The first thing noticed is a cough, which is harsh, dry, and painful, and can easily be distinguished as coming from the throat. There will be difficulty in swallowing either solids or liquids.

A discharge from the nose occurs when the mucus produced by the inflammation is thrown off. The temperature rises a little, and pressure upon the outside of the throat at the top of the gullet causes coughing and pain. The appetite is not much affected, and in a simple case little more occurs. With careful nursing and sanitary precautions the patient soon recovers.

In severe cases all the above symptoms are aggravated; the cough is troublesome and painful; an affected animal will hardly allow his throat to be touched; the appetite is diminished, and swallowing is performed with great difficulty, or not at all. Liquids will be returned through the nostrils. The temperature, however, seldom rises more than two or three degrees, and the pulse is not greatly affected; a good deal of slobbering at the mouth may be observed.

Treatment.—Treatment is somewhat similar to that previously described in catarrh. A well-ventilated loose box, with abundance of fresh air, should be provided, and the patient clothed and banded. The throat may be rubbed with a little strong embrocation night and morning for the first day or two as discretion directs. It is wise not to continue the embrocation when more or less blistering has occurred.

It may not be out of place here to direct attention to the true

throat, i.e. the proper place to which the embrocation should be applied. This is the groove running down from the base of the ear to the back of the lower jaw; it is between the head and neck, and not underneath the jaw or down the windpipe. This is mentioned because one so often finds that the lower part of the neck, even down to the entrance of the chest, has been blistered upon the supposition that these parts constitute the throat. Internally, sedatives and astringents in the shape of electuaries of belladonna, chlorate of potash, and boracic acid, are useful. A good method is to dissolve 1 oz. of chlorate of potash in a quarter of a bucketful of cold water, and place it before the horse to play with. This will act after the manner of a gargle for the human subject. If the throat is very sore, steaming, as already indicated, with water, to which a tablespoonful to the gallon of eucalyptus, carbolic acid, or any other of the coal-tar compounds has been added, will afford relief. Hot-water fomentations, or hot-water packs, covered by hot dry flannel bandages, applied directly to the throat are also used.

Sometimes the attack is of a chronic nature, and the patient does not recover. It is then necessary to resort to more drastic treatment, and a "red" blister (biniiodide of mercury) may be applied to each side of the throat. Occasionally the swelling in the throat may be so great as to cause a roaring noise, and a danger of suffocation arises. Immediately such symptoms are noticed the advice of the veterinary surgeon must be sought, as it may be necessary to put a tube into the animal's windpipe to give temporary relief and prevent suffocation. During the course of the disease abscesses may form and rupture inwardly, or be indicated by the outward appearance of tense, painful swellings that will require to be treated with the surgeon's knife. The sooner they are opened the better, and they should be encouraged to form quickly, or "point", by the application of a little embrocation rubbed daily into their dependent and prominent part. The decline of the disease is marked by the cough becoming softer and more moist, and the expulsion through the nostrils of mucus, &c., from the inflamed membranes.

After a severe attack there is some risk, particularly in light, well-bred animals, that permanent roaring may follow. To minimize such a risk it is advisable to apply the red blister mentioned above. The disease is often of a very debilitating nature, and strength is slow in returning. For these reasons, during convalescence the administration of tonics, both mineral and vegetable, is necessary, as well as a comparatively long rest. Good food and careful exercise are essential. During the course of the disease feeding has to be carefully considered. An affected animal may

be allowed anything to eat, with the exception of dry corn. In my experience I have found that the patient will reject mashes and other soft foods, but will eat long hay with great relish, doubtless because the mastication necessary causes an abundant flow of saliva, and so relieves the dry and parched condition of the mouth and throat.

Strangles

Strangles is a specific contagious disease affecting only the horse, ass, and mule, and is due to a micro-organism. It is characterized by fever, a discharge from the nostrils, and the formation of abscesses. It usually affects young animals, but old horses may also suffer. After having had one attack it is most unusual for an animal to become again affected. The most characteristic symptom is a swelling in the space between the lower jaws, and this ultimately forms into an abscess and bursts. Sometimes, however, abscesses, depending upon how the disease has been contracted, form in other parts of the body, such as the liver, kidneys, and lungs. It is then spoken of as Bastard Strangles. In whatever form the disease occurs it is of a debilitating nature, and for some time afterwards careful nursing and good dieting will be very necessary or other dangerous maladies are likely to supervene. Once a satisfactory recovery is assured the patient thrives well.

Predisposing Causes.—These are youth, cold, damp weather, catarrh, change from country to town, badly-ventilated stables, any condition that lowers the vitality, and by some it is contended that it commonly occurs during the casting of teeth. The actual cause is of course the specific microbe.

Symptoms.—These may be mild or severe. In the former case the temperature rises a little; there is a swelling under the jaws which may be on one or both sides, and is accompanied by a discharge from one or both nostrils corresponding usually to the side of the jaw on which the swelling occurs. The discharge is semi-white and not of a very sticky nature. The pulse is not much affected and the appetite diminishes very little. If severe, most of the above symptoms are aggravated, the horse is noticeably sick, the fever is high, and according to the size and position of the abscess so will the symptoms vary. If it is deeply-seated in the throat and swelling inwardly, it will take much longer to form, and may by pressure affect the breathing, which becomes of a snoring nature and gives one the impression that strangulation is about to take place—hence the name, strangles. If the increase in size is apparent on the surface, the breathing will be very little

affected if at all, and the abscess will soon come to a head. Deeply-seated abscesses more often burst inwardly and discharge through the nostrils and mouth, whilst the superficial or external abscesses do so underneath the jaw.

Treatment.—Everything must be done to encourage the abscess to come to a head. For this purpose the swelling should be fomented with very hot water, the longer the better, and afterwards a little embrocation may be well rubbed in with two fingers to the most prominent part. This may be repeated from day to day. In a favourable case the abscess will burst about the fourth or fifth day. If it is apparently deep-seated it may be advisable to apply a smart fly blister to the whole outward surface of the swelling, but in a case of this nature veterinary advice should be sought. After the abscess has burst, a finger should be inserted into the opening and the cavity explored; loose tissue must be broken down gently to give relief to any imprisoned matter. The cavity may then be syringed out with a dilute disinfectant and the part kept clean. A plug of tow soaked in antiseptic dressing may be inserted so that gradual healing from the bottom results. This process may be repeated night and morning.

A course of medicines is also advisable. The diet should be tempting, and it is sometimes advantageous to have the manger placed on the ground to aid the escape of nasal discharge. The nostrils should be carefully sponged as mentioned in common cold. Clothing suitable to the season and the severity of the case will have to be used. In some cases it is necessary for the attendant veterinary surgeon to put a tube in the animal's windpipe.

Colic

Colic is the manifestation of sudden pain in the abdomen. It may be called true, when the pain is caused by disturbances of the stomach or intestines, and false when associated with any other abdominal organs. It is further divided into two kinds known as *spasmodic*, which is caused by spasm or contraction of the muscular coats of the stomach or intestines, and *flatulent*, when the bowels or stomach are unduly stretched or over-distended by gas arising from fermentation of food. Horses are more liable to colic than any other domesticated animal on account of the relatively small size of the stomach and its relationship to man's method of feeding. The average gastric capacity of the horse is from $2\frac{1}{2}$ to $3\frac{1}{2}$ gal., and this is small when compared with that of the ox, whose capacity is from 40 to 60 gal.

Causes.—As in the human being, improperly assimilated food, causing indigestion, is in the main part responsible; but too much or too little food, unsuitable food, long periods of abstinence, food given at improper times, food of bad quality, drinking large quantities of cold water when heated, or on an empty stomach, worms and other internal parasites, and calculi, commonly known as stones, are all common causes of the disease.

Symptoms.—The symptoms of spasmodic colic usually occur very suddenly, and are manifested by restlessness, pawing the ground with the fore limbs, stamping, kicking, turning the head frequently to the side, endeavouring to strike the belly with the hind feet, frequently lying down or attempting to do so and rising soon again, increased pulse rate, and sweating which is generally profuse. All or any of these occur in simple spasmodic colic, which as a rule lasts anywhere from ten minutes to several hours. An affected animal may even continue to feed, but will be again seized by the painful spasms. The pain is not constant, but, as the name indicates, is spasmodic. Flatulent colic, for which gas formed by fermentation is responsible, in addition to presenting the above symptoms, is accompanied by great distention and tenseness of the abdomen.

Treatment.—Treatment consists first of all in relieving the pain. In spasmodic colic a sedative or a diffusible stimulant must be given as soon as possible after the symptoms are noticed. An ounce of laudanum and two ounces of sweet spirits of nitre given in a large wine bottle full of warm water is an excellent remedy; or, if the laudanum is not procurable, the sweet spirits of nitre may be given with the same quantity of aromatic spirits of ammonia (sal volatile). In the latter case, the mixture will require more dilution with water or the mouth will become scalded, and at least a quart of warm water or gruel will be required. If these remedies do not act within an hour or so, expert advice will be necessary. Until that arrives, however, a little embrocation may be applied to the belly wall, and rubbed in on each side with straw wisps. If the pain still continues, hot-water blankets can be fastened right round the belly. If this is done, it is necessary that when the blankets are removed the parts should be well dried, and rubbed with a little embrocation or methylated spirits in order to obviate the risk of a chill. It is also advisable to rug the horse up for a time. In the absence of diffusible stimulants such as have been mentioned, any other available stimulant may be used. For this purpose half a pint of whisky, given in a quart of warm water or gruel, or a pint or two of beer—the older the

better—with half an ounce of ginger added to either, will help to relieve the pain.

Opinions differ as to whether the horse attacked with spasmodic abdominal pain should be allowed to lie down. Some veterinarians will not allow it under any circumstances, and they keep an attendant in the loose box with a whip to prevent him from doing so.

Others, the writer among the number, believe in allowing the animal to lie down, particularly if he shows signs of doing so without throwing himself down. At the same time every effort should be used to prevent injury, which may occur from rolling and other frenzied movements. During the interval of freedom from pain walking exercise is beneficial. This helps to promote the action of the bowels.

A further debatable point is whether or not a physic ball (dose of aloes) should be administered. Those in favour argue that an irritant is present which should be removed as soon as possible, and also that the bowel action should be speedily stimulated. Those against such a course contend that to endeavour to force the action of the bowel, which may be obstructed, or semi-paralysed, will cause an unequal movement of it, and that in this manner it may lead to one part becoming telescoped into the other, or to a twisted gut.

Either of these conditions is fatal. The writer considers the administration of aloes or 1 to 1½ pt. of linseed oil advantageous, and that if the attack lasts more than two hours it should be given.

Flatulent Colic

Flatulent colic differs from the spasmodic in that the pain comes on gradually, but it is more lasting, becoming more acute as the intestines fill with gas. Finally, the abdomen may become enormously distended and be of a drum-like nature, causing great pressure upon the diaphragm, or skirt, which is the tendinous muscle separating the cavity of the chest from that of the abdomen.

The pressure exercised causes much difficulty in breathing, because the lungs are confined in their action and cannot obtain that amount of oxygen which the blood requires.

To relieve the pressure the horse will frequently sit upon his haunches like a dog, but appears to be afraid to lie down, as by so doing greater pain is caused to the distended organ.

Rupture of the stomach, bowel, or diaphragm is doubtless

caused when the patient is rendered desperate by the pain; the horse throws himself violently to the ground.

Treatment.—Every effort must be directed to disperse the gas and arrest any further fermentation, and remembering that the cause is due to fermenting food the administration of antiseptics is indicated. One of the most successful is $1\frac{1}{2}$ oz. of turpentine given in 1 to $1\frac{1}{2}$ pt. of linseed oil. Another remedy is 2 oz. of sweet spirits of nitre in a wine bottle full of water, and it is helped in its action by the addition of cayenne pepper, or ginger.

The rectum must be examined, any dung removed, and warm soapy water enemata administered every two hours.

During the intervals of freedom from pain the belly may be well hand-rubbed or wiped, and hot-water cloths applied. Walking exercise will also help to disperse the gas.

A favourable symptom in the course of flatulent colic is the escape of wind by the anus, but if in spite of the above remedy the swelling continues, nothing is left but to liberate the gas by piercing the abdominal wall and bowel. This, of course, must be done by a veterinary surgeon, and one cannot too strongly advise horse owners to seek his advice unless abdominal pain is very speedily relieved, because many cases end fatally through lack of only a little proper treatment at the critical time.

Wind sucking produces a distention of the abdomen similar to that which occurs in flatulent colic, but in this case the cause is apparent. As a rule there is little or no colicky pain, because the animal discontinues the practice when he finds that it is causing him pain.

Some care is required after recovery from any kind of colic. The horse should not be put to work until he has entirely recovered from the effects of the treatment, particularly if a dose of aloes has been administered. The bowels should resume their normal action, and until then only light exercise should be given. The patient will require light digestible food for a few days and gradually brought back to everyday diet. Prevention is always better than cure. The cause should always, therefore, be sought after and steps taken to prevent a recurrence of the trouble. Many horses having been accustomed to hard food become attacked by colic when put upon a whole or partial grass diet, or when they are given roots or green food of any kind. The diet should be regulated in the same way as that of a human being. The owner should thoroughly understand his horse.

Small feeds at frequent intervals are the best means of preventing this malady.

Wounds

These may be divided into several classes, and are known as: (1) Incised; (2) Punctured; (3) Lacerated; (4) Contused.

An incised wound is one caused by a sharp, clean cut, and the edges are not ragged.

A punctured wound is usually inflicted by a blunt-pointed, long instrument, and is more or less circular in shape.

A lacerated wound is one in which the parts are more or less torn, so that ragged edges result.

A contused wound is one inflicted by a blunt instrument, and causes more or less bruising of the parts.

Wounds are described as healing in various ways; such as by immediate union, first and second intention, under a scab, &c. As a matter of fact they all heal by one method, and that is by the growth of new tissue to replace that which has been destroyed.

