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Evening Meeting.

Monday, 1st July, 1872.

COLONEL DUNCAN J. BAILLIE, Commanding Royal Horse Guards,
in the Chair.

NAMES of MEMBERS who joined the Institution between the 25th June
and 1st July, 1872.

LIFE.

Clerk, Godfrey, Lt.-Colonel Rifle Brigade. 1l.

ANNUAL.

Bunbury, Chas. Thos., Capt. Rifle Brig. Acland, C. T. Dyke, Lt. 1st Devon Vols.

THE BREEDING OF HORSES FOR MILITARY PURPOSES.

By Captain H. M. HOZIER, Assistant-Controller, Aldershot.

It would be as useless, as it would be impossible, to attempt to describe the necessity for military purposes of maintaining a good breed of horses in a country. The fact of the necessity of the horse in war has been recognised from the earliest times, and as military science has advanced, the value of the horse in the theatre of war has been more and more appreciated. Larger numbers of horses have constantly been required in each successive campaign. It is true, indeed, that in the present day the bulk of the forces brought into actual conflict on the field of battle does not consist of mounted men at arms supported by a few foot soldiers as in the middle ages, and some enthusiasts, till the last war in France proved the fallacy of their views, actually insisted that arms of precision had driven cavalry off the field of battle altogether. Experience, however, has proved, what common sense prognosticated, that the introduction of arms of precision, both directly and indirectly, has increased the necessity of the horse for military purposes.

In the first place, the introduction of a rifled armament has necessitated a much wider field of observation and of scouting than before. A much greater extent of country must be embraced by the vedettes and outposts, both in front and flank of an army, than formerly. The movements of masses of troops, and the concentration of armies must

be more carefully shrouded than of old, for now-a-days movements, when once matured, cannot readily be checked or altered, and must be carried through. A great portion of the success of the Prussians in the earlier days of the late campaign was due to the surprise with which their heavy columns burst upon the unsuspecting French. These columns had been concentrated secretly, and, during their concentration, had been entirely shrouded from the observation of the French purely by the wide screen of posts and deep curtain of redettes thrown in front of the Prussian infantry by the Prussian cavalry. This cavalry not only entirely concealed the movements of its own armies, but, through the advantage of its numbers and organization, ferreted out and reported to its Staff every movement of the enemy.

In the second place, the introduction of arms of precision has increased the distance between the lines of battle, even in actual conflict, and the rolling of the intermediate ground affords favourable opportunity for the action of cavalry even on the field of battle. That this action of cavalry, however, much previously scouted in theory, is still of the highest importance, may be seen from the very latest experience; for at the battle of Vionville, Prince Frederick Charles, although he had only 24,000 infantry, saved the day, and prevented the passage of Marshal Bazaine and 180,000 men by the skilful use of 19 regiments of cavalry. The wide extent of ground covered by modern armies in battle affords favourable points of concealment for bodies of cavalry, whence they may dash suddenly on unsuspecting batteries or isolated skirmishers.

Again, armies now operate in much larger numbers and at much greater distances from their base of operations. Their trains of supply and stores must be much heavier than of yore, and would astonish a Turenne or a Marlborough. The introduction of breech-loading armament has greatly increased the necessary supply of ammunition, and this ammunition must be supplied by horse power on the very field of battle at the moment required. Horses must also be ready to remove the largely-increased numbers of wounded beyond the further reach of fire.

We may thus gather that the number of horses required in war will continue to increase instead of diminishing; and we can also see that broadly the horses required in war may be classed under four heads:—

1. The horse required to be ridden to collect intelligence, convey reports, and do the various duties which form the functions of light cavalry.

2. The horse which requires to be ridden and take prominent part in the actual crash of the charge, and is retained chiefly for the duties of heavy cavalry.

3. The horse required for draught and yet active enough to manœuvre, and to follow troops at a trot, or even a gallop. Such are the horses which draw the guns, the ammunition carts, the ambulances, and the first reserve of ammunition.

4. The horses which are required to trail along the long lines of communication in rear of the army; to bring up to the supply depôts the constant flow of food and stores, without which being

properly assured, the Army cannot live a day, advance a mile, or fight an hour.

For breeding purposes these might be further classified. The horse of the light cavalry and heavy cavalry may be regarded as one, for the lighter could be told off to the light, the stouter to the heavy cavalry. But the horse of the artillery and train should be kept distinct.

It seems a great error that this is not the case, as the train is generally horsed much too slightly. The horses required for train purposes ought to be great heavy dray horses, of the type of the Clydesdale cart-horse, the Suffolk Punch, or the heavy horses in brewer's drays, instead of as at present merely coarse imitations of cavalry chargers. One heavy horse would do as much work as two of the present train horses; would require half the attendance and only eat three-fourths as much.

