

Report of Observation Trip with English Army in England, France, Belgium and Germany, on Horsemastership, Care of Transportation and Equipment

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[EDITOR'S NOTE.—*The following comprehensive report by Major Raborg should prove of great interest to all field artillerymen. The British are conceded to be past masters in the art of horsemastership and all reports we have received tend to show that the condition of their animals, both at home and in the field, far outclassed all others under like conditions in the Allied armies.*]

MARCH 9th:

Arrived in London. Captain A. F. G. Renton, 11th Hussars, assigned to conduct Colonel E. W. Taulbee and myself throughout our trip in England. Left for and arrived at Liverpool this day.

MARCH 10th:

Went to Ormskirk Remount Depot at Ormskirk, commanded by Colonel G. W. Hobson, formerly of 12th Lancers.

En route to Ormskirk I had a long talk with Captain Renton regarding his experience with horses throughout the war. Captain Renton had been with the cavalry throughout the entire period of the war with the exception of the time he had been incapacitated for duty, having been wounded three times. The following points were brought out:

(a) His horses averaged throughout the entire time three feeds of grain per day; but there were times when they received only two.

(b) His squadron did not at all times keep feed sheets, shoeing records, etc., but Captain Renton stated it could and should have been done.

(c) He stated that in his opinion the more times you can

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feed, the greater the variety of feed given, and, in general, the more you can baby your horses, regardless of war conditions or possibilities of irregularity, the better they are. He stated that in this war as galloping was seldom required, he worked on the theory of keeping as much fat on his horses as possible, in order to counteract the effect of long, slow marches, usually accompanied by lack of forage.

(d) Captain Renton stated that in winter horses should not be clipped unless it was certain that they would always have stabling or horse covers. He cited an example in the 1917 Battle of Arras. In this fight the transportation belonging to the cavalry was unable to get to them, animals had just been clipped and were without horse covers. During the battle there was a blizzard, and the participating cavalry was rendered almost immobile, due to the very large number of animals that died from exposure. He added, however, that this clipping provision did not apply to animals used for transportation, and stated that he believed animals of this type should be clipped at least "trace high."

(e) He stated that all chains and metal were required to be kept burnished and polished regardless of conditions of weather or fighting, and that in general their standard of "spit and polish" was maintained.

At Ormskirk we met the officer in charge and his second in command. The former explained his plant and the latter conducted us through it.

There were 4000 horses at this depot, cared for by eight remount squadrons and two veterinary hospital squadrons. (380,000 horses had passed through this depot during the war.) In general, all English organizations visited by us complained of a shortage of men, due to the demobilization then in progress.

Prevention of Disease:

All animals received were isolated for a period of two weeks; all stables were disinfected continually, or when they were vacated. Disinfection consisted in burning with blow-lamp and

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chloride of lime on the floor. An accurate record was kept of each horse. Animals were hair branded by passing a blow-lamp over a stencil, placed on the animal's rump. Each animal has his own stall, equipment, etc., all of this being numbered to correspond with the one given the horse. (A brand made in the above described manner lasts about a month.)

A similar brand was placed on each horse to show that he had been malleined and the date of same.

Horse covers and blankets were disinfected by a sulphur stove in a closed room. Harness and leather equipment disinfected once a week by burning sulphur in the saddle or harness room; other equipment also disinfected by wiping off with grease made of two parts soap and one part kerosene, this rubbed on the under surface of the leather.

All horses were inspected daily by each squadron commander; a veterinarian accompanies this officer always in order to avoid conflict of orders; this is most necessary.

The animals were daily exercised by turning loose in a chute. In going about this chute they were preceded by mounted men who control the pace, and were followed by a few more mounted men to insure that the pace as set was kept. However, almost all of the animals at this depot were shod behind, and I believe no bad results follow as long as they are not sharp shod.

The animals at this depot were fed grain three times a day and hay the same number of times.

The stable guard at night consisted of one man to every 100 horses.

All shoeing was done in a central shop.

All hay was fed in hay nets and oats in tins. Feeding was done as nearly simultaneously as possible. This is necessary, as it prevents excitement on the part of animals waiting for their turn. Hay seeds were collected, placed in water to let dirt go to bottom and then removed, before they had become water-soaked, and boiled. Three pounds of dry seed were found to make 12 pounds of boiled feed, and the feeding power of the

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seed against hay was found by actual experiment to be as 7 is to 3, in favor of the seed.