Treatment.—The treatment depends upon the nature and situation of the wound. If there is much bleeding, this must first of all be checked by either tying the damaged bloodvessels, bandaging, or applying antiseptic plugs kept in place by bandages. It is absolutely necessary that every wound should be thoroughly cleansed, as, if dirt is present, healing will be retarded and complications likely to occur. The main treatment, of course, is directed to the speedy healing of the wound, and with this end in view it is essential that the healing process should take place from the depth of the wound, or, as it is commonly spoken of, "from the bottom". This is to prevent the matter (pus), which is always present in a wound of any size, from becoming imprisoned and burrowing its way into the tissues, which it will do if it "pockets" and is not allowed free escape.

It is sometimes necessary, where the depth of the wound is in a downward direction and on a lower level than the opening, to enlarge the latter by the use of a knife so that free drainage may be given. The main principle in the treatment of all wounds is therefore strict cleanliness, to prevent contamination from dirt (micro-organisms), healing from the bottom, and free drainage. If these directions are noted a successful termination may be looked for.

To do this it is necessary to keep the wound open, and the scab that forms must be removed almost daily as discretion directs. In old-fashioned circles the removal of the scab is looked upon almost with horror, as it is customary to imagine that when the wound scabs nicely all is well. The condition is good for a short time only, as the wound becomes sealed and the matter lying

underneath cannot escape. By allowing a scab to remain on the top of the chine, fistulous withers are caused, and in other parts of the body deep-seated abscesses result.

Broadly speaking, small wounds may be well cleansed with cold water (a hose-pipe is a very good method) when first they occur, and afterwards dressed daily with antiseptics. Nothing further is required. Large wounds may require to be sewn up and so many stitches put in. If this is necessary it must be done within a few hours after the injury has been inflicted or union will not take place. For after treatment it may be necessary for plugs, bandages, or drainage tubes to be applied; in any case, if the injury is so serious as to require stitching, expert advice would have to be sought.

Contused wounds of a severe nature require very careful handling, as a good deal of dead tissue results, which has to be thrown off. This is called a "slough" or a "sloughing" wound, and it often causes a good deal of after disfigurement.

During the healing of a wound a superabundance of new tissue forms. This is known as "proud" flesh, and is not of a healthy character. It requires to be checked by applying a caustic, such as a little nitrate of silver or butter of antimony. In general treatment the hair requires to be cut from around the edges of the wound, or irritation will be caused. The injured parts must be given as much rest as possible; in some cases slings are necessary. The following make excellent dressings, and a choice can be made of wet or dry applications. Present-day surgery favours dry dressings.

Wet dressings.—Carbolic oil, 3 to 5 per cent; chinosol, a 15-gr. tablet to 1 qt. of water; perchloride of mercury (corrosive sublimate), 1 to 2000; Jeyes's fluid, or any other of the coal-tar products, according to their various directions; friar's balsam, oil of eucalyptus, thymol, &c.

Dry dressings.—Boracic acid, iodoform, oxide of zinc, sanitas, or a mixture of any of these. If much pain is present in the wound, a little powdered opium may be added as a sedative.

Bumped Knee—Broken Knee

Bumped knee occurs by the horse injuring the structures underlying the skin of the knee, without causing a visible wound. In a day or two considerable swelling occurs, which may be soft and fluctuating, or hard and tense.

Treatment.—Unless lameness is present rest is rarely advisable.

Early treatment, however, must be practised, or a permanently large knee is likely to result. Hot-water fomentations should be applied as often and as long a time as possible. They should be practically continuous. The best method is for the attendant to get two swabs and a bucket of hot water and bathe the injured knee with gentle pressure, always from above downwards. During the night hot cloths may be put on and covered with a mackintosh. When a hardening of the injured part follows, blistering with a mixture of red and black ointment may be tried, or it may be painted night and morning with tincture of iodine, or an even stronger solution, such as equal parts of the tincture and liniment. It is very necessary before applying these remedies that the hair should be removed as closely as possible. It is rarely advisable to open a big knee, as the wound is long in healing, and often leaves more disfigurement than the original injury would do if left to itself.

Time often effects a cure, and the writer has known several instances in which big knees have disappeared in the course of a year or so. It may be mentioned that bumped knee is often caused by the horse striking it against the manger. Owners should, therefore, take notice of their stable fittings.

Broken Knee

This occurs when the skin is broken and a wound caused. When the latter is superficial it should be well cleansed by applying a moderate force of water through the hose-pipe, and afterwards treated with dilute disinfectants for a day or so. One part to 2000 of a solution of corrosive sublimate, or one tablet of chinisol in a quart of water, make excellent lotions. This may be followed by dry dressings, such as iodoform and boracic acid.

The scab which forms requires removing periodically, the animal's head fastened up and rest allowed. When a deep wound is inflicted, a danger arises that injury has been caused to the oil sheath of the tendon, or that the knee joint itself has been penetrated, when there will be an escape of synovia (joint oil). In the former case the condition is not generally to be regarded as serious, but in the latter open joint is caused, and the outlook is then very grave.

Sometimes considerable difficulty occurs in discriminating between open tendon sheath and open joint; but, as a rule, one is not left long in doubt, as, in the latter case, unless the utmost skill is exercised, inflammation of the joint supervenes and considerable constitutional disturbances result.

Whenever oil is found escaping from a broken knee expert advice should be obtained at once, as the treatment has to be of a very special nature. Every antiseptic precaution is necessary, and slings are required. If enlargement remains after the healing of broken knee it may be greatly reduced by applying a smart blister. In the treatment of broken knee or wounds of any kind, it should be mentioned that the hair should be removed with scissors from around the edges to prevent irritation, and the parts below should be smeared with vaseline or the discharge will cause excoriation.

Sore Shoulders—Sore Backs

The former are caused by friction from a badly-fitting collar, and the latter by chafing from the saddle, the pad, or a too-tight girth. The injury may produce swelling of the skin followed eventually by a wound, or may simply cause a superficial bruise, rubbing off a thin layer of the skin and hair.

Treatment.—When the wounds are superficial they may be bathed with cold water, and afterwards covered with a freshly-made paste of powdered fuller's earth and water. If the animal is thin-skinned and liable to suffer from abrasions on the least provocation, the skin may be hardened by bathing it daily with a saturated solution of ordinary salt, i.e. as much salt put in the water as the latter will dissolve. Attention must, of course, be paid to the harness; it may be necessary to substitute a breast-pad for the collar, or to chamber either collar or saddle. In any case until quite healed the wounds must not be irritated by further chafing.

Sometimes when a swelling is neglected and repeated bruising occurs, an area of skin and underlying tissue dies, and what is known as a "sitfast" is formed. These vary in size from a sixpence to a five-shilling piece, and are extremely painful. The best treatment is to have them cut out as soon as they are noticed, when a wound is left which may be treated in the ordinary manner.

Sore Chine

This results from pressure of the pad or saddle. If the injury has been caused by squeezing, and so prevented the blood supply to the part, the tissues in the neighbourhood will die, or the injury may be so severe as to cause inflammation of the bones of the withers.

Treatment.—The inflammation must be subdued as soon as possible by rest, cold-water applications, followed by disinfection,

and arnica lotion swabs kept in position by a roller with gentle pressure.

Neglect of attention leads to the formation of fistulous withers. The latter disease is often incurable.

Capped Elbow

This is also known as "Shoe Boil". It is a swelling behind the elbow caused by the latter coming in contact with the heel of the shoe, or sometimes by lying on hard ground. It may occur in a single night, and be found in the morning larger than a man's fist, or the swelling may start gradually and increase in size. It does not often cause lameness, but sometimes microbes gain an entrance and matter forms. In the latter case lameness is marked, the leg is moved with great stiffness, and a swelling is found which often extends down to the knee.



Capped Elbow

Treatment.—This consists in the prevention of further injury, and for this purpose a thick pad may be girthed on to the lower part of the chest, just behind the elbows, or a thick rubber ring strapped into the hollow of the heel, or a boot placed upon the foot. It may be also advisable to shorten the heels of the shoe.

Occasionally shoeing with a bar pad is useful. If the swelling is caused by contact with the hard ground, a good bed of peat moss should be provided. If after adopting the above preventative methods the swelling is not absorbed, it is for

the owner to decide whether or no further treatment shall be tried.

If no lameness is present, and the tumour is soft and flabby it is usually better left alone; or even if it is fairly large and hard, and not too unsightly, it is wise not to interfere. When, how-

ever, it grows to large proportions, is hard and unsightly, and an operation is decided upon, the most successful is that of removing the tumour by means of an elastic ligature. This is done by cutting the hair from the pedicle or stalk of the tumour and drawing a piece of rubber cord about the thickness of a lead pencil tightly around it two or three times. This soon begins to cut its way through, and in from one to two weeks the tumour falls off. If the stalk of the tumour is large, it may be necessary to tighten the elastic occasionally. The wound that results after the tumour falls off may be treated with any of the ordinary wound dressings.

When matter forms in a capped elbow, and the swelling becomes tense and painful, it is, of course, necessary to open the abscess with a knife, and afterwards syringe out the cavity with dilute carbolic, coal-tar, chinosol, or other weak disinfectant. When there is no matter present, a capped elbow should never be opened with a knife.

Capped Hock

This is a swelling at the point of the hock. It is an effusion under the skin or an enlargement of the oil sheath. Sometimes it is an injury to the tendon which passes over this part. It is caused by external injuries, such as by kicking in the stable or in harness, or by the hocks coming in contact with any hard substance. Horses often cap their hocks in getting up or lying down. When the capping is due to injury of the tendon, overexertion is sometimes responsible, and in the latter case lameness is present. When the enlargement is due to simple effusion or distension of either of the oil sheaths; it is very rare that any lameness is caused. In the great majority of cases capped hock is not of a serious nature, and very little notice need be taken of it. It is often a guide, however, to a purchaser in indicating that the animal is a kicker.



Capped Hock

Treatment.—The swelling is not easy to reduce, and time and the prevention of further injury is the best method to adopt. The sides of the stall may therefore be padded, and a chain and log attached to the legs in an endeavour to prevent further kicking.

If the swelling is tense and inflammation is present, it may be relieved by cold-water applications as previously recommended, afterwards applying cotton wool steeped in arnica, and kept in position by a hock boot. A very old-fashioned remedy is whitening made into a paste with vinegar and smeared thickly all over the swollen parts. If the swelling does not subside, and fear is entertained that permanent enlargement will result, the hair may be taken off as closely as possible, and the parts painted with a mixture of the tincture and liniment of iodine daily until soreness prevents. If blistering is preferred, this may be done with the red ointment (biniodide of mercury).

When lameness is present, and injury to the tendon, or even the hock itself has been caused, rest, cold-water applications followed by arnica lotion swabs, must be continued until soundness is restored.

Cracked Heels and Mud Fever

These terms are used to denote two forms of practically the same disease, which is really an inflammation of the skin of the hollow of the heel and about the fetlocks.

In some horses there is a predisposition to the complaint, arising from sluggish circulation, which occurs in coarsely-bred animals. Washy bays and light-coloured chestnuts, probably white-heeled animals, are more prone to suffer than dark-heeled. Neglect and bad stable management are invariably the chief causes. The commonest cause is washing the heels with strong, irritating soaps and hot water. This alone is sufficient to cause inflammation of the skin of the heel; but when the parts are not thoroughly dried afterwards, or left uncovered, the risk is far greater. Another common cause is washing the legs immediately after a journey and when the horse is hot, and leaving them to dry of their own accord. Occasionally one finds the complaint in hairy-legged horses that have been worked on heavy, wet land. This causes irritation or abrasion of the skin, so that unless the feet are well cleansed and thoroughly dried they are very easily infected.

A common source is from the urine and other filth in which they stand, in badly-paved and dirty stables. Neglect of grooming may also be cited, as the sweat, which is of a salty nature, runs

down into the hollow of the heel, and unless it is removed it leads to disease.

Symptoms.—In cracked heel the skin becomes hot and swollen and the surface covered with a reddish-brown discharge, which afterwards dries and forms a crust.

This in time cracks and leads to the formation of various fissures. When first brought out of the stable the horse goes very stiff. This soon wears off at exercise, but occurs again after resting a short time. In mud fever the swelling may extend higher up the limb, and sometimes the lower surface of the belly becomes affected. There is heat and pain present, and the hair and even parts of the skin may fall off.

Treatment.—Prevention should be always aimed at. The legs should always be thoroughly dried after being wet; the best method is to rub them well with sawdust, peat moss, or, failing these, soft cloths or bran may be used. If they are washed, a mild soap should be used. Soft soap and other strong soaps should be avoided. If hot water is used, in addition to being dried, particularly in thin-skinned horses and those with short hair on their legs, woollen bandages should be applied, and care taken that the heels are included.

Actual treatment, for a speedy recovery, requires rest, as movement causes fresh cracks to form, and keeps up the inflammation. The affected parts must be washed with a mild soap and warm water, a weak disinfectant applied, such as Jeyes's fluid, creolin, chinosol, or any of the coal-tar products, and afterwards dried with a clean soft cloth, and a dry dressing put on of iodoform 1, boracic acid 3; or iodoform 1, tannin 3. If an ointment is preferred, 1 part of red oxide of mercury to 7 parts of vaseline or lanoline may be used, and this is best applied by smearing it on tow or cotton wool, laying it on the parts and bandaging to keep it in position.

It is important that after the first washing no further wetting of the parts must be allowed.

Simple cases generally take about a week to recover. Severe ones, in which wounds of considerable size have occurred, and where there are portions of dead tissue, take a longer period. The dead portions require removal, and very careful attention is necessary to prevent the formation of abscesses or even quittor.

Grease

This is a chronic inflammation of the skin about the heels and fetlocks.

The disease starts with a little weeping or discharge from the skin, and, if speedy attention is not given, it gradually spreads until the whole of the parts become involved in a stinking, greyish-coloured, semi-liquid discharge. In time the skin becomes greatly thickened, and fleshy-looking tumours form, varying in size from a pea to a walnut, and in number from two or three to scores. Frequently the increase in size of the fetlocks is enormous; they become two or three times their ordinary size, and covered with "raw grapes", causing a most unsightly appearance.