It is very difficult to estimate the number of horses of these different kinds which our Army would require in time of war, because it is impossible to say how many troops would be put into the field. It may be, however, presumed that in case of that invasion, the fear of which alone ever induces any progress in military matters in this country, out of the regular Army at home, Militia and Volunteers, we should at least place 100,000 men in the field.

The cavalry to accompany these should be in the proportion of at least 1 to 20, or 5,000; the artillery 3 guns to 1,000, would require 300 guns or 50 batteries, of which 10 should be horse.

The light train required would be 25,000 horses, and the heavy train would require with reserves, &c., 75,000.

Cavalry—10 regiments, 500 strong, present establishment being 350 each, would require 150, or—

1,500	horses.
5,000	artillery.
25,000	light train.
75,000	heavy train.

106,500 Total.

Now the total number of horses in the country is theoretically 2,150,000, including old horses, foals, brood mares, &c. If these range from foals to 15 years old, we have an average of 143,000 of each age, or 572,000 horses between four and eight. If we had power to take all horses at once, we should be in no difficulty, but we have not the power, and if we had, it would be impossible to exert it. Fancy London, Birmingham, &c., with their horses taken away! Whole populations would starve, trade would be paralysed, and we should be actually playing the very game of the enemy.

It would be impossible to seize the whole of the available horses in the country without warning; it would be a different thing if we registered horses during peace, and told the owners we should want them in war, as in Prussia. Then owners could make their arrangements to be ready at the hour of need.

But it is doubtful, notwithstanding statistics, even if we could seize

all the horses, if we should get the numbers quoted above. Nothing is so fallacious as figures, and the real practical test of the *quantity* of horses we can get is the facility of supply.

As to quality, last year for the manœuvres we had to buy 1,038 old horses avowedly only for a few weeks' work, and had to pay £38 a piece for them.

This year we are again buying about 2,000 at, I believe, £12, as well as £1 to £2 for travelling expenses.

It has been urged that the horses could have been procured young abroad, and after being kept for two months on Government forage, sold at a profit; but the Continent would be closed in time of war, or at least there would not be time to get the horses over, and it was wise of the Government, if solely from question of experiment, to determine to draw all the horses required from the horse market.

We can now see sufficiently well, that it is most difficult to get 2,000 horses in time of peace of serviceable condition, and we may confidently predict it would be impossible to find, at the sudden outbreak of a war, the 100,000 which we have seen above would be necessary for military purposes.

The worst feature of the case is, that instead of there being any prospect of improvement, both statistics and facts for once agree, and show that matters are rapidly getting worse. We see that this year we find more difficulty in getting horses than last year; we know that the prices of remounts have had to be raised, and we know from every good authority that horses are daily, and will become daily more difficult to obtain. The causes of this diminution of horses seem not difficult to perceive.

1. Prices offered in the foreign market have tempted breeders to part with their mares. In Ireland the action of the Encumbered Estates Court, by throwing the formerly small holdings into larger farms, has greatly diminished the number of mare owners and consequently of foals.

2. The breeding of the heavy cart horse which, on our present system, is not available as a military horse, pays the farmer better, as it can be worked at two years old on the farm, and is less liable to disease and accident by galloping about against fences, &c., than the more active and highly-bred horse.

3. The large exportation of the country.

4. The tendency of purchasers, especially the Government, to deal with middlemen and contractors instead of with breeders direct; a course which diminishes the breeder's profit.

Whether, however, these be the true reasons or not, the acknowledged dearth of horses makes it necessary that some measures should be taken to obtain a ready supply of horses in case of war.

Foreign countries have long recognized this. France distributed horses among the farmers in time of peace, which were to be called up in case of war; but this system at the outbreak of the last war was found not to answer.

Prussia established large studs, and also possesses the power of seizing a certain number of horses at fixed prices from each part of the

country. This system in Prussia is not so dangerous as it would be in England, for Prussia is a country mainly agricultural; and in time of war agricultural operations are naturally delayed.

Till lately we had an excellent breed of horses in England. From early days the rulers of the country had devoted attention to the subject, and the climate seems naturally to have been suited to facilitate their endeavours.

In the reign of Henry the First, the first Arabian horse on record was introduced into this island by Alexander, King of Scotland, and was presented to a church; and in the reign of Henry the Second, Smithfield was already famous for the racing there of hackneys and charging steeds against each other.

John imported 100 heavy Flemish stallions, the distant sires of our now famous Clydesdales and Suffolk Punches.