Electric grooming devices were used; the Commanding Officer stated that as to grooming they were satisfactory, but repairs and constant breakage made them unsatisfactory. With one of these machines two men would groom 40 horses in a day. At this depot they had one man to 12 or 14 horses.

A great point here, as in every other organization visited by me, was made of the elevation of non-commissioned officers, particularly sergeants, by giving them separate messes, clubs, added responsibilities and added privileges.

The organization of the Remount Squadron was roughly: two officers, one sergeant major, one Q. M. sergeant, four sergeants and 120 men.

With an organization of this kind at full strength it meant one man to four or five horses.

This remount depot was organized according to stabling capacity. In other words, a proper number of remount squadrons were placed at the depot to handle its maximum capacity of horses. This was the case at all Remount Depots.

All shops, such as saddler, tailor, carpenter, and Q. M. stores for the depot, were centralized.

Peat moss was used largely as bedding. They stated, however, that anything available would be used, such as leaves, saw dust, etc. It was stated further that stone or hard standings were not considered detrimental to animals, providing they were regularly exercised, excepting as to certain cuts and scrapes of the legs caused in lying down and getting up.

There was also available at this depot for disinfecting a portable superheated steam machine similar to our delousing plants. Creosote was put in the water of this machine.

Horses were at this time receiving about twenty minutes exercise per day in the chute. It was stated they should receive two hours. They received one grooming a day.

Bran was fed dry with grain; bran mashes were not regularly fed. All animals received one feed per day of boiled

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oats and hay seed; hay screen was not used; hay was shaken out in a forage room which had a clean floor; seeds were then shovelled up.

During the isolation period all animals were dipped twice. Human faeces from the latrines was always burned nightly in an incinerator.

Great attention was paid to the comfort and welfare of the men; it was generally stated that you could not get the maximum results in the care of animals unless your men doing this work received the maximum care and attention.

Brick standings were used throughout this depot.

Feed boxes were disinfected by blow-torch and occasionally by carbolic acid.

In the blacksmith shop we saw men seating hot shoes and using a hoof knife.

Chaff was issued, already cut, to all squadrons. It consisted entirely of straw cut in less than one inch in length by a centrally located electrical chaff machine.

At the dipping each horse as he emerged was thoroughly scraped. The floor was so arranged that the droppings from the animal floated back into the vat. The dip was heated by steam.

Each squadron was provided with a certain number of boilers for cooking hot food.

Bran mash given only to sick animals; same thing applied with crushed oats.

All animals were clipped with what is commonly known as a blanket clip.

Dubbing was used for the preservation of leather.

Chains were cleaned by hand with wet sand.

Another disinfecting solution for leather was a mixture of two-thirds soap and one-third paraffin, heated and then mixed.

The Commanding Officer did not approve of more than four grain feedings per day as long as the ration did not exceed 10 pounds. A veterinarian, who was present when this statement was made, said that in Mesopotamia on a 10-pound grain

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allowance five grain feedings were given, and that he considered it necessary whenever possible.

After leaving this depot we went to Aintree, where we walked over the Grand National Course. The jumps on this track look almost impossible for a horse to negotiate. Left for Leicester, arriving there in the evening.

MARCH 11th:

In the morning we visited the 53d Remount Squadron, commanded by Major J. S. Mason. All stables had stone standings; each stall had a small piece of tin nailed over it painted black, on which was written all data pertaining to that horse. The Commanding Officer of this station stated that he believed lights in stables and men walking about worried horses. He demanded one and one-half hours in the middle of each day of absolute silence, and absolute quiet at night. His stable guard were not permitted to walk around the horses; he required them to stay at one end and only go to the animals in case they heard a noise indicating trouble.

At this station horses were exercised from one-half to three hours daily, depending upon their condition, and groomed twice a day; the second grooming being a wisping.

Grain was fed three times a day; horses in run down condition were fed four times. As much water as possible was given. Major Mason stated that he considered the last feeding should never be later than 6.00 P.M. He also stated that he would give a noon grain feed to animals regardless of the work they were doing, whether they were hot or not, but if they were hot he would make the feed very small.

He objected to dipping and used nothing but sprays. He had constructed a Turkish bath for animals, and stated that they should be put in this first to open the pores and then be sprayed.