Treatment.—Chronic grease is practically incurable. When the "grapes" have formed, and considerable increase in the size of the limb has taken place, one can only endeavour to keep it in check and prevent the nuisance of the stench by palliative treatment. With this object in view, strong astringent lotions are indicated. A fairly effective dressing consists in 1 part of chloride of zinc to 10 parts of water. In the very early stage curative treatment is fairly hopeful. Rest is not beneficial; a dose of physic is to be recommended, and after purging has stopped a light diet and work may be continued. The weeping or desquamating parts may be washed with a solution of formalin (1 in 40), and afterwards dressed night and morning with a 1-in-20 strength of the same solution. Other lotions recommended are a 10 per cent solution of sulphate of zinc or alum.

When the discharge has existed for some little time, and perhaps one or two grapes have formed, a medicated poultice is good to clean and soothe the surface of the skin. The poultice may be made with bran or linseed, to which some powdered charcoal has been added, afterwards using a 5 per cent solution of a coal-tar disinfectant to complete it.

Thrush

This is a discharge from the cleft of the frog. It is caused by neglect of cleanliness, and allowing the horse to stand in wet, dirty stables. For this reason the hind feet are more commonly affected than the fore. Excessive paring and want of use of the frog are other responsible causes.

Treatment.—The animal must be placed under good stable management, i.e. to stand on a clean, dry floor. The frog must

be well cleansed, any ragged parts removed, and a little tow saturated with a 5-per-cent carbolic solution pushed gently down to the bottom of the cleft, afterwards filling up the latter with dry tow. This may be repeated night and morning for a couple of days, and then a little calomel may be placed at the bottom and about the cleft, and repeated in a day or so, when the cure will usually be complete. To prevent a return, good stable management and allowing the frog to exercise its proper function is necessary. Neglected thrush leads to under-run sole, and may terminate in canker.

Lameness

A good number of the causes of lameness have already been alluded to in past pages, but a few more short notes are necessary. Lameness is a symptom of pain, weakness, inability or impediment in a limb. The detection of the seat and cure of lameness is often most difficult, and even the most experienced are baffled.

It varies in degree, manifestation, and pain, according to pace and to conditions of the weather.

Predisposing causes.—These are defects in conformation. The conformation of bones is often responsible, as are those defective in structure, such as soft, small, or round bones, or those wrongly shaped. Small joints also contribute by not taking their fair share of concussion. Other defects are bent knees, knuckled fetlocks, deformed, small, or brittle feet, flat soles, badly-shaped pasterns, deficiency of muscle, slipping, sudden or too often starting and stopping, backing, unsuitable work, long journeys, badly-paved roads, immaturity, bad shoeing, allowing the shoes to remain on too long, heavy shoes, and hereditary disease.

Actual or exciting causes.—Strains, bruises, wounds, external violence, inflammation (nerves, feet, and lymphatic glands), and thrombosis (a clot of blood in a bloodvessel).

To detect lameness.—The horse should be seen at rest, and carefully watched when being turned over in the stall or backed out. He should then be walked from and to the observer, and afterwards trotted the same way. It may be also necessary to back or turn him round both ways, or to canter first and trot afterwards. When lameness of the fore limbs is suspected, the horse's head must be watched; it drops or nods with the sound limb. When the lameness is behind, the observer looks at the hips. The hip of the sound limb appears to drop lower than that of the lame leg, and if there is any nodding of the head, it occurs when the lame limb touches the ground. Where there is lameness of

both fore limbs the action is short and pattering. It is very rare for both hind limbs to be affected except in fever of the feet.

The seat of lameness.—This may be obvious, but if not, the action of the lame limb must be carefully noted. If the slightest doubt exists as to the cause, the shoe should always be removed and the foot examined.

If a negative result is obtained, the remainder of the limb must be examined carefully, each part in order, all the way up—in the fore limb, pastern, fetlock, tendons, knee, &c., until perhaps one has to fix on the elbow or shoulder by negative diagnosis, i.e. through finding no cause elsewhere. In the hind limb a similar method is adopted, and a final decision is made that the hip is affected.

Treatment.—With one or two exceptions, such as lymphangitis (known as “shake”, “weed”, “Monday morning disease”) and fever in the feet, rest is essential. It is also necessary to subdue the inflammation, and for this purpose hot- or cold-water fomentations are generally used. It is necessary to add that, when the former are used, the water should be kept hot and not allowed to become lukewarm, as it then loses its beneficial effect. The fomentations should be applied for at least one hour at a time, and practised night and morning.

Between these intervals, if the position allows, bandages may be applied with or without cotton-wool packing, kept moist with arnica, or lead and opium lotion, and other similar lotions.

After the inflammation has subsided and partial recovery made, a little strengthening liniment may be rubbed in until soundness is obtained. If the case is protracted, more severe measures are necessary, such as blistering, setoning, or firing. When the lameness is due to disease of the bones, red blister (biniodide of mercury) should be used; when due to disease of the muscles and other soft structures, black blister (cantharides) is the more useful. Setoning is performed in persistent muscular lameness, particularly of the shoulder, and firing after severe strains of the tendons and joints. It is also used to permanently strengthen a weak joint.

III. PARASITES

Although there are a great many parasites affecting the horse, only the most important can be dealt with in these pages. They may be external or internal. The external parasites are the various blood-sucking flies, which are very troublesome in hot weather; lice, which cause much irritation; and mites, which produce the manges. Internal parasites are chiefly round worms, the grubs

or bots of certain flies, and tapeworms, which are so rare as to be unworthy of consideration. Each of these groups must now receive some attention.

Blood-sucking Flies

These vary in size, colour, and structure from the smallest black gnats, which irritate the ear flaps, to the "gad" or "breeze" flies, which alight upon the thin-skinned parts of the body, such as the inside of the arms and thighs, for the purpose of engorging themselves with blood. Most of these flies know well the places best suited for their mouth parts. Thus, those with long suckers will pierce the skin anywhere, whilst the short-mouthed species naturally prefer the thin-skinned parts. Although most of these flies are found in the open in hot weather, one species very much like the house fly is very common in stables, and it is consequently called the stable fly. Animals usually show much uneasiness when they hear the buzzing of these pests, and if in the fields they try to escape by galloping. At work in the plough, or on army manoeuvres, stampedes may occur. Usually the bitten individual resorts to kicking or stamping.

Remedial measures consist in having plenty of shade in the fields, and if needs be applying a little oil and tar to the backs of the horses, to give off a smell unpleasant to the flies. At work animals may wear shades, nets, and thin cloths, or leafy branches may be fixed in their harness. Walnut trees have long been recognized as harbouring no flies, the peculiar smell they give off is thus made use of by planting them near stables, or using the leaves on animals' backs. The annoyance to sick horses in the stable is prevented by a thin cloth and sponging with weak disinfectant. Quite a number of non-biting flies deposit their eggs in wounds, so that the latter must be carefully treated in summer.

Lice

There are two or three different kinds of lice found on the horse, but they must be classed as large and small. The latter live on the dandruff and other products of the skin, and therefore do not cause much trouble. They are usually found on young animals, or mares and their foals, when they come up from grass. Affected animals usually rub a little, and seem dirty in their coats. This filth is not due to the lice, but is the reason why they are present. The little creatures may be seen actually running about in the curl of the flank and other parts of the body.

If the infection is slight, little need be done save isolation, good grooming, and disinfection of the loose box and brushes afterwards. When the parasites are very numerous the animal may require washing in a weak solution of any of the coal-tar disinfectants. In some cases, however, it may be necessary to clip. The large or large-headed louse is always troublesome to the horse harbouring it. It is a bloodsucker, and is usually found with its mouth parts firmly embedded into the skin. It does not wander aimlessly about like the small lice, and is usually found on the flank, neck, and hind quarters. It causes great irritation, and affected horses rub against their stall partitions or shafts when at work, and often bite themselves, especially when lying down. The attacks seem worse at night, and there is much stamping. This louse is most often seen in middle-aged or old horses, and is extremely difficult to get rid of. Although it may seem severe, the best thing to do, no matter what time of the year, is to clip the patient all over, taking care to burn the hair and not let it blow about, as great numbers of nits will now be seen in it. The animal should then be carefully singed. This will kill a great number of the parasites. An old and thin kitchen knife can then be passed over the body, and in this manner large numbers of nits are thereby removed. The body can then be dressed all over with a decoction of staves-acre seeds twice a week. It is most important that the legs be clipped and soaked twice a week in a tub of solution of a good coal-tar disinfectant, because this is the chief breeding ground. It is needless again to comment on isolation and disinfection of all gears and utensils.

Mange

There are three forms of this disease, and each is due to a distinct mite, all three of which are more or less like the familiar cheese mite. Two of the mites cause body mange (sarcoptic and psoroptic). These are contagious diseases, within the meaning of the Contagious Diseases of Animals Acts, and must be reported to the police. The third form, known as leg mange, is not notifiable.

Sarcoptic Mange

This usually commences on some of the under parts of the body, such as the space between the lower jaws, under the neck, the brisket, or belly, and then extends on to the back. The first sign of the disease is intense irritation, manifested by the animal licking itself and rubbing against any structures within its reach. If the withers or other affected parts are rubbed with the hand,

pleasure is shown by the animal moving the upper lip, or champing the jaws and leaning towards the person in attendance. If the irritated parts are examined, a moist scab, or dandruff matted together, will be seen. The extent of the disease varies, but if untreated, the patient will lose flesh, and in time nearly all its hair will come off, the skin ultimately becoming practically a mass of sores. As soon as an animal is noticed showing the above symptoms it should be isolated, all its harness, brushes, rugs, &c., soaked in disinfectant, and the lately occupied stall scrubbed, disinfected, and whitewashed. It would be useless to describe the treatment, as the law practically lays it down that this has to be done by a veterinary surgeon. All things considered this is to the owner's advantage. This form is very difficult; and there is a great liability to recurrence.

Psoroptic Mange

This is the common form; it occurs on the upper parts of the body, and usually commences on the neck, withers, or croup. In some cases the diseased area remains localized, closely resembling ringworm. There is a heaping up of dandruff, and so a round patch of hair sticks up. In a few rare instances a horse may be apparently all right overnight, and next morning be found with large patches of hair gone, the skin sore, and the animal very irritable. In the most usual type of the disease small spots appear to lose the hair and dandruff appears. This goes on until large areas are affected. In other respects the symptoms are the same as those described under sarcoptic mange, save perhaps that the initial irritation is a little more intense. The same remarks apply to the notification and treatment, but this form is somewhat easier to stamp out. It is a disease of winter and long coats, and in thick-skinned and dull animals may only be noticed after clipping.

Chorioptic, Symbiotic, or Leg Mange

This form chiefly affects heavy horses, and is most often seen on the hind limbs. It may, however, affect the fore limbs. Usually, the parts attacked are not much above the hocks and knees, but the parasite is sometimes found on the brisket and under the thighs. Bare patches appear, which then become covered with scales, and later, the parts from licking may appear raw. Horses with leg itch stamp violently, and are liable to injure their limbs. The best treatment to adopt is to give the legs a good washing with hot water, soap, and soda. This removes the dirt and scales, and

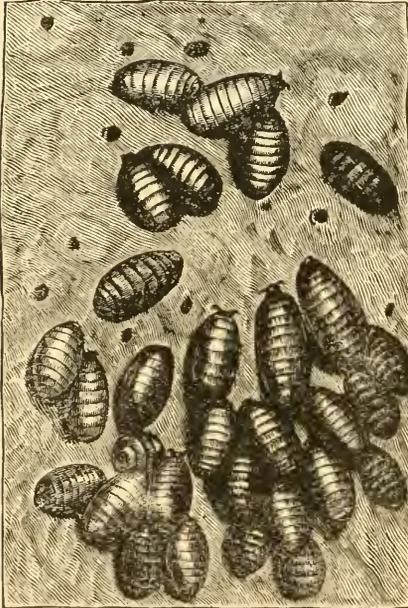
so exposes the parasites. On the second day, washing in a solution of some good coal-tar disinfectant is carried out. The third day should see the legs smeared over with a mixture of sulphur 1 part, and train oil 6 parts. It may be necessary to repeat these dressings three times to effect a complete cure. Precautions of disinfection and isolation should always be most strictly attended to.

Worms

Among the internal parasites it is necessary to consider the bot, large round, and hip or seat, palisade, and red or wire worms.

Bots

Bots are the grub stage in the life-history of the "bot fly", "horse bee", or "wasp". They are found in varying numbers, up to a hundred or so, attached to the anterior portion of the stomach. They are about $\frac{1}{2}$ in. long, and divided into segments, each of which has a row of small spines upon it. They are usually found on horses that have been to grass or open fields within the previous twelvemonths. The fly lays its eggs, usually on the hair, on the horse's fore quarters. When these hatch out irritation is caused, and the horse bites the part and so swallows the bot. The bots ultimately get fixed on to the lining membranes of the stomach, and after a stay of about ten or eleven months, pass out by the rectum in the chrysalis stage. The adult fly emerges from this later.



Larvæ of Bot Fly anchored on to mucous membrane of the stomach of the horse.

Affected animals are often said to show symptoms of indigestion, but usually nothing is noticed until the bots are passed in the dung. In some cases they have caused death by weakening the stomach wall, and so paving the way for its rupture. There is really no satisfactory treatment.

Large White Worms

These are very common, and are found either in the stomach or the first portion of the small intestine. Sometimes a horse will harbour a shovelful without showing any symptoms whatever. When full-grown they are about twice as thick and long as an ordinary pencil. The females produce eggs, which pass out with the dung, and after a few changes reach food or water and are ingested. Prevention, therefore, consists in burning all worms, and preventing dried dung from blowing into the manger or water.

The usual symptoms are unthriftiness, capricious appetite, fatigue, loss of flesh, and the passage of a worm. The common remedy is a course of bran mashes for two or three days, followed by a draught of 2 oz. of turpentine in just over 1 pt. of linseed oil given first thing in the morning on an empty stomach.

Whip or Seat Worms

These pests vary in length from about 2 in. to nearly three times that length. They are very soft and of a yellowish-white colour. The tail is thin and the head end thick, somewhat resembling a short-handled stock whip. Hence the name "whip" worm.