Many Kings imported horses, but it was in the reigns of Charles the Second and William the Third, that the great horses, which may be regarded as the patriarchs of our present thoroughbred racehorses, were brought to this country. These were the Godolphin Arab, the Darley Arabian, and the Byerley Turk; and the blood of some one, or all of these, beats in the pulse of every horse now on the turf.

From the Byerley Turk, have sprung in direct male descent Hobbie Noble, Thormanby, Bay Middleton, Flying Dutchman, Parmesan, Caractacus, and Buccaneer.

From the Darley Arabian, in direct male descent, Touchstone, Orlando, Marsyas, Cotherstone, Lord of the Isles, Dundee, Gladiateur, Stockwell, St. Albans, Lord Lyon, Voltigeur, Weatherbit, Bardsman, and Blue Gown.

From the Godolphin, the Melbournes and West Australians.

For reasons into which it would be here tedious to enquire, it is my opinion that the more the blood of the Darley Arabian is concentrated in a horse the better he will be for what is technically called staying purposes.

Now the crucial question is, What measures are we to take to preserve, or perhaps how to improve, the quality of the breed and increase the quantity of horses available for military purposes?

We might—

(1.) Prevent exportation of all horses. This method would be clumsy and contrary to the spirit of the times, unfair to the landowner and farmer, and extremely impolitic.

(2.) Prevent exportation of mares. To this plan there are of course similar objections to the former.

(3.) We might form Government studs. This might meet the difficulty to a limited degree, but the expense would forbid all the horses we require being bred in this way.

(4.) We should certainly encourage breeders of all descriptions by dealing directly with them, and not allow a monopoly of the whole trade to fall into the hands of a few contractors.

(5.) We have seen that the horses required for the train constitute the great proportion of the horses which would be needed at the outbreak of the war. These could easily be procured at moderate

cost, provided that we would only recognize that for train purposes, we should have cart horses instead of imitations of bad cavalry chargers.

Were this so, Clydesdale or Suffolk stallions might be located in the various districts of the country and open to free use by the farmers, provided that the stock were liable to be taken in case of war by the Government at a fixed price. Of course one agreement would be, that none of this stock should be sold to go abroad. Farmers would gladly consent. There are believed to be about 250,000 cart mares in England. It is probable that as a cart mare can do her farm work till within a few days of foaling, at least 100,000 of these should foal every year, and give the Government an available annual contingent of 100,000 draught horses; at the same time mares cast from the Government service, should be sold at merely nominal sums in the market towns, so as to fall into the hands of farmers—not cab-drivers—and be available for breeding. The *light* horses got by the local cart stallions would be available for the light train, perhaps even for the cavalry; the *heavy* ones for the heavy train. Stallions should be shifted from district to district every two or three years to prevent the same strain of blood being consolidated in any one district, and to provide that the species should not be deteriorated by in-breeding.

Having seen how the train horse might be procured, let us now turn to the cavalry horse. Speaking from a breeder's point of view, the horse for the heavy cavalry is the same as that for the light cavalry, for the former would only be the heavier selected from the young stock. It is my firm impression (though I believe it will be regarded as rank heresy by many cavalry Officers) that there is nothing equal to the thoroughbred blood horse, provided the thoroughbred horse has bone and substance. A good blood horse has more bone and substance than good half-breds. This can be amply demonstrated by weighing similar sections of the bones of each. People accustomed to see young thoroughbreds of two or three years old on the race-course in racing condition condemn them as weeds; but what would half-breds look like in similar conditions? It is not fair to compare the three-year old in racing condition with the pampered troop horse of eight or nine summers rolling in fat and only exercised at watering order. The way to see the thoroughbred as compared with the half-bred, is to visit some of the stud farms, such as Hampton Court, and see a furnished mare or stallion six or seven years old. It is such as these that we should wish to have as chargers for our cavalry. They would do more work, stand more fatigue, and exist on less food than any half-breds; but unfortunately the expense prevents us from getting them. We can only approach as nearly as possible. To do so we might place a certain number of thoroughbred stallions in different parts of the country for the use of country gentlemen, to whom for the cavalry horse we must look more than to the farmer; and maintain the right of having the stock at an assessed price in time of war. These sires should be obtained from the best stock of the country, and should contain as much Darley Arabian blood as possible.

But to maintain the sires that we should want, and also to obtain the

horses we should wish, there ought to be at least one or two Government studs. At the present moment many good horses, such as Paganini, could be bought moderately from the turf and would act as sires; but it appears as if we could not long trust to the turf. It is impossible to deny that some excellent horses are still on the turf, perhaps a few as good horses as ever were on the turf are now in training; but the general average is deteriorating. The prevalence of short races and handicaps allows worthless horses to be retained in training which become sires and still worse dams; and although a few horses can stay well, the Queen's plates are nearly now always carried away by one French gentleman, M. Lefèvre. The Legislature might interfere here usefully. Nearly all the horses that can stay in England belong to the foreigner, M. Lefèvre. If the best thoroughbred *class* deteriorate, so must our sires deteriorate.