The natural residence seems to be the blind gut, but they are often found in the hind gut or the seat on the way to the exterior. This accounts for their second name. They do not produce any marked symptoms, but their presence is often indicated by excessive rubbing of the tail and an accumulation of yellow material round the vent. This is in reality composed of eggs, and it is said that sponging out the nose or mouth and vent with the same sponge is a means of reinfesting the animal. The usual treatment is bran mashes for two or three days, followed by a dose of physic on an empty stomach, coupled with weak but noxious enemata containing salt or quassia.

Palisade Worms

There are a few different species of these worms, but the most important is a stiff straight one, measuring from $\frac{3}{4}$ to $1\frac{1}{2}$ in. It is found attached to the lining membrane of the large intestine in very large numbers. It is one of the most important of equine parasites, and causes great losses every year. It is often associated with other worms, and especially the species next described. The damage is in some cases not appreciable for years after the animal has become infected. This will appear clearer if the life-history be related.

The eggs of the female pass out with the dung, and in pastures are, therefore, scattered all over the field in immense numbers. The eggs first hatch into a small worm, which feeds in the dung, and in time casts its skin (moult), and then develops a thick coat and becomes dormant. In this condition it can live for months, until swallowed by a horse, when it moults again, pierces the bowel lining, and becomes a full-grown worm. Now the small forms that pierce the bowel often get into the blood stream and become arrested anywhere, but usually at the junctions of important large arteries to the bowels. Here they develop and produce great bulging of the vessels, which may even cause them to burst. In any case the vessels are blocked up by the growths produced, and pieces of material get loose and thus block up other small arteries. In this way colic in old horses is sometimes caused. Further remarks will be made under the next species, as the symptoms, treatment, and prevention are similar.

Red or Wire Worms

There are also several species of these. Some are blood-stained and others are white. They vary in length from $\frac{1}{4}$ to about $\frac{3}{4}$ in. Some are as thick as darning wool, but others only the thickness of ordinary cotton. The life-history is somewhat similar to the preceding species. There is, however, no tendency to gain the blood stream. These worms are very common, and their ravages are great. They are most injurious to young animals, and many breeders have had to give up rearing foals on certain farms. Thoroughbred studs have been similarly affected. The worm is found in the large intestine, and the little abscess it produces allows the entrance of microbes. The worms themselves produce a poison which affects the blood.

The symptoms are as follows: Young horses are first noticed not to be doing well, then the coat is not shed at the right time; there is loss of flesh, increasing weakness, sometimes the stifles are put out temporarily; there may be diarrhoea, the eyes appear white, and there are all the signs of want of blood (anæmia). An examination of the dung will reveal the presence of the small red worms. When this state of affairs has been reached, and particularly if it has happened in previous years, the affected pastures must be grazed by sheep or cattle, as they are not affected by these worms. It may be limed, or better still, ploughed and put under a complete rotation of crops before being again grazed by horses. Actual treatment is not at all satisfactory. It will easily be appreciated that as

the manure contains myriads of eggs, it should be mixed with lime in the midden, or else when dung hauling is carried out the other pastures will be infected. Animals should be housed, and rugged and fed from a manger and rack, as this prevents the infection that would take place on pasture. The diet should be liberal and strengthening. As the appetite is bad, bitter and mineral tonics, such as gentian root and sulphate of iron, should be given. For the anæmia, quinine and chlorate of potash are good. Worm medicines themselves do not seem to have much effect, because the damage is already done. However, good nursing, good food, and warmth will be found to have a beneficial effect.

IV. FOALING AND THE DISEASES ATTENDANT THEREON

Foaling is the act of parturition, and signifies the birth of the foal. It is called natural when birth takes place without outside assistance, and in all cases this should be aimed for as conducive to the wellbeing of both mother and offspring. Disease in the majority of cases is caused by undue interference and a lack of attention in sanitary matters.

Pregnancy

The time during which the mare carries her young, or the period of gestation, is commonly stated to be 11 months, but it varies sometimes by a month or more; birth may take place 2 or 3 weeks prior to the time, or may be delayed until as long after, without causing any injurious effects to either mare or foal. It is generally believed by breeders to be an indication that the foal will be a male or "horse foal" if it is carried more than a few days beyond the 11 months. The duration of pregnancy may be from 300 to 360 days, but is usually from 335 to 350 days. In an article devoted to foaling and its diseases it hardly seems relative to discuss the question of the signs of pregnancy, but as in some cases confusion may occur between these and diseases of some of the abdominal organs, a few brief sentences upon the matter may not be out of place. In an ordinary way pregnancy is assumed to have commenced, when no further signs of œstrum are shown 6 weeks after the last service.

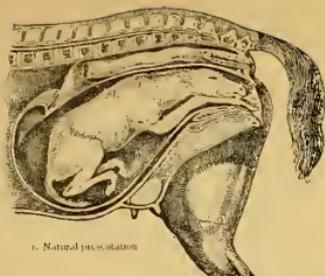
From this period it is impossible to determine with certainty whether the mare is pregnant until the 6th or 7th month, when one is enabled to form quite a decided opinion by certain signs, such as a more placid temperament, a gradual increase in weight,

and in the case of a first foal, an increase in the size of the udder, and prominence of the teats. At the 7th month definite evidence is at hand in the presence of the fœtus in the belly. This may be discovered in several ways, viz. by passing the well-oiled arm into the rectum as far as it will go, when the various parts of the fœtus may be examined, and its movements felt. "Knocking the foal" from the outside is another method. This is done by the observer standing at the side of the mare, facing her hind quarters, with his left hand on her back and his right at the bottom of the left flank, about a hand's breadth in front, and on a level with the stifle. In this position a solid body will be found, which, when pushed, will recede, but return again and hit the hand in a second or so.

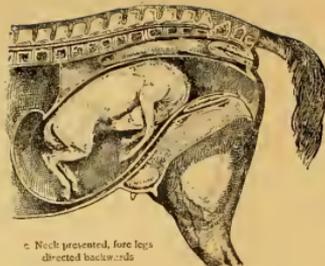
At a later period the movements of the foal can frequently be seen by the careful observer when the mare is at rest, but sometimes they are so slight as to be unobservable. In the latter case it is a common custom to give the mare a drink of cold water, the theory being that the shock will cause the foal to move. There is no harm in this method if the mare has been habitually drinking cold water, but if, as is very frequently the case, she is overheated, made thirsty, and then given a large drink, danger of abortion or "picking the foal" may arise. Another old-fashioned and useless method to determine the presence of a foal is to pour cold water into the mare's ear. It is said that when pregnant she will shake her head only, so as not to disturb the foal; but if not, the whole body will be shaken, on the supposition that as no foal is present no harm can ensue.

Feeding and Exercise During Pregnancy

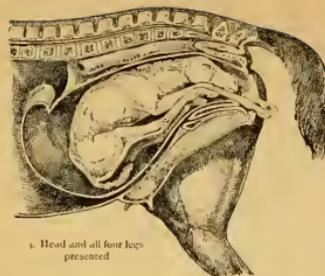
During pregnancy the mare may with advantage be kept under ordinary conditions, as so doing will go a long way to ensure a natural and easy foaling. As far as feeding is concerned, she may be kept on an ordinary diet, so long as it does not include a large quantity of maize, until a few weeks before her time is up, when the diet should be light and laxative. Bran and oats, the latter macerated in cold water for twelve hours without being crushed, and chopped hay, make an excellent and easily-digested diet. Mares kept entirely for breeding purposes, and which are not worked at all, may be allowed to remain at grass until a few days before they are due. If the pasture is good and abundant they will require little more, or in any case a small quantity of bran and steeped oats will suffice. Work may be continued right up to foaling time, so long as care is taken that it is not of a strenuous



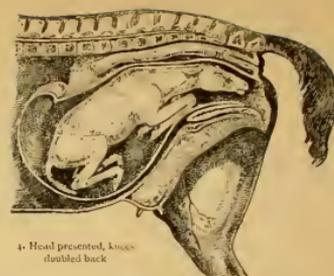
1. Natural presentation



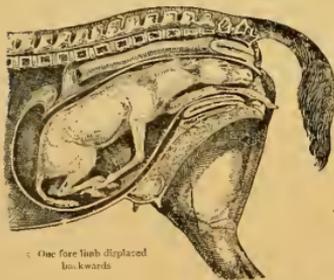
2. Neck presented, fore legs directed backwards



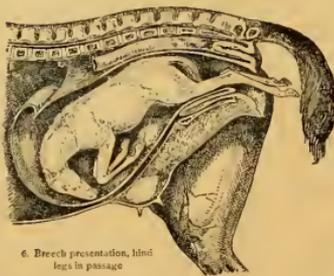
3. Head and all four legs presented



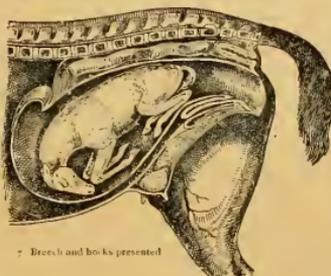
4. Head presented, knees doubled back



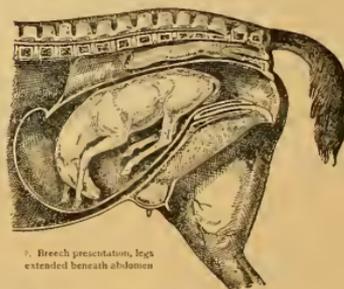
5. One fore limb displaced backwards



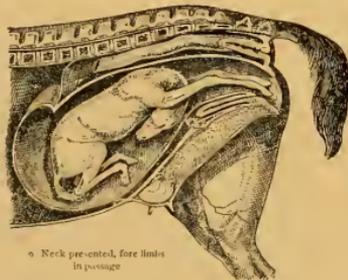
6. Breech presentation, hind legs in passage



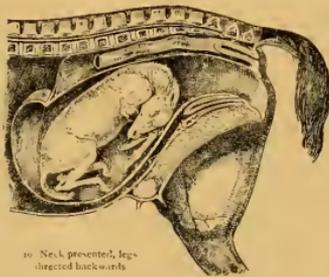
7. Breech and hocks presented



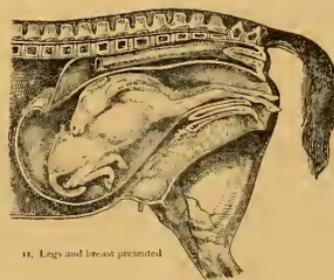
8. Breech presentation, legs extended beneath abdomen



9. Neck presented, fore limbs in passage



10. Neck presented, legs directed backwards



11. Legs and breast presented

nature. They should not be driven too far or very fast, and cart mares should not be subjected to overstrain in the way of heavy loads, working on heavy land, or in shafts where they are likely to knock the sides of the abdomen, especially if the ground is uneven. Judiciously worked, she is much more likely to foal at her proper time and in a natural manner than the pampered animal which has been kept in a loose box. In some parts of the country, where the mare has been rested for a month or so prior to the date of foaling, and the time is exceeded, she is put into the plough for an hour or so, and this frequently brings about parturition without doing the least harm.

Preparation of Foaling Box

As the time approaches when the mare is due to foal, preparation must be made to ensure that birth takes place under the most advantageous circumstances, and every effort must be made to guard against disease. The majority of diseases which occur as the result of foaling are, as already stated, due to lack of attention in sanitary measures, and can be easily obviated. A loose box large enough for the mare to foal without running any risk of injury, or delaying birth by the offspring coming in contact with the walls, should be prepared.

It will require to be cleansed and disinfected all over in the most thorough manner, and afterwards lime-washed; no parts should be missed. If it contains a manger, this should be well scrubbed and disinfected, and finished with boiling water. A good bed should then be provided of clean straw, not too long or the movements of the foal will be hampered. A good plan is to chop a bundle in two with a hay knife. If a choice can be made it is well to select a box as near as possible to the accustomed habitation of the mare, as if removed to remote quarters she is quite likely to fret and become nervous.

Natural Foaling

About the time the mare is due to foal, it is wise to keep her under constant observation, but this should be done in such a manner that she is unaware of the fact, or it is quite likely to upset her. It is best done by means of a small sliding panel in the box door. When the labour pains commence, she invariably lies down, and in normal parturition the foal is usually born in from ten to fifteen minutes. If the attendant is satisfied that everything is progressing satisfactorily, no interference is necessary or desirable; his presence will be resented and birth is quite likely

to be delayed. On the other hand, if the foal is not expelled within a short time, the person in charge, who should be well known to the patient, may very quietly make an examination, to see that the foetus is in a proper position to be born, and that it is not in danger of suffocation by the nostrils being covered by the foetal membranes, an accumulation of mucus, or other discharge. If the hand has to be inserted into the passage, it is absolutely essential that it should be clean and disinfected. The hands should be well washed and scrubbed with soap and water, then disinfected, and not allowed to come in contact with anything else prior to examination.

In natural birth the fore legs of the foal, with the head lying between them, are presented, and if these are in evidence a little more time than usual may be allowed, especially in the case of a first foal, which takes longer on account of the maternal organs not having been previously dilated. If suspicion is aroused that there is some obstruction, the passage must be carefully explored. It may be that a limb has become jammed below the brim of the pelvic basin. This can soon be put right, whereas if delay occurs, serious consequences will result. In any case, the foal will soon perish. Should the examination reveal any abnormal position that cannot very easily be adjusted, the veterinary surgeon must be sent for immediately. Any unskilled interference will complicate affairs, the labour pains will weaken, eventually cease, and the longer birth is delayed the more difficult will it be to accomplish.

After the birth, both mother and foal usually lie for half an hour or so, until the former has recovered from the exhaustion attendant upon her efforts. She will then rise and commence to mother her foal by licking it all over until it is dry, or if, as is rarely the case, she does not give it attention, an effort must be made to induce her to do so. It may be sprinkled with salt and drawn up to her head; she will generally commence her duties when she finds it being interfered with. The attendants in this case must be careful of themselves. Many mares will resent human interference in a marked fashion, and in their efforts to protect their young, be liable to injure either it or any persons approaching. The chief point is to allow time, and use discretion. If the mare is over-exhausted or excited when she gets up, half a gallon of warm gruel with a tumblerful of whisky in it may be administered. In any case she may have a drink of warm gruel; it will soothe, and distract her attention momentarily from the foal, which may then be briefly examined. If

labour has been very painful, the mare may have sweated considerably. If so, she should be whisked until dry, and perhaps rugged up for a time to prevent chill, &c. The hind legs, the parts under her tail, the udder, and all parts soiled with discharge must be sponged with a weak disinfectant. For this, chinosol is very good—one 15-gr. tablet to 1 qt. of water—as it is not sticky, and has not the penetrating odour of the coal-tar disinfectants. The cleanliness of the box requires attention; if the mare has cleansed (i.e. has parted with the foetal membranes, commonly called the foal bag), they should be moved as soon as possible and buried deeply enough to prevent their being unearthed by pigs or dogs. All soiled litter must be taken away and the bed remade.

In some localities it is the custom to leave the membranes in which the foal has been born in the box, to see if the mare will eat them, as it is believed they cause a laxative and beneficial action upon the bowels. This procedure is entirely opposed to sanitary methods, and should always be condemned. After the foal has been born there is a slight discharge from the genital passage of the dam, which does not last more than a day or so. It is quite natural, and unless it increases in quantity after the first day and begins to smell badly, the only attention necessary is to keep the parts sponged occasionally with the chinosol solution.

Care of the Foal

The first care must be given to the nostrils, to see that they are not covered by the foetal membranes, or plugged by discharges. If the foaling period has been prolonged, and partial suffocation has occurred, so that breathing is almost or entirely suspended, every effort must be made to induce reanimation. The head may be douched with cold water, the body flipped with a wet towel, the fore limbs moved in pump-handle fashion, in imitation of the respiratory movements, or air blown into the lungs with a pair of bellows. An examination is also necessary to see that all the other openings of the body are free, as it is occasionally required to perform an operation. Having been satisfied that everything is satisfactory, Nature may be left to itself. The foal may be left to lie quietly until the mother rises, when, if she does not commence to dry it by licking, this may be done by wisping.

Opinions differ as to the treatment of the navel cord, or to give its common name, the "foal string". Some assert that it should always be tied, from $1\frac{1}{2}$ to 2 in. from the belly, and then

cut, or tied in this position, and again 1 in. farther away, and cut between the knots. Others are emphatic that it is best left to rupture of its own accord, and this will occur when either foal or dam begin to move about. The rupture takes place in the exact part that Nature intended it to do. Without going into details of physiology and anatomy it is impossible to convey to the lay reader a knowledge of the actions of the parts concerned; but it may be taken as a fact, that without tying and with the natural rupture, subject to proper antiseptic precautions, there is no danger of bleeding or infection, and in the end a quicker and more satisfactory result may be obtained. In particular, the end attached to the belly dries up and drops off in two or three days, so that the risk of infection, which is the chief danger, is shortened. When the navel string is tied and cut it is imperative that every antiseptic precaution be taken, a piece of soft, white string must be thoroughly soaked in a 5 per cent carbolic acid or chinosol solution before being applied, the hands well washed and disinfected, the navel string disinfected, and the knife or scissors made antiseptic. It is from neglect of these precautions that the great majority of cases of "navel ill" or "joint evil" arise. In whatever manner the cord is divided, an antiseptic powder must be immediately applied to the end and repeated frequently. By so doing the chances of infection through the navel are reduced to a minimum. An excellent dressing is made of equal parts of boracic acid, tannin, and iodoform.

When the foal attempts to rise it should still be left alone. It will generally soon find its feet, and by instinct seek the teat of the mother. If, however, it is unable to do so in an hour or so, the mare may be fastened and assistance given. Sometimes it is too weak to suck, in which case some milk may be drawn from the mare into a warm saucer, or put into a feeding bottle and given in this way until it attains the strength to suck. Soon after having the first drink of mother's milk, prompt movement of the bowels should be made; the evacuation is usually black and abundant, and is generally stated to be caused by the character of the early maternal supply. When constipation and straining occur it is necessary to relieve it as quickly as possible, and for this purpose enemas of warm soapy water or two tablespoonfuls of glycerine to 1 pt. of water act well. They are much better than giving castor oil or other laxative medicines; the latter take too long to operate, and often induce further constipation after having had their immediate effect.

A very oldfashioned remedy, particularly in the north of

England, consists in inserting a tallow candle previously well oiled up the rectum, where it quickly melts and has the desired effect.

While the supply of milk must be liberal it must not be too abundant or digestive troubles will be liable to ensue. It is sometimes, therefore, necessary to restrict the supply by drawing some away, after the foal has had what may be considered a plentiful supply. For the first few days both mare and foal may be left in the box, but after this it is necessary that proper exercise be obtained. The best method is to turn them out for an hour or so in the middle of the first sunny day. This period may be lengthened daily, and after a week from the first turning out, if the weather is not severe, they may be left out altogether. It is advantageous to have an open box in the field where shelter may be obtained should any sudden change occur. If the mare is required for work, she may be allowed light duties, in a week's time, and failing other exercise, will benefit by it. The foal may be allowed to follow, and this course will be much better than keeping it shut up in a loose box. It is, however, necessary to avoid hard work, as the mother has to spend a good part of her strength in supplying nourishment to the foal; nor must she be overheated, as it will affect the condition of the milk, which will be inimical to the wellbeing of the foal. If, on being first turned into the field, there are other horses present, it is wise to watch for a time, as, until the mare gets accustomed to them, she is likely to injure them should they come near the foal.

Some Accidents and Diseases accompanying Foaling

In previous remarks it has been indicated how accidents and diseases may as far as possible be avoided, but notwithstanding every precaution, they will sometimes occur. Some are of a very simple nature and easily put right; while others are serious, and unless prompt and skilled attention is given soon, may terminate fatally. It is difficult to draw the line between the two, or to explain how what appears to be a simple ailment may, by want of attention, soon become a dangerous disease. Whenever any abnormal condition exists that is not thoroughly understood, veterinary aid should at once be obtained. The animals will then get the best chance, and it will also save expense to the owner. The mortality resulting from accidents and diseases accompanying foaling is greatly increased by unskilled interference, which should never be countenanced. It is impossible in the

space allotted to this article to deal more than briefly with a few of the common abnormalities.

Retention of the Afterbirth

This is commonly spoken of as the mare not having "cleansed", and is due to the membranes which contained the foal not having been expelled from the foal bed. As a rule these membranes come away very shortly after the foal is delivered, particularly if the mare has gone her full time, but should they not do so, it is essential that they be removed quickly. Some breeders, however, object to their removal, and insist that it is better to wait until they drop of their own accord. This course is most dangerous, and although it is quite possible for them to remain for a day, or even more, without harm ensuing, the risk of womb trouble by septic infection is very great. The practice of to-day demands that they be taken away within an hour or two of birth, and this should only be done by a person of experience, as it is very important that they be removed *entirely*, for should a small piece be left attached to the womb, it will constitute a dangerous source of disease. It is necessary, then, to see that the foal bed is complete after removal. The main object throughout is to prevent infection of the womb, and with this object in view it is better, if circumstances allow, not to insert the hand into this organ, but to pull away the hanging mass by gentle traction, starting at the borders and gradually detaching it. Should a piece unfortunately become torn off and left inside, it will then be necessary to syringe abundantly and thoroughly the womb and passages, with a solution of 1 per cent carbolic acid, or 15 gr. tablet of chinisol in 2 qt. of water. Thoroughly cleanse and disinfect the hand, and oil it with 2 per cent carbolic oil, before it is inserted and the attached piece removed. The womb must again be well syringed afterwards, when as a rule nothing further is required, although should there be any considerable discharge the syringing may be repeated when necessary.

In cases where the membranes, or pieces of them, have been retained too long, and infection has occurred, the womb becomes partially filled with a putrid, thick liquid, which comes from the genital passages as a stinking reddish-brown discharge. This condition signifies that there is inflammation of the lining membrane of the womb, and this will as a rule be speedily followed or accompanied by inflammation of the feet. It is most serious, and

if not very soon relieved death will ensue. Some risk is also run by the operator himself by inserting his hand and arm into the decomposing fluids, as they are highly infectious, and blood poisoning must be guarded against by thoroughly syringing out the parts before doing so. In any case where there is an increasing odorous discharge from the genital passages after the first day, veterinary advice should at once be sought.

Inflammation of the Womb

This condition occurs from three to ten days after foaling. The chief causes are retention of the afterbirth; injury to the womb causing wounds; infection from dirty hands or instruments introduced during foaling; the presence of a dead, decomposing fœtus; chemical irritation from syringing with too strong or caustic liquids; want of sanitary precautions, such as a dirty foaling-box, or want of cleanliness in the attendants at foaling time; and lastly, cold, which no doubt lowers the general vitality, and does not enable the animal to resist disease as she would normally. There are several forms of the disease, but as the varieties would not be intelligible to the lay reader, they may be discussed under one heading.

Symptoms.—These are stiffness of movement, shivering, staring coat, loss of appetite, the milk is diminished, rise of temperature, increased pulse, blowing, in which the respirations are shallow, infection of the mucous membranes; in fact, all the signs of fever are exhibited. The characteristic symptoms are a discharge from the vaginal passage, which at first is usually thin and pale pink in colour; in the later stages it becomes thicker, darker, and evil smelling. The genital organs are swollen and inflamed, and pressure across the loins causes pain. Very frequently the mare will not lie down; if she does it may be considered favourable. An examination of the womb, through the vaginal passage by hand, causes groaning and pain, and reveals a thickened and enlarged organ partially filled with a stinking fluid. Fever in the feet very commonly accompanies this disease. In the last stages the swollen genital organs become cold and clammy, the discharge is most obnoxious, the temperature falls, and death is usually preceded by convulsions.

Treatment.—Prevention should always be aimed for, and foaling carried out under strictly antiseptic and sanitary conditions. With these precautions it will be a very rare disease. When it occurs, the veterinary surgeon should be summoned at the earliest symptom,

and then there will be a chance of recovery. The womb requires to be explored for any remains of the afterbirth, and well irrigated with a warm antiseptic solution, such as 1 per cent carbolic acid, or, preferably perhaps for a non-practitioner, 5 per cent boracic acid, or 1 per cent permanganate of potash, &c. This may be continued until the solution is returned practically unaltered. A bucketful or more may be necessary before this is achieved, and as the walls of the womb when inflamed do not contract, the fluid remaining has to be removed by rubber siphon tubes. If the mare will eat, her strength may be maintained by nourishing and sloppy food, such as milk, with beaten-up eggs. Stimulants are also necessary, such as whisky, brandy, or sweet spirits of nitre; 2 oz. of either of the former or 1 oz. of the latter may be given every hour for the first day. As regards other medicines, the following is good made into a ball and given three times daily:—

2 dr. sulphate of quinine,
1 ,, powdered nux vomica,
2 ,, chlorate of potash.

The bowels also require regulating; a purgative may be necessary, and a dose of aloes given. Two ounces of Epsom salts in a little water every morning is very useful.

Inflammation of the Vagina

This is the term applied to inflammation of the passages through which the foal passes after leaving the womb. The disease often accompanies inflammation of the womb. When it occurs separately it is generally caused by difficult labour, in which the parts have been subjected to violent usage and become lacerated or torn either by parts of the fœtus or the use of instruments, ropes, &c.

Symptoms.—The lips of the vulva or “wearing” are swollen, and an examination of their lining membrane and that of the passage reveals heat, swelling, and redness, which may be all shades to nearly black. In the early stages the lining membranes are very dry, but in two or three days a discharge begins which thickens as the disease advances, and if not checked will excoriate the surrounding parts. More or less increase of temperature and pulse rate will be found, as well as constipation, and pain on micturition. Neglect of the complaint is liable to result in bad ulceration, followed by mortification.

Treatment.—Sloppy and laxative diet, attention to the bowels, and careful antiseptic treatment. The parts must be kept very clean, syringed, and dressed with weak disinfectants, such as chino-

sol—one 15-gr. tablet to 2 qt. of water, 2 per cent carbolic acid solution, &c.

Leucorrhœa

This is commonly known as the "whites". It is a chronic discharge from the vagina. When white it has little smell, but when dark or blood-stained it is most unpleasant.

Causes.—It results from chronic inflammation of the womb or foal passages, or in some cases debility.

Treatment.—Thorough cleanliness, and disinfection of *all* the surrounding parts, with careful syringing night and morning with a solution of sulphate of zinc or Condy's fluid. The diet must be good, exercise suitable, and mineral tonics given, such as—

2 dr. citrate of quinine and iron,
 ½ „ powdered nuxvomica,
 2 „ powdered gentian,

made into a ball and given three times daily, or tonic powders may be tried in the food.

Inflammation of the Feet

This very frequently accompanies inflammation of the womb or retention of the afterbirth, and tends to recover as the general health is restored. In protracted cases there is danger of dropped soles and the formation of pus in the hoof.

Symptoms.—Heat round the coronets and throbbing of the neighbouring bloodvessels, lameness which may be very marked, and the mare afraid to move. An attempt to pick up a foot will be resisted, as the mare will be afraid to bear any extra weight upon the other limb. If absolutely forced to move, she will go on her heels and in a very gingerly manner.

Treatment.—Firstly, ascertain if there is any womb trouble, and if so, that is the most important consideration. The shoes must be removed and cold applications applied continually. If the mare can stand she may do so in a bath with a soft bottom, such as sand, sawdust, &c., and the water a foot deep. Poultices must be kept cold, and if ice is available the feet may be packed round with it. It is sometimes advisable to give a dose of aloes. The udder should be kept empty and the milk destroyed, although after the first day there is practically no secretion. The foal requires to be hand fed.

Inflammation of the Udder

This is a comparatively rare disease in the mare.

Causes.—An over-abundant supply of milk prior to, or after foaling (it might be called over-stocking), lying on cold, wet, or hard ground, injuries to, and obstruction in the teats.

Symptoms.—Swelling and enlargement of the udder, in which the skin is tense and shining, and alteration in the milk, which, on being drawn, will be found clotted and blood-stained. There is also pain.