It would be advisable to have studs for sires, as it is very difficult to buy good sires, except at enormous sums, when once exposed on the turf. Yearlings might be sold on condition of being returned at the end of their racing career.

All good mares should be covered gratis at the Government studs, and stock liable to be taken only in case of war.

I have endeavoured to explain the ideas I have formed. They can only claim to have been carefully considered and not crudely enunciated. It will be a great pleasure to me if they may lead to a discussion and consideration of a subject which seems to me to be so very important to the nation in general and to the Army in particular.

The Earl CATHCART: I do not know, whether I, as a stranger, am entitled to say anything on this occasion. If I were allowed to do so, I would merely wish to say a very few words, to show how anxious we farmers are to co-operate in any possible way. As a member of the Council of the Royal Agricultural Society, I may say we have already taken great interest in the subject now in question. I have given my best attention to every thing that has been said by the able and gallant lecturer. Although I was prepared to hear a most able lecture from a gentleman of his great reputation, I must say that I was not prepared for the comprehensiveness, the ability and research which this lecture embodies. We farmers can agree in a great deal that has been said by the gallant lecturer. I am sorry that circumstances did not allow me to take notes, as I would gladly have followed the lecturer throughout his lecture. I venture to think he has scarcely given sufficient importance to two points. Firstly, there are great numbers of horses retained in this country for the purposes of luxury. These horses in case of war are all available. And in a military point of view we must not forget the steam-horse, because, you know, our friends the Prussians at Paris had the steam-horse, which they found exceedingly useful. I have no doubt from all I see of steam traction and cultivation, that we shall see the steam-horse day by day more and more employed. I have watched him, not from his earliest infancy, but for the last eight or nine years, and I see him making wonderful progress. As regards the inducements to farmers to breed horses, by reason of the Government supplying stallions throughout the country, really as far as agriculture is concerned, we have many stallions, and really good ones. I doubt whether the Government offer would be a great inducement. As to purchases by middle men, I incline to agree in thinking it would be an advantage if Government were to go more into the market and buy for themselves. Referring to the lecturer's observations as to the use of cart horses for guns of position and military train purposes, I entirely agree with him. I know from my own experience that the thoroughbred cart horse is a better animal than the coach-horsy cart horse. The real cart horse keeps his condition better on the same food, throwing his weight also into the collar. I believe

the Clydesdale to be the most valuable cart horse that we have. I have heard the origin of the Clydesdale horse was this:—A Duke of Hamilton, about 200 years ago, brought over a number of Flanders mares for his carriage; they were crossed with the horses of the district. I do not know at what period the Suffolk Punches were first bred, but I have no doubt that they have a Flanders origin. On the whole, and regarding our subject generally, I am inclined to think that we must rely for our supply of military horses upon the general law of supply and demand. But we must always remember there is a certain Chancellor of the Exchequer who knows all about the horses of the country; and whoever may be Chancellor of the Exchequer, he invariably lays a heavy hand on the horses, and thereby to some extent discourages horse keeping and horse breeding. Why, a man for a consideration dare not give another a lift on the road, for he does not know whether the stranger may or may not be a tax-gatherer. In conclusion, I would say again—the object of my speech—that the Royal Agricultural Society of England took this matter up. Some time ago, I myself got the principal veterinary surgeon of the Army to write a paper on the supply of horses for the Army, which paper was published in our Journal, and when in print we shall be glad to study Captain Hozier's able lecture, and to give it our best consideration. We civilians thank you for this opportunity of stating our opinions, and to the gallant lecturer our warmest acknowledgments are justly due and heartily accorded.