Treatment.—The udder requires to be gently stripped several times a day, so that it may be kept as empty as possible. The swelling may be reduced by the continued application of hot water, regulating the heat by the bare elbow of the attendant. Poppy heads boiled in the water also greatly assist in relieving the pain. The more hot applications are persisted in the quicker will be the recovery. They should be continual; but if this is not possible three or four times a day, for no less than an hour at a time, should be the least allowed. The udder may be afterwards dried, and a little arnica and opium lotion gently applied (1 oz. of each of the tinctures to 1 pt. of water). Sometimes an abscess may form in the gland, in which case every effort must be made to bring it to a head as soon as possible. The hot water will help as much as anything. When a wound occurs mortification may follow; and it is very essential whenever the skin is ruptured to practise strict hygiene. For this purpose the loose box must be kept scrupulously clean, the floor disinfected, and the animal not allowed to lie down.

Hæmorrhage of the Womb

In the human subject this is known as flooding. It is not common in the mare, and is due to want of contraction of the womb, or laceration of its walls. The latter is often caused by a violent or unskilful removal of the fetal membranes.

Symptoms.—One might expect always to find an escape of blood from the vaginal passage, but this is not constant. An enormous quantity can be retained by the dilated womb, and the first symptoms may be trembling, anxiety, a feeble pulse, pallid membranes, coldness of the body and extremities, and finally staggering and death by convulsions.

Treatment.—The speedy arrest of the escaping blood by every possible means. Cold water across the loins and cold injections into the womb. The injections must be antiseptic, and for this

purpose a 15-gr. tablet of chinosol to 2 qt. of water is excellent; a bucketful may be necessary. Cold sponges soaked in the same solution and placed in the womb sometimes succeed. Failing this, equal parts of vinegar and water may be tried, and some practitioners rely upon a gentle stimulation of the walls of the womb by the hand, in the hope that it will cause contraction. In any case it is necessary to immediately remove any retained membranes or the walls will not contract. Internally various drugs may be administered, such as perchloride of iron, laudanum, &c., but 3 oz. of turpentine given in 1 qt. of milk, with half a dozen eggs beaten up, are as good as anything.

Inversion of the Womb

This is commonly known as "throwing down the foal bed", or "dropping out the foal bed". It is caused by overstraining during and after the birth of the foal.

Symptoms.—The womb hangs from the vulva (lips of the genital passage) as a huge pear-shaped mass, and may reach down to the hocks. When first thrown out it is red in colour, but if it is allowed to hang becomes darker, and eventually nearly black; it also becomes congested and swollen.

Treatment.—The veterinary surgeon must be sent for immediately, as very great care and skill are required. In the meantime, however, the owner can help very much by common sense and judicious management. The weight should be relieved at once by taking a clean sheet (linen preferred) soaked in a warm antiseptic chinosol solution (or 2 per cent carbolic), and the displaced womb supported in it by two men, one on either side. It may then be sponged with a similar warm solution, covered with another antiseptic sheet, and most carefully protected from injury. In some instances the organ undergoes such changes that it is not possible or advisable to return it, in which case amputation is necessary. This operation is accompanied by a very high mortality.

When the womb has been replaced, everything must be done to help its retention. For this purpose an endeavour must be made to prevent straining, and a dose of opium or other sedative is indicated. It may also be syringed with a 1 per cent solution of warm carbolic acid solution, which allays irritation. The hind parts must be raised and kept higher, so that gravitation may assist. Finally, one has to guard against it being again thrown out. Various mechanical methods are adopted for this purpose; they consist of the truss, pessary, and the suture or clam.

The *Truss* may be made out of a pair of plough reins, previously soaked in disinfectant. Two loops are then made in the middle; the tail passes through one, the other encloses the vaginal entrance, limiting its opening and pressing upon it so that the womb cannot be forced out. A collar or halter is put on the mare's neck, and the ends of the rope passed between the hind legs and along the top of the back, and fastened to the collar.

The *Pessary* may be made of a variety of articles, and consist of a stick $1\frac{1}{2}$ to 2 ft. long, with a soft pad on the end; or a large champagne or wine bottle; or a pig's bladder, afterwards partially filled with water. Any of these are inserted into the womb and kept in position by sticks, which again are maintained in place by bandages. Their disadvantage consists of the risk that is run of infection of the womb, as it cannot close while they are in position.

Sutures consist of strong stitches of cord, silk, or white-metal wire passed through the lips of the vulva, or through the skin from the point of the hip. No more than one or two of the former are required, but they must be inserted deeply or they will be torn out should the straining be at all powerful. If the hip stitches are used, about half a dozen may be passed from side to side, covering the vulva in such a manner that the womb cannot pass through.

Some of the diseases to which foals are subject may be now briefly described.

Inflammation of the Navel

Other names are applied to this disease, such as "joint ill", "navel ill", blood poisoning, &c. The disease is invariably caused by lack of attention, want of cleanliness, or unskilful treatment of the navel at birth. Prevention is essential, as when contracted it is extremely fatal. The mortality is very high, at least 90 per cent, and of the very small number of cases which recover the animals are usually of little value, as more or less deformity results.

It will be evident, then, that every precaution must be taken to prevent the navel from infection at birth; the foaling box and bedding need to be scrupulously clean, and the floor covered with powdered disinfectant. A little expense and extra care is much better than throwing away the cost of months of time in patient waiting, limited work of the mare, service fee, and possibly a future champion in the foal. If the navel string has been allowed to rupture of its own accord, the powder previously mentioned should be kept in readiness and frequently applied, as it is necessary to remember that the mare, unlike most other animals, does not, as a

rule, lick the navel of her progeny. The cleansing of the navel by the tongue of the mother, although not appearing to be a sanitary measure, helps greatly to protect the young from infection. When the cord is tied, which method the writer does not advocate, the string or tape used for the purpose should be thoroughly soaked in some disinfectant, and both the navel string and the hands washed and disinfected as well. Carried out in this manner, and with antiseptic after treatment, navel ill will be very rare.

Symptoms.—Soon after birth, either the same or the following day, the skin and parts around the navel become swollen, red, and present a glistening appearance, and there is a thin discharge from the end of the navel string, which may also contain urine.

The disease is more favourable when the swellings around the part are considerable, and when there is a tendency to the speedy formation of abscesses confined to the neighbourhood of the navel. In such a case very little change in the general health of the foal may be noticed; it is not quite as hearty as it should be, and is perhaps slightly stiff. Unfortunately, however, the above state of affairs is not often so. The microbes get into the blood stream, which becomes infected, and great disturbance of the system results. The temperature and pulse increase, there is a refusal to suck, constipation or diarrhœa may be present; the eyes are sunken, and the coat staring and dull. In other cases the foal apparently progresses satisfactorily for several days, when all at once it is found to be very lame, leading one to conclude that some injury has been sustained. The lameness is more common in the hind limbs, and generally affects either the stifle or the hock, but any joint may occasionally suffer. Several joints may be affected at the same time. The inflammation of the joints may take the form of a swelling with heat and pain only; or abscesses may form, which in time rupture and discharge matter mixed with joint-oil. These affections of the limbs are known as "joint ill" or "joint evil", and are entirely due to the infection from the navel getting into the system. Sometimes abscesses form in the lungs or almost any organ of the body, all of them originating from the same cause.

Treatment.—As the disease is of such a serious nature, treatment cannot, of course, be attempted by any but the professional man. He will immediately pay attention to the navel, which requires strict antiseptic treatment. At the same time it will be necessary to administer antiseptics internally, in fairly large and frequent doses, to prevent, or, if it has already occurred, endeavour to counteract the poisonous material in the system. For this purpose quinine, carbolic acid, and salicylate of soda are to be

recommended. Constipation may be overcome by a tablespoonful or two of castor oil, and the strength must be maintained in every way possible. The mother's milk should be drawn and administered in small and frequent doses, and, in addition, an egg beaten up with a tablespoonful each of brandy and port wine may be given every three hours. It must not be overlooked that the udder of the mare will also require attention, or it will become overstocked. In the hope of recovery for the foal it should be partially stripped hourly.

White Scour

This is an infectious diarrhœa, due to the presence of a microbe in the digestive tract.

Symptoms.—The purging sets in from two or three days to a week after birth; the fæces, which are expelled with great force, are of a dirty-white or yellowish-grey colour, with a very fœtid odour, and of a sticky nature, so that the tail and hind parts generally become soiled and coated with them. The disease is also accompanied by violent straining, signs of abdominal pain, and rapid emaciation; the eyes become dull and sunken, and great weakness ensues.

Treatment.—As the disease is undoubtedly of an infectious nature, strict cleanliness and general hygiene for the young animal are to be observed as the best preventive. If the diarrhœa occurs in the foaling shed, one cannot insist too strongly upon disinfection. The floors and walls must be scraped and thoroughly disinfected with strong carbolic or chloride of lime. All litter should be burnt, or the disease will be communicable to any other foal coming in contact with the infected material. The mare also requires to be washed and disinfected. The curative treatment consists in removing the cause and allaying the irritation in the bowel. For this purpose a tablespoonful of castor oil may be given. Other remedies are an egg beaten up with the shell, and repeated at two or three hours interval; or two ounces of whisky or a large tablespoonful of best brandy and port wine, with a small teaspoonful of ginger, given every four hours in a little starch or flour gruel. This treatment, although apparently simple, has as quick and good an effect as giving a variety of drugs. The foal must be kept quiet and comfortable, and any soiled parts of the body cleansed, and the surroundings made sanitary.

Diarrhœa

Simple diarrhœa may be due to a variety of causes, the chief of which are improper feeding. In a secondary degree, cold and wet may be also cited. Sometimes the mare has an over-abundant supply of milk, and the foal will engorge itself; or the mare will perhaps be taken away, and it will not get its regular allowance, thus again running the risk of engorgement. At other times, the mare will be worked and allowed to come in sweating, or be worked without a sufficiently nourishing diet, and the milk will be altered in quality. Again, improper feeding takes place when the foal is allowed a diet which it is incapable of digesting at so early an age, in the shape of too large quantities of hay, oats, or other corn feeds; or when through hunger or depraved appetite the straw bedding is eaten. The health of the mother is also an important factor, and any unusual departure from it will affect her milk, and consequently be unfavourable to her progeny.

Treatment.—The simpler the better. An egg beaten up with the shell, and repeated in three hours if necessary, often has the desired effect; or it may be followed by a little ginger in the brandy and port wine, with a little flour or starch gruel. A dose of castor oil may be necessary.

Constipation

This has been already briefly alluded to in previous pages, and the methods recommended should be first of all tried. If the enemas fail, a purgative is necessary, and for this purpose 2 oz. of castor oil, or 4 oz. of olive oil, or raw linseed oil may be given. If colic is present, the pain may be relieved by 15-drop doses of chlorodyne, given every three hours.

V. SHOEING AND ITS ACCOMPANYING DISEASES

In considering the diseases due to shoeing, either by bad workmanship or direct injury, it is necessary to briefly glance at the structure of the horny part of the foot. This consists of three distinct parts, which may be separated from each other by soaking the dead foot for a fortnight or so in water. They consist of: (1) The *wall*, which is the part seen when the foot is at rest upon the ground, forming its front and sides. It grows from a sensitive elastic band which is stretched round the top of the hoof at the coronet, where the skin and horn meet. Any injury to this secret-

ing band will, therefore, interfere with the growth of the wall below it. At the heels the wall, now known as the bars, makes a half-circle turn and is reflected inwardly on the ground surface, embracing a portion of the sole, and running down the sides of the frog. (2) The *sole*, which forms the greater portion of the floor of the foot. In the hinder portion it shows a triangular cleft in which the frog is inserted. (3) The *frog* completes the floor of the foot. It is triangular in shape, and divided longitudinally into two portions by a fissure known as the *cleft*. On each side there is a fissure which separates it from the bars. It is an elastic structure, and its purpose is to prevent concussion and enable the foot to take a firm grip upon the ground; the cleft and fissure enable expansion to take place without injuring the sensitive part inside, or by unduly forcing apart the sides of the foot, which would otherwise happen when it is upon the ground and bearing the horse's weight. Underneath the wall, and above the sole and frog, the foot is composed of dense layers of fibrous tissue finely interlaced with bloodvessels and nerves; it is commonly known as the "quick", and is extremely sensitive. Any injury to it causes very great pain.

The wall, sole, frog, and other sensitive membranes are all solidly welded together and take their part in bearing the weight of the body. The wall, or bars, of the hoof grows downwards at the rate of about an inch in three months, and apparently grows more quickly at the toe, on account of the horn fibres having an oblique direction. The sole does not grow as quickly as the wall, and appears to detach the old horn by throwing it off in dry flakes. The frog, when allowed to share its burden of weight, wears off, but if raised from the ground and thrown out of function, it more or less shrivels up.

Preparation of the Foot

Having briefly explained the structure of the foot, we may now consider how to prepare it to receive the shoe for the full benefit of the horse, and so that no ill effects may follow.

The proper bearing surface is the rim of the wall, that part of the sole immediately abutting thereon, and the bars. These parts should each take a perfectly level bearing upon the shoe, and at the same time the frog should just come in contact with the ground. To bring this about it is necessary to lower the wall until it reaches the level of the natural growth of the sole. In a foot considerably overgrown this is usually done with a toe-knife, but the final leveling should be made with a rasp, or one may find that the knife has taken too much away in a particular part, which will necessitate

HORSE SHOES



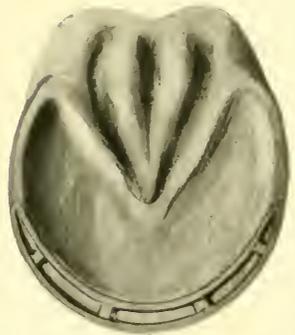
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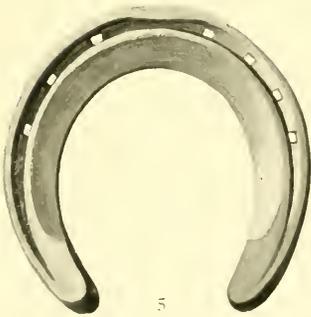
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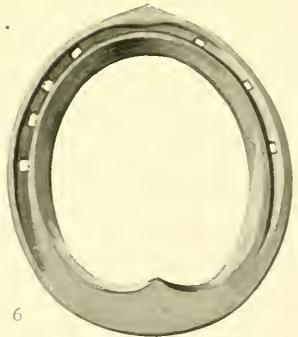
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1. Stamped fore shoe for cart horse for farm work. 2. Hind shoe for cart horse for town work. 3. Hoof prepared for Charlier tip. 4. Charlier tip applied. 5. Fullered fore shoe dished in ground surface for carriage horse. 6. Concave bar fore shoe for hunter

either the over-lowering of the wall and cutting away the sole, or the application of an unevenly-fitting shoe. The sole requires little preparation, and only the loose, overgrown parts should be removed. The paring-out and hollowing that so frequently takes place should never be allowed; it weakens the hoof generally and allows a tendency of the walls being forced apart.

A little special attention is necessary to ensure that the small portion bearing upon the shoe is perfectly level with the wall, and that sufficient horn is removed in the angle between the wall and bars so that it will not touch the shoe, otherwise corns will soon result. The bars need only to be made level with the wall of the heel; on no account should they be cut away or reduced, as is frequently done to give what is called an open appearance to the foot, and so make the heels appear unduly wide. It is one of the worst evils of shoeing and a common cause of contracted foot. The frog must not be touched, as it will have been reduced to its natural proportions by wear. When finished and ready for the shoe, all the parts enumerated should have a perfectly level bearing surface; each side of the foot should be exactly the same height, and the toe and heel in such proportion as to ensure a natural position to the limb.

The Shoe

Space forbids a long discussion on the different kinds of shoes and the various methods of application; a volume might easily be written upon the subject. The present article simply deals with the broad principles which are to be adopted.

The first consideration, as conducive to the wellbeing of the horse and the prevention of disease, is to make the shoe fit the foot which has been prepared in the manner already described, and not as is often done, viz. making a shoe and then rasping or cutting away any parts of the hoof which overlap until it fits the shoe. The prepared weight-bearing portion of the foot in ordinary working horses, carriage horses, and hunters, varies from half to three-quarters of an inch in width, tapering a little as it approaches the heels. The foot surface of the shoe must be at least of an equal width, and take a perfectly level bearing throughout. If, on account of prominent or convex soles, more protection, or "cover" as it is called, is desired, a wider shoe may be necessary, and in this case it is bevelled out and made saucer-shaped on the upper surface. This is a seated shoe, but in no case should the bevelling begin until all the surface of the foot capable of bearing weight has been made use of.

The length should be at least the length of the wall. The hind shoes are often made considerably longer, particularly in show and town horses, and in many cases the fore shoes also. It is considered to develop the growth of the heels, and also prevent their being weakened by the shoeing smith cutting them down. There is danger, however, of the hind feet catching the heels and wrenching off the shoes. The ground surface has to be so constructed as to enable the horse properly to perform whatever work he may be required to do, and to give him a sure foothold. It may be perfectly flat with just a groove to guard the nail heads, or be provided with small calkins (heels), or, where heavy weights are required to be moved, a toe-piece or "spurn" has to be added. In all cases it should be so constructed that the natural position of the pasterns is interfered with as little as possible.

Clips

The clip is a small triangular piece of iron hammered out from the toe of the shoe to enable it to retain a firm position. They will be beneficial, or liable to cause injury, according to whether they are drawn properly or not.

The proper method.—They should be comparatively long in their base and low in height, so that the pressure is distributed mainly along the bottom of the wall, and the apex should not be made sharp. The clip that is narrow in its base, with a point that cuts like a knife, is most dangerous, and frequently causes serious injury. When the shoe becomes loose or is partially thrown off, the horse may tread upon it. In addition to this, the pressure is not evenly distributed. Sometimes a little horn requires to be removed from the toe, particularly in cart horses, to ensure a good fit, but as little as possible of this should be done, and on no account should any scooping out be allowed, as this weakens the wall. A little rasping is all that is necessary. The clip can then simply be turned over and hammered down, so that it fits the wall without causing any pressure.

Nails

The position of the nails in a sense has a most important bearing upon shoeing. As already observed, the outer crust is a comparatively thin and unsensitive structure. The nails have to pass through this without injury or pressure upon the sensitive vascular structures immediately beneath, and at sufficient depth to prevent the splitting of the wall, and to allow the point of the

nail to come out at the right height. It is obvious that the thicker the wall the better the chance given to the smith. The thickest part is round the toe, from which point it gradually gets thinner. The object is therefore to place the nails where there are the least chances of injury, and for this reason, whenever possible, they should be confined to the anterior half of the foot.

Nails are called "fine" when they are driven too near the outer portion of the wall, and "coarse" when too near the inner. In the former case, they are likely to cause loose shoes and a broken wall, and in the latter case, lameness from pressure on the sensitive part. After driving in the nails, turning down and clenching them, a few strokes of the rasp should be allowed on the clinches only; on no account should the remainder of the wall be touched with the rasp.

Some of the troubles and injuries caused by shoeing are dealt with below.

Overgrown Feet

This is the result of lack of attention in shoeing, and is caused by allowing the horn of the wall to become unduly long, either by letting the shoe remain on too long, or neglecting to have the unshod foot cut down and trimmed periodically. In the country it is not uncommon to find the foot overgrown to the extent of a couple of inches, with the result that the wall projects beyond the shoe, and the latter becomes practically embedded in the sole, which also becomes to a certain extent overgrown. The shoe is thus thrown out of wear, the walls become broken, causing the tread to be uneven and out of balance. Thus the weight, instead of being distributed evenly throughout, is borne by one side or the other, and the toe and heels are out of proportion. Bruised sole, and strain of the joints, tendons, and ligaments, are often caused in this manner. Sometimes even spavin and splints result.

To keep the feet in good order and to avoid injury to other parts of the limbs, the shoe should be removed once a month. New shoes will not be required if the horse is working on soft ground, but the feet must be reduced, and their edges trimmed with the rasp. This defect has been alluded to in shoeing because in the country one so frequently finds horses that have not had their shoes removed for three or four months, and the owner is surprised to find that when trotting on the road the animal is lame. In many instances this has prevented an anticipated sale. It costs very little to have the feet regularly attended to, and more than ample compensation is received by the benefit accruing therefrom.

Bruised Sole

This results from uneven pressure, causing more or less inflammation of the sensitive parts beneath. Flat-soled feet are of course more liable to injury, particularly between the toe and the point of the frog. It is readily detected by removing the shoe and squeezing the toe with pincers. If the injury is accompanied by great lameness, hot bran poultices may be applied night and morning for two or three days until the inflammation subsides. If, however, the lameness is slight, pressure may be relieved, not by removing the horn and weakening an already thin sole, but by applying a "seated shoe". This is all the treatment absolutely necessary. Leather soles, however, with or without a dressing of tow and tar, may be put on to prevent bruising, and after an injury they are useful where the roads are not kept in good order, and loose stones abound. But they are not generally necessary; they are only an additional expense, and do not improve the quality of the horn.

Corns

Corn is the result of a bruise or injury to the sole in the angle between the wall and the bars. It commonly occurs on the inside heel of the fore foot. It is rare on the outside or in the hind feet. A flat foot, low at the heel, is most susceptible. The cause is usually the pressure of the shoe from being fitted too closely on the inside, or of being too short on its inner branch. Other causes are over-rasping or cutting away the wall at the heels, making it so thin that it over-expands, and is unable to bear the weight imposed upon it; cutting away the bars and thus removing their support; and scooping out too much horn between the wall and bars, thus causing a cavity which becomes filled with dirt and gravel.

Symptoms.—Lameness, in which the horse will take short steps and be confined in his action. At rest he will ease the heels by flexing his fetlocks, or he may point the affected foot. Examination shows discoloration of the horn, due to extravasation of blood. The part may be moist and red, in which case it is of recent origin, or dry and yellow or black, when it will have been in existence some time.

Sometimes micro-organisms gain access, and matter forms under the horn. If this is not soon allowed to escape it may burst out on the coronet, generally just at the top of the heel, or it may run along the sole. In such a case the horse will be in great pain, and show all the signs of fever.

Treatment.—Remove the shoe, and then relieve the pressure by as little paring away of the horn as possible. The bars should not be touched. It may be that only a very little thinning of the horn is necessary, and the ordinary shoe may be replaced. In many cases a good remedy will be found by putting a three-quarter shoe on the affected side, i.e. by cutting off a couple of inches or so of the inner branch of the shoe.

When lameness is slight but persistent, poulticing for a day or two is very useful to soften the horn, and thus reducing the pressure. Afterwards a three-quarter shoe and a leather sole, dressed with equal parts of Stockholm tar and Venice turpentine, can be applied.

Corn becomes serious whenever matter forms, and if there is great lameness, particularly if accompanied by fever symptoms, it will be necessary to see if it is present. For this purpose the horn must be thinned until the least trace of blood appears, when paring must be stopped, the part disinfected with 5 per cent of carbolic acid solution, and a leather sole dressed with tow and Venice turpentine applied. If matter be present a fairly large opening must be made, and the wound syringed out with antiseptic solution. A bar shoe must be then put on, with a leather sole that will slip in and out. It should be dressed with carbolic ointment, and the parts attended to daily. In all cases where matter is suspected in a horse's foot the advice of a veterinary surgeon should be immediately sought, as unless speedy relief is given most serious conditions are likely to ensue, often resulting in the death of the horse.

Quittor

Quittor is a wound of the foot in which one or more sinuses or channels discharging matter at the coronet occur. They are always the result of some preceding injury, such as a tread on the top of the coronet, a neglected corn, a prick or injury to the sensitive part of the foot from the nail in shoeing, or any other injury, as a result of which matter has formed in the foot and not been allowed to escape.

In many cases the abscess breaks out at the heel. This may or may not heal. Later on, secondary abscesses appear discharging pus, and there is no disposition to heal. If the disease is allowed to go on unchecked serious damage will be done to the structures inside the foot. The matter seems to have a most corrosive action, and attacks the lateral cartilages, burrowing through them in several places, and causing them to become loosened and pieces of them

detached. The matter generally advances towards the front of the foot, and when this happens there is a danger of the coffin joint being attacked, eventually causing "open joint"; or the coffin bone itself may be attacked. Necrosis or death of portions of this bone ensue, and more matter forms, all of which contributes to the discharge through the various channels.

Symptoms.—With the discharge there is swelling round the coronet, which may reach to the fetlock joint and the back tendons. There may or may not be lameness. Sometimes the horse is noticed to be lame, an abscess appears at the heel, and he becomes temporarily sound.

Treatment.—First remove the shoe and examine the foot. An old suppurating corn, or a "prick", may be discovered, in which event every effort should be made to encourage the abscess to drain from below through the openings. If this is not possible the disease has to be attacked from the top. Each sinus requires careful probing to discover its direction and extent, and a decision made as to whether they should be treated by injection or by a surgical operation.

If the quittor has not been long in existence, and there are only one or two sinuses, injections two or three times daily of a 10 per cent solution of perchloride of mercury (corrosive sublimate) and alcohol may effect a cure. If improvement does not quickly result, then by far the better method is to resort to a surgical operation.

This operation consists in exposing the diseased parts, and giving free drainage to the matter. To do this it is necessary to remove a window of horn in the wall of the hoof embracing the limits of the quittor, and afterwards to turn back a flap of skin on the coronet, making a connection by means of a knife between the two parts underneath the coronary band. In this manner the diseased parts will be exposed. They may then be removed, the parts dressed with iodoform one part and boracic acid three parts. A bandage should then be applied, and the wound treated with ordinary antiseptic precautions. It should be dressed daily.

Another method is known as the "coring out" process, and consists in plugging the sinus as deeply as it may be with a little perchloride of mercury powder enclosed in tissue paper, and afterwards applying a bandage and leaving this in position for forty-eight hours. After this time one is able to detach a fairly large core of dead tissue, which may embrace most of the diseased portions. In any case it exposes them more freely. The wound may afterwards be treated in the ordinary manner. The reader does not require to be told that any of the above operations need a veterinarian to perform them.

Burnt Sole

Burnt sole is caused by leaving the hot shoe too long in contact with the horn, the heat thereby penetrating to the sensitive sole, or "quick", beneath. The injury may be slight or severe, and in the latter case separation may be caused between the horny and sensitive soles.

Symptoms.—The horn will be found to be discoloured and burnt, and pain is caused by pressure.

Treatment.—The horn must not be pared with the knife; hot poultices should be applied, and rest allowed. If the burn is of a severe nature, it may take several weeks to heal.

Brushing, Cutting, or Interfering

These are the terms used to indicate an injury to the inside of the fetlock joint which is inflicted by the opposite foot. It is commonly attributed to faulty shoeing or overprominence of the offending wall, and here a grave error is often made. In nine cases out of ten the fault arises from greenness and lack of condition in young horses and debility in older ones. A young horse in breaking, and when first put to work, very frequently "brushes"; but the fault ceases when he becomes fit and accustomed to regular work. A tired horse, or those slovenly driven with the reins on their back and not up to the bit, are frequent sufferers.

The remedy then lies in seeing that the horse is in proper condition, fit for his work, and well shod. Young horses which are affected should wear a fetlock pad or "boot". This consists in wrapping a piece of horse cloth or felt round the fetlock, tying with a piece of tape, and turning the top part down. If brushing has previously occurred, the parts will be more or less swollen, so that the tape requires to be tight, as work soon reduces the swelling, and if not securely tied the boot will slip down over the foot.

Faulty shoeing as an occasional cause has to be dealt with, and a properly-applied and well-fitting shoe is usually all that is required to relieve this condition. It occurs commonly in the hind limbs, from the fact of their being more frequently shod with calkins. The removal of these and the application of a flat shoe is very often the remedy. As a rule, when brushing is noticed the owner sends straight away to the smithy to have the shoes altered, and various methods are adopted to cure the complaint. Except in cases of defective conformation causing faulty action, cutting or rasping away the foot and altering a well-fitting shoe is calculated to do little good, and is never to be recommended. It

generally causes serious damage to the foot and other parts of the limb.