The CHAIRMAN: I think we are very much indebted to Captain Hozier for the able lecture he has given us, on a subject which is very important, not only to military men, but to the whole country, because England has from time immemorial been celebrated for horses and for riders, and I should think there are very few in this country who would wish her to lose her name for having the best horses and best riders in the world. I am afraid our class of horses are depreciating very much. For a very long time the mares have been going out of this country, and there has been an increased difficulty every year in procuring horses for military purposes, and for every other purpose, too. The difference of price tests the number of horses there are in the country. Just before the Crimean war, the horse artillery used to give thirty guineas for their horses, and the cavalry twenty-five guineas. Now the horse artillery give forty-five guineas, and the cavalry forty guineas. The artillery certainly are supposed to have four years old, and the cavalry also are supposed to have four years old; but they take them as four years old on the 1st of October, which is really three-and-a-half years old; so that there is very little difference there. During the last two years the General Omnibus Company have increased the price they give for their horses by £10. The price of the different horses employed on the tramways, in omnibuses, and railway vans has risen to an enormous extent, so much so that cart horses in a great part of the country are fetching £100 a piece. It seems an enormous price for a cart horse, but the price can be got as easily as possible now. We expect to get draught horses for our artillery and for draught purposes at the autumn manoeuvres with the greatest facility, we imagine that we are to send out an order for two thousand horses, and we shall get them directly, but you cannot do that if you allow the mares to go out of this country. In a country like ours it is very important to keep up the breed of horses, not only for military, but for every other purpose, from racing and fox hunting down to *polo*, or any amusement you like to employ them at. I will not say, “down to *polo*,” because I think it is a good game to teach young men how to ride; it is only on ponies; and the game is not very well known, but still it is a very good game. I do not quite agree with Captain Hozier on one point. He says he does not think it is necessary to consider the cause of the mares going out of the country. I do, because I think that is the cause of the whole evil. The cause of mares going out of this country is, simply, as far as I understand it, that there is not encouragement enough given to farmers to keep these mares. You must trust to your farmers. I do not believe that any breeding stud in the world will supply us with the number of horses that we want in this country. You want the farmers to supply you with horses, and for that they must keep their mares. Now what happens? In the last twenty years the coaches have been given up. The farmer has not been able to sell a horse he did not want to the nearest coach for a leader or wheel horse, or for any of those employments that were open to them then. The only chance they have of selling horses for light employ-

ments is to omnibus proprietors in connection with the nearest railway station. Then the question for the farmer is, "Which pays me most; a horse or a bullock?" I have been farming for some time now in a small way, although my military duties have taken me away so much that I could not attend to it properly (I live in Scotland); but I know that a horse does not always give you a profit. Therefore, a farmer, unless he is encouraged, will not keep a horse. Now, the only plan which has ever seemed to me practicable in the way of encouraging farmers to keep horses, is to do away with the Queen's plates that are given for racing, and to employ the money as prizes at agricultural shows in each county. The Queen's plates are now useless as an encouragement to improve the breed of race-horses, because it is not the best class of animals that compete for these cups. Let a prize be given for the best stallion, which shall remain in the county or district (whichever the Government, or those whom they employ, shall think best), and cover the mares of the farmers who belong to the county club or association, at the small fee of two guineas, and something for the groom; the stallion not to be allowed to go out of the county or district on any consideration for that year. If you give this money in prizes, there is a chance of people being induced to bring the best stallions into the county. We have got plenty of good stallions in the country; they go to agricultural shows, they win a prize, but they are bought by the foreigner, and they go abroad. If Government could give such prizes as I have indicated, it would make it worth while to people to bring their stallions to the shows, on the condition that they should serve the mares of the farmers during the year, and they might have a testimonial, or whatever you choose to call it, to say that the horse has won a Government prize. I believe this plan would be a great encouragement to farmers to keep their mares; and persons who, perhaps, are not farmers, people in a small way, who have got a mare which they use for their own dog cart, would take their mares to the stallion to be covered; they would not only know that they were going to a horse that had won a prize, but a horse that had got the Government mark upon it, or the proof that it had won a Government prize. I believe if that were done you might give sufficient encouragement to farmers to keep their mares in the county and to breed horses. I do not believe in Government studs. A Government stud might provide a few stallions to travel about, but it could not possibly provide mares or horses, the expense would be too great. With the cups that are given for racing purposes, I believe you might cover the whole expense. At all events, this is the idea that I have formed on the subject, and I believe it to be the only practicable course. I think we ought to have the best horses in the world. Foreign nations have been sending over here trying to get the best blood out of the country. But I do not believe that any country can compete with us, because they have not got the feeding. The very soil makes as much difference in the production of horses as it does in the production of crops. You know perfectly well that you cannot get the same crop in every ground, and you cannot get the same horse on every ground. We have proved in Yorkshire, in Lincolnshire, and in Ireland, that the soils there suit horses, and there are other parts of England as well; but it is chiefly in those districts that you can breed horses. There is no other country in the world that can breed horses in the same way. Climate and soil have as much to do with the breeding of horses as with other things, including, of course, care and management. I beg to thank Captain Hozier again for bringing this important subject before us.

Colonel BAKER, 10th Hussars: I am sure we all owe our best thanks to Captain Hozier for the very able, impartial, and accurate way in which he has brought this subject before the meeting. It is one of the greatest possible importance to every branch of the service, and it is one also which is open to very great controversy. I think that in dealing with it, we should first consider how the evil which Captain Hozier has placed before us has arisen, and next how that evil may be best met. I think it would be sound on inquiry that it has arisen from three causes. First, from the increase of riches in this country, which has created a greater demand for horses; secondly, by the exportation of a very large number of horses to meet the demands of foreign countries, and those demands have been very great of late years. That evil has been very much increased by the exportation of a very large number of mares, in larger proportion than the number of horses. Thirdly, by what has been so well put before us by the gallant Chairman, the fact that it pays farmers better now

to breed cattle—the price of cattle having so enormously increased of late years—than it does to breed horses. It remains for us to consider how this evil can be met. I must say I am very glad that Captain Hozier in his lecture to-night touched so ably, not only upon the question of the breeding of horses, but upon the question of a reserve of horses for military purposes, for upon that question of a reserve lies the main point with which we, as soldiers, have principally to deal. With regard to the breeding of horses, I think we must give up as hopeless the idea of providing for the deficiency by means of Government studs. But there is no doubt that immense encouragement might be given to breeding by the means which have been laid before us by the gallant Chairman, and by other means which have been considered, and which probably will be laid before us hereafter. But with regard to the question of a reserve of horses for military purposes, we can consider that question without reference to the executive or the Government. It appears, as it must appear to any one who has gone into this question statistically, that the number of horses in this country is at present quite sufficient for any military requirements that would be likely to arise. But we have no control over the horses of this country. Captain Hozier has given you the statistics, and the difficulties which occurred last year when we attempted to put a small *corps d'armée* (or what would be considered abroad a small *corps d'armée*) into the field. I have had long conversations with different dealers and different breeders relative to this question, and they all agree that it would be impossible, even in cases of emergency, to provide anything like a sufficient number of horses to put a very small force into the field. I have asked a great many opinions from a great many dealers and breeders, and they all say that there is only one means by which that can be done, that is by a system of requisition. That is very unsatisfactory. With that difficulty staring us in the face, I think we owe Captain Hozier very great thanks for bringing the subject forward in this way, and so opening up a discussion which cannot fail to be useful. Having said so much, I will now touch upon the point how we may make the supply of horses which does exist, useful for military purposes. Supposing we give, as it has been advocated, every encouragement to breeders, why should we not have all the horses in the country registered? They should be registered as it is, because they are taxed. Why should we not have them registered and described? And if the country is not prepared for conscription or ballot, as regards the supply of men, still I think it ought to be prepared for the ballot or conscriptive system as regards horses whenever the actual emergency arose. If we had all the horses registered, and had the ballot amongst those horses which would be required for the different purposes of war, and if those horses, having been examined by proper veterinary authorities, remain so registered, then in case of war we should know exactly in each county where to put our hands upon the number of horses that we might require. If those horses so registered were exempted from taxation, it would be a slight boon to those who would have to give them up, but only to give them up at a fixed price in case of war. I need not say that the horses in this country vary very much in price. Horses of extreme value might be drawn by this conscriptive system or ballot, but as the country would not be prepared to pay for horses of that description in case of war, they would come out of the category of horses for military purposes. Therefore, we should only draw and keep on the register such horses as the country would be prepared to pay a certain price for, in case the emergency arose. I trust that the subject will not be dropped, but will lead to a discussion that will be of value.

Mr. T. PAIN: I should like to say a word if I am not out of order. I imagine that this question is one of pounds, shillings, and pence from beginning to end. The noble lord who spoke after Captain Hozier, said it was a subject that the Royal Agricultural Society had taken up very deeply. I quite agree with his lordship that we have taken a great deal of interest in it, but we have been unable to arrive at any conclusion whatever upon the subject. I heard the gallant gentleman who has just sat down say, that it would be an excellent thing to have a sort of registration of the number of horses that were kept in this country, so that in case of war they should be called upon to be useful to the service. But I take it if any gentleman was in possession of a horse worth three or four hundred guineas, he would think it very hard that he should be called upon to give up that horse. (Colonel BAKER: I