When the injury is caused by the hoof, it is the usual custom to rasp away the horn, weakening the wall and making it unfit to take its share in bearing weight. The following styles of shoeing are for preventive purposes: A "knocked-up shoe", or "feather-edged preventer", is one with the inner branch narrow and deep, and without nail holes. This is fitted quite closely to, or even within, the inner wall, and the hoof rasped off to its level; sometimes also the outside branch is not allowed to touch the ground, thus the high narrow web of the inner branch bears the whole weight. The injury occasioned can be better imagined than described. In other cases the heel is removed from one side or the other, or one side of the shoe made thicker or thinner, according to the taste of the smith. They all cause an uneven tread, and are to be strongly condemned.

Speedy Cut

This is a bruise or cut inflicted on the lower part of the inside of the knee by the opposite fore foot. As a rule, it is more often due to defective action than to improper shoeing. It also occurs in young, green horses that have not learned the proper use of their limbs, and in those that have become fatigued from over-driving, whose muscles are unable to control the action of the limbs. It must therefore be understood that "speedy cutting" as the result of shoeing is comparatively rare. When due to this cause, however, it is frequently found that calkins are used, or that the shoe overlaps the wall on the inside of the foot. As a remedy flat shoes may be tried in the former case, and if this is not successful, a three-quarter shoe may be used, with, if necessary, rubber bar pads. In the case where the overprominent shoe is responsible, close shoeing on the inside must be practised. The injury itself may be treated by cold-water douches applied continuously for an hour night and morning, afterwards applying cold-water bandages kept wet with arnica lotion. Sometimes an enlargement remains at the seat of injury, which may be reduced by applying a little mercury (red) blister.

Forging or Clicking

This defect is caused by the toe of the hind shoe striking the inner ground surface of the shoe of the fore foot of the corresponding side. It is rare for injury to be caused, but it is a source of

great annoyance. The trouble may be said to be caused by defective action; defect in conformation, such as occurs in horses with legs too long for their bodies, or those with "sickle" or "cow" hocks (this causing their hind feet to be placed too far forward); by slovenly driving, and not keeping the horse up to his bit; by fatigue; and by neglect of attention to the feet. In the last case it often happens that the feet are allowed to grow too long, and the cause is obvious; or the shoes may be too large or too heavy. The remedies consist of: (1) Careful and considerate driving. Horses should be kept well up to their bits, and not be loosely driven, with the reins on their backs in a go-as-you-please style; they should not be overtired by driving too far or too fast, or put behind loads they are unfitted for. (2) Condition is a most important factor, and it must also be remembered that "beef" (fat) is not condition. (3) When the feet are responsible, if they are too long they should be cut down. (4) As regards shoeing, the fore shoe may have a narrow-seated web at the toe, and the hind shoe made with side clips, as short in the toe as possible, and the outer wall at the toe rasped down and rounded off.

Overreach

This is an injury to the heel of the fore foot caused by the inside rim of the toe of the hind shoe. If the fore shoes are too long in the branches they are often wrenched off. It is most common in Hunters and Thoroughbreds, and invariably happens at the gallop. A mistake is often made by the wound being attributed to the blow being struck by the front of the hind shoe. It should be thoroughly understood that this is not so, as may be testified by the wound itself, where the skin will be found detached from before backwards, showing that the inside of the shoe of the hind toe caused the cut in its backward action. The remedy consists in hammering down the inside rim of the hind toe, so that it is quite smooth and bevelled off.

Tread or Tramp

This is a bruise or wound of the coronet, or coronary band, caused by the shoe of the opposite foot. It is most common in the hind feet, especially when high narrow calkins are used, and generally occurs in turning round or backing. The injury inflicted may cause a clean cut which may bleed more or less freely; or a crush or severe bruise may be sustained in which there is little or no bleeding. In either case there may or may not be any lame-

ness. In the former case, however, it is usually only temporary, and passes off in a few days. An injury to the coronet caused by a "tread" becomes dangerous when, from neglect, germs gain an entrance and cause matter to form underneath, and in every case it is imperative that the most careful attention should be given to it. It is easy to remedy if early precaution is taken. Where bleeding has occurred, the wound must be carefully washed and disinfected, and a little tow and antiseptic ointment (carbolic or boracic) applied and kept in position by bandages. It should be dressed night and morning. As a rule, in a few days healing is effected. When the injury sustained is a crush or bruise, there is practically no bleeding, but the pain is greater, and healing takes much longer. The pain may be relieved by cold water applied continuously for an hour. The after treatment is the same as in the other case. When the injury has been severe a quantity of dead tissue often results. This sloughs away in time, leaving a wound which may be dressed and bandaged with the ointment as described. A neglected "tread", in which dirt and consequently germs have gained access, is frequently the source of "quittor". Too much stress cannot be laid upon the importance of giving the very best attention to any wound on the coronet, no matter how trifling it may appear. It may be also remarked that high narrow calkins and long heels, a frequent cause of trouble, are an unnecessary evil, and should be avoided.

Injuries from Nails

Nails may injure the foot in several ways, which may be briefly enumerated.

1. By being coarsely driven, i.e. too closely to the "quick" (sensitive vascular part), thus causing a bulging of the soft horn, pressure, and pain. The fault may be due to the carelessness of the doorman (knocker-on), or perhaps quite as frequently to the unskilful manner in which the nail holes have been punched by the fireman (the man responsible for the make and fit of the shoe). In the latter case the nails have been placed too near the inner edge of the shoe. This kind of injury is known as a "bind". Lameness will surely follow, but may not do so for a few days, or even longer.

2. By the nail being driven into the "quick" and then withdrawn. This is known as "drawback". When it occurs, directly the nail enters the sensitive structures the horse flinches, the smith is warned that something is wrong, and withdraws the nail. Mean-

while the foot has been injured, more or less blood has escaped, and this may have happened inside the foot and not be seen at all. If the offending nail is clean, all may be well, but if dirty, trouble invariably follows.

3. By the nail being driven through the quick and allowed to remain in position. This is known as a "prick". The lameness that follows may be immediate, or, again, delayed for a time, but usually it is the former. If the horse is sent out to work, he will often come back on three legs, as he will hardly be able to put his foot to the ground.

4. By the nails being driven too near to the outer wall, i.e. too fine, so that the horn splits. If this is allowed to go on for long, the foot, after a few shoeings, will assume a shelly appearance, and give one the impression that it is unsound.

Symptoms.—Lameness and pain in the foot, may be diagnosed by heat round the coronet and hoof, throbbing of the bloodvessels in the neighbourhood, and, lastly and best, by applying pressure, when the horse will soon show the seat of the injury by flinching. To detect the injured part, the foot may be tapped gently with a hammer over each nail; or squeezed all round with the pincers, one jaw over the nails, the other on the sole, when usually the offending nail can be located.

Treatment.—The nail must be withdrawn at once. If it has only been a "bind", the hole may be disinfected with 5 per cent carbolic solution, a little tow and tar, and a leather applied. If, however, the "bind" has been followed by the formation of matter, or it has been a "drawback" or "prick", after which matter has formed, the removal of the nail will be followed by a black fluid or matter. In this case it is absolutely necessary that it all be allowed to escape. For this purpose the hole must be opened up with a fine-ended drawing knife, and the cavity explored until it is certain that its depth has been reached. It may be necessary to remove some parts of the sole, which often gets underrun with the matter. After this has been done, the cavity may be disinfected and a little carbolic ointment applied and kept in position by tow and a leather. The latter need not be caught by the nails, so that it can be slipped in and out, and the wound examined and redressed without removing the shoe. Lameness generally continues for a few days, until the soreness wears off, and if there is much pain it may be relieved by placing the foot in hot baths, to which a little disinfectant has been added. The formation of matter in the foot is serious, but not dangerous if it is allowed to escape early. Neglect leads to quittor, and often results in the death of the horse.

HINTS TO HORSE OWNERS

The essential factors for the wellbeing of a horse are suitable food and suitable surroundings, coupled with a judicious amount of work. Feeding has been dealt with in other parts of this volume, so suffice it to mention that young horses, like young children, should be fed with discretion. The amount of corn should be strictly limited, and only that quantity allowed that will keep the animal "fit" to perform the duties required of him. On no account should overfeeding be allowed. It will either produce a too fat condition, causing the body to become too heavy for the legs, or the growth will be too rapid, producing a condition corresponding to what is spoken of in the human subject as having "overgrown their strength". A fat young horse soon becomes worn, and is always looked upon with suspicion by buyers. The overgrown animal is a leggy, herring-gutted brute that nobody wants to purchase. Judicious feeding and management encourage an all-round growth, and this should always be aimed at.

This means that the increase in weight should be gradual, and accompanied at the same time by a corresponding increase in depth, i.e. the horse appears to get shorter on his legs and nearer to the ground. Maturity is reached at five years of age, and when this time arrives the horse should be in good condition (not fat), fresh (or "new" as it is called) on his legs, and buoyant in spirits.

Work has a great influence on the future of a horse. A cart horse should be broken at two years of age, and allowed light work on the land for a year, after which light chain and shaft work may be performed for a time, gradually increasing, until at five years old he is able to do practically anything that is required. On the other hand, the animal that has not been broken until comparatively late (four or five years old), and then put to hard work, in many cases sold as fit for town work, is utterly unable to do it, and invariably breaks down, to the disgust of the purchaser and not to the credit or satisfaction of the seller.

A hint must be given regarding the surroundings. Until two years of age the young animals should be running at grass, and broken in at the commencement of their third year, when they will require to be stabled for some part of their time. It is most important that the stabling accommodation should be in every way sanitary. For this purpose the building should be well lighted, well ventilated, and well drained. In many stables, unfortunately, hardly any attention is given to these points, and any place which affords protection is considered good enough. There should be practically

no difference between the smell outside and inside the stable, and to accomplish this requires ample ventilation and no underground drains inside. Every part of it should be well lighted. Good roomy loose boxes are admirable; the floors should only slope moderately so as not to cause injury to the tendons.

It is unwise to buy a lame horse except for work on the land. He would not be sold at necessarily a bad price if there was any chance of him getting sound. It is very unwise to continue to work a good horse that goes lame, as this may eventually result in permanent deformity or disablement. Unless the cause of lameness is perfectly obvious and beyond all doubt, always have the shoe removed and the foot carefully examined. Injuries to the foot are the commonest cause of lameness. Always remember to have the shoes removed periodically; a small sum expended in this manner is infinitely better than allowing the foot to be injured. If a horse that has been standing in the stable for three or four days without exercise is put to full work, he must not be driven at a fast pace at the commencement of his journey, or he will be liable to come down from a disease for which the sudden violent exercise after enforced rest is responsible. Any wound, no matter how trifling it may appear, and particularly if it is in the region of the foot, should never be neglected. It is always wise, and very little trouble, to cleanse or disinfect it. Disinfectants should always be kept by the horse owner; he will find them useful in scores of ways.

To restrain a horse for purposes of examination, it is always wise to do so in a gentle manner. Lifting a fore leg up is perhaps the best way, but the lifted leg must be on the same side as the examiner; i.e., a horse can kick as usual with the off hind leg when the near fore is held up. If a twitch is necessary, it should not be kept on too long, as in a short time all feeling becomes lost, and grave injury to the nose may result. After the twitch is taken off, the nose should be well rubbed with the hand. When an ear is twitched, some of the hair of the forelock or mane should be included in the loop, as it tends to prevent injury to the base of the ear.

Drenching should never be allowed except under very exceptional circumstances, and never then unless the owner is present himself. It should never be done in any disease of the respiratory organs, such as sore throat or pneumonia. If a ball cannot be administered, it would be far better for the horse not to receive anything at all than to be drenched. The evils of drenching, particularly when a twitch or loop on the end of a pike is applied and the head held high, consist in the liquid getting into the lungs instead of the stomach, and causing pneumonia. The head should

only be just held high enough to prevent the liquid running out of the mouth, and must be dropped immediately if there is any inclination to cough.

A horse's head should always be tied up after a blister, or when there is a wound that he may bite.

The horse that is going to be turned out to grass should not be groomed for a week or so before, so that dust and dandruff may accumulate as a protection against the weather. When brought back from a run at grass to be got ready for work again, it is wise to give a dose of physic before proceeding to condition him. Care should be taken when the early morning feed is refused. It is generally the first indication that something is wrong, and to satisfy oneself it is always wise to keep a clinical thermometer, when the temperature can be ascertained. The normal temperature of a horse is between 99° and 101° F., and it should not be higher than the latter.

Working a horse with a high temperature is a great evil, and is a common cause of pneumonia.

Always insist upon good grooming. This should be done night and morning. It is not only for the sake of appearance, but is essential for the animal's health. If dirty, the skin is unable to perform its functions, and so indirectly the kidneys become affected. In fact, one may say the whole system suffers.

Sometimes one owns an animal that will not lie down, and various methods may be attempted to induce him to do so. The common methods are to change from a stall to a loose box, or, if he is by himself, to the company of other horses; to litter him up to his belly with straw; if this does not succeed, various changes of bedding may be tried. If these are unsuccessful, the tail may be plaited with straw, with the end left hanging, or a bag of hot sand may be placed across the loins. If, however, in spite of everything one fails to induce him to lie down, he should be put in a stall, with a strong leather belt, or a couple of ropes enclosed in old hose-pipe tubes, placed behind him across the back of the stall for him to sit on. The owner would be better without a horse of this kind.

A few words are necessary as to harness. These require to be kept in good order, and should be cleaned and polished daily. Neglect in this direction leads to the formation of sore shoulders, sore backs, and other wounds, causes the horse to have a slovenly appearance and the leather to perish quickly. A horse should always wear the same set of harness, and never that of another unless it has been well cleaned beforehand.

Finally, the most valuable precaution, and in the writer's opinion the most economical, is to take the advice of a veterinary surgeon as early as possible when the owner has any doubt as to the seriousness of a case. It will give the patient the best possible chance of recovery at the minimum cost. One finds in the country that far too often the fire engine is sent for after the house is burnt down; i.e., the veterinary surgeon is only summoned as a last resort, when it is too late for him to be able to give any assistance, and no satisfaction is given to anybody.

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