exclude them). But, then, the poor man who has got a horse of thirty-five guineas value would say that it was very hard that he should have to give up his horse, and the rich man be allowed to keep his. All these things I contend are a matter of pounds, shillings, and pence. One or two remarks have been made as to the breeding of horses. The gallant Chairman says it would be an excellent thing if we were to do away with the Queen's plates, and to have horses in the different counties which should be available for the service of farmers at one or two guineas a-head. That is a very good idea as to placing of stallions. Then there is another to follow afterwards. A farmer says, "I can go and use this horse at one or two guineas; I have a very good mare, and I shall put her to it." But he sits down over his churchwarden's pipe, and he begins to calculate the odds, and he arrives at this conclusion—"If I put my old mare to this horse at one or two guineas, when the foal arrives at the age of three years I may be unable to get twenty-five or thirty guineas for the horse. I have got a cow, I can put my cow to the bull, and in twelve month's time I can get a heifer that may be sold for seventeen or eighteen guineas." Now, the price of cattle has so much increased in the last eight or ten years that the farmer naturally feels that he must farm that which is most productive to him. (The CHAIRMAN: I did not say that the colt was to go to the Government. Let the farmer make what he likes out of it). Nor did I. His price as a three year old may be worth thirty-five guineas, but the farmer has got to get a customer for it. Then the colt may have the strangles, he may be a roarer, or he may become blind. But the heifer will be worth sixteen or seventeen guineas in twelve months. A noble lord said to me the other day, "Pain, what can I do for the purpose of increasing the breed of horses? I should like to buy a stallion, and I should like to buy half-a-dozen good old-fashioned mares, that I would give to my farmers to induce them to breed." I said, "My lord, you may get the mares and you may get the stallion, and they will breed, perhaps; but you must do something more, you must give them a guarantee that when the animal is three years' old you will give him £35 for it, whatever it is. Then he will be induced to breed, but unless there is a certainty about it he will not breed horses, but he will breed a cow." You may endeavour to lay down theories as to the breeding of animals of any description, but it only comes to one thing, that is £ s. d. All these theories may be very good, but they are of no use when they are brought into practical work. I have one idea about the subject, a very poor one; it is this, that a stallion should be put into every county, that stallion to be the property of the Government; that that stallion should not be allowed to be put to any mare that has not hereditary soundness, and that Government should offer prizes to the amount of £50, not for stallions, but for the best three and two-year old foals bred from this mare. Then you will induce the farmers to breed, but you will not induce them to breed unless you can show that there is the prospect of certainty.

General Sir WILLIAM CODRINGTON: I should doubt very much whether the increase of price shows a scarcity of horses in the country. In every single thing in this country prices have risen, and unless the lecturer will be able to show that there are fewer horses at this moment in England than there were before the price was raised, I do not think the question of price tallies with his argument. As everything has risen in price, so Government may have to give more, as every gentleman has to give more for the horse that he wants to ride. Artillery horses are no exception, cavalry horses need be no exception to this result, therefore I should be glad to know if there is really any such scarcity, independent of the price as a test. I do not quite think price is a test of scarcity, because everything has risen. There is no doubt the whole question is one of pounds, shillings, and pence. If Government would choose to raise its price to fifty, sixty, seventy, or one hundred guineas, the Government would get the horse they wanted; there cannot be a doubt of that, for horses can be got by gentlemen who want to hunt, or by those who want to ride them as hacks. I believe the horses would come if the money was forthcoming. I do not say Government can afford to give those great prices, but horses can be had by paying for them, for, as I said before, it is quite a question of pounds, shillings, and pence. With regard to the registration of horses, there would be great difficulty with respect to it in a country like England. We should have to provide a large civil establishment for the purpose, and we know that civil establishments, interfer-

ing with the liberty of private arrangements, are not well looked upon in this country. I rather doubt the practicability of carrying out the proposal in England. You may be quite sure that if ever this country should want horses for military service, in case of invasion,—which it now seems is the main purpose for which an army is to be maintained,—it will not be a question whether you shall buy, you must have a temporary dictatorship with power to take horses when and where it is necessary.

MR. PAIN: You must bear in mind that the value of the horse has very much increased of late. Horses are now, I should think, 33 per cent. dearer than they were four or five years ago. But there is this to be considered, that the wealth of the country is so much greater than it was, that more people keep horses, more men hunt, there is more luxury at the present moment than there has been for many years past. One observation which the noble lord made was of a practical character; it was this, that if you took off the tax upon horses, it would conduce to the improvement of the breed of horses, by enabling people to keep horses; you might as well tax a cow as tax a horse.

SIR W. CODRINGTON: To make another remark. The lecturer, Colonel Baker, and myself were at the establishment at Trakelnen, in one of the provinces of Prussia. Perhaps the lecturer will describe to what distance that establishment extended its ramifications in the provinces, whether the large establishment we saw there was merely for keeping a centralised establishment, or whether the stallions were sent round the different parts of the country. My impression is that they were so sent to cover mares in the different parts of the large province in which the establishment was situated. They leave the stock with the farmers, and I think the Government take them at their own price in consideration of the stallions being sent out free. If the lecturer could give us some explanation on that point it might be interesting to the meeting.

EARL CATHERINE: There is one point of considerable importance which I omitted. I have read an admirable paper somewhere, I think it was in the *Revue des Deux Mondes*, on the recent use of railways in war. It was especially laid down by the Prussians that a railway in war in advancing an army, comparatively could be little depended upon. One objection was that it deteriorated the troops, that infantry carried by railway did not come up in such good fighting condition as those marched by road. Another objection was the want of expansibility. You want troops coming to the front to expand fan-like. I entirely agree with my friend (Mr. Pain) that the breeding of horses, as I said before, like most things in this country, depends upon the general law of supply and demand, or, as he puts it very tersely, on £ s. d.

CAPTAIN HOZIER: I believe Sir William Codrington is perfectly accurate with regard to the Prussian stud at Trakelnen. The stallions are sent round to the farmers in the province, and Government have a right to take the stock at a certain age and at a certain price. But I believe the Government stud at Trakelnen, as far as the horses actually within the walls are concerned, are not intended for military purposes, they are kept chiefly as sires to serve mares all through Germany. As to the question of a diminution of horses in this country, I am not prepared without book to give an opinion about that. I rather think the Board of Trade returns show that the supply of horses has actually diminished in this country to a small extent. If I remember right, within the last three or four years, this diminution seems to be at the rate of two or three hundred a year, whereas the number of horses ought to increase with the increase of population and wealth. (Sir W. CODRINGTON: That is the taxed horses?) I believe the returns are made of all horses. The thoroughbred horses have also decreased in numbers within the last two or three years. I believe the thoroughbred stock has considerably declined during the last two or three years. There is only one word more that I wish to say. The noble earl spoke about the use of the steam-horse in war. I hope he does not think we do not attend to that in our army, because we have had a traction-engine at Aldershot, and we find, as the Prussians have found, that it is very useful when an army has settled down for a siege; you can then use the traction-engine. But as long as an army is moving across country, over mountains, and where roads have been broken up and bridges destroyed by the enemy, then, for all practical purposes a traction-engine is useless.

Besides that, the traction-engine requires an enormous quantity of fuel to feed it, and it would be necessary to have almost as much transport for the engine as for its load.

The CHAIRMAN: We have to thank Captain Hozier for his valuable paper, and also the gentlemen who have favoured us with their observations.

Mr. WILLIAM WHITE, F.S.A., of 30A, Wimpole Street, exhibited and explained his Porte-Knapsack as follows:—

The Knapsack itself is like an ordinary waterproof one, but is fitted with light stiffening canes, to allow of contraction in size, and of simplicity in the fastening of it.

The Porte-Knapsack has a very light frame, or yoke (*y*), to keep the bearing webs in *tension*. The whole of the *weight*, instead of dragging as usual from the *front* of the shoulders, is carried upon the shoulders by these *tension webs* (*t*), except what is distributed on to the back, by the back webs (*b*) resting gently against it. The webs should be buckled just tight enough, to keep the cane yoke (*y*), and the cross cane struts (*c*), at about the angle shown on sketch, when in use. If not tight enough, the Knapsack will have a tendency to slip off, if too tight, it will not fit pleasantly. The proper adjustment is when it will just lodge on the shoulders and back, without the aid of the fastening straps (*f*), which are required to keep the load from jolting off, but which still allow perfect freedom from strain and leverage. These

fasteners, fitted with the usual hook and eye (*h*), should be buckled as short as they will go, without being tight enough to *press* against the front of the shoulder. When not in use, the shoulder yoke and the cane cross struts may be kept folded close on to the back of the Knapsack, by passing these fasteners behind the tension webs and hooking them into each other. The small neck strap (*n*) should be tight enough only to keep the back of the cane yoke well off the neck of the wearer.

I have carried with the Knapsack over 20 lbs. weight without inconvenience, and I have carried, at the rate of more than four miles an hour, 15 lbs. with less strain than I could have carried 10 lbs. at a slower pace by the old mode.

Rejoicing as I have always done in the freedom and independence of Knapsack excursions, though fain to seek relief sometimes from the labour, and the langour, entailed by all previous methods of slinging the burden, through which multitudes of soldiers, especially young soldiers, as well as civilians, have suffered terribly, it is a pleasure to place within the reach of my friends (and of the public generally) a mode by which it may be carried without such inconvenience.

The Porte-Knapsack may be fitted to an ordinary Knapsack; but the expanding Knapsack which forms part of the same patent, and which is particularly simple in its arrangements, is specially suited to it.

In reply to a question, Mr. White stated that the weight of the apparatus was about 2 lbs. and a-half.