Saddle equipment and harness were always disinfected after use; all harness cleaned thoroughly once a week, and wiped off each day after using.

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All horses were given a bran mash once or twice a week; poor horses once a day. Boiled food was preferred to steamed food. Loose salt was fed with the grain, whether dry or wet. Same method, as previously described, of boiling hay seeds was in use here. Crushed oats were used as much as possible for feed. Chaff was made to consist of both straw and hay. Dry bran was not fed.

Most of the exercising was done in an exercise pen as previously described.

Major Mason stated that for active service the breast collar was the only practicable form for military purposes.

Each halter was connected to the manger by two ropes, the two ropes after passing through the manger being attached to weights. In this manner a horse can never get his feet through his halter shank as there is no slack. Halters were never removed from mangers.

Saw dust or dry bran was used to dry fetlocks.

The use of the knife on the sole of the hoof was not permitted at all.

When horses were sprayed they were dried by putting straw over them under their horse covers.

In Major Mason's opinion, if the hay allowance is reduced it is very bad to correspondingly increase your grain allowance.

This station was very well run and very well kept. The Commanding Officer complained of lack of men.

A central shoeing shop was maintained where one man at the forge kept two men busy nailing.

We left this station at 11.30 A.M., arriving at Melton Mowbray at 12.15 P.M. It was commanded by Major S. G. Sanders, 4th Dragoon Guards.

Steamed or boiled feeds were never given at this station, except to poor horses. Bran mash was fed.

Grain was fed three to four times daily; poor feeders five to six times. Hay seed was not cooked at this place. Under normal conditions each horse received two hours' exercise and one hour's grooming per day. The present forage allowance, which

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consisted of 10 pounds oats and 10 pounds hay, was not considered sufficient by the officer in charge.

This station was only for officers' chargers. The animals here were beyond description, most of them being Irish Hunters. A large number were stabled in box stalls and their care was almost perfect. No exercising in pens was permitted here, except to teach jumping. The jumping pen was oval in shape, about forty-two yards by fifteen yards, with twelve yards between jumps. All elementary training in jumping was done in this pen without riders.

The Commanding Officer stated that at times he had to send five-year-old horses to active service; he did not consider this favorably, and said he preferred to send six-year-old horses; but that he would rather send ten-year-olds than five-year-olds.

Leather here was disinfected by sponging with a solution. Metal was cleaned by hand with wet sand.

About two pounds of chaff per day per animal was cut at this station; the chaff was half straw and half hay. Chaff was also put in bran mash. I can see no reason for this.

The Commanding Officer stated that plenty of good bedding was worth oats.

Much to my surprise here, and at other places, an unusual number of animals showed evidence of having had sore backs.

This depot had its own riding hall. A large number of temporary stables had been constructed, consisting of open sheds with cement standings. The same arrangement as to halters, previously described, was used here.

The Commanding Officer stated that he would feed crushed oats to all horses at all feeds, if it were possible. He also stated that stone standings cut the joints of animals. All heel posts were well wrapped with stout rope to prevent horses injuring themselves in kicking.

The majority of horses had pads on the inside of their fetlock joints to avoid bruising and injuring. All whiskers and long hairs were trimmed or singed off animals to smarten them. Horse covers were held in place by surcingle; surcingles were

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equipped with small pads that fitted on either side of the withers to prevent sores and slipping.

Stable guard maintained only at night; they were not permitted to go near animals unless they heard a noise indicating trouble.

Period of isolation at this station was only one week, during which time animals were sprayed once.

The upkeep of this depot was the best seen to date; everything in every place was spotless, and the animals were wonderfully groomed.

Left for London on evening train.

MARCH 12th:

Went to Woolwich, which is the station for a brigade of reserve artillery and is their artillery depot. We had lunch with and were taken care of by Lieut.-Colonel G. D. Melville, A. A. and Q. M. C. Saw an exhibition of riding and jumping in the riding hall by student officers, the Commandant of the riding school and some instructor sergeants major.

This school trains officers and non-commissioned officers as instructors in riding with a view to doing away with the old English system of riding masters, the course lasting for nine months. The saddle used is the English enlisted men's saddle, or what is called the Universal saddle. One of the jumps was rather interesting in that it represented a railroad crossing, making an "in and out" with only about twenty feet between jumps. Horses objected to this, I think, largely because of the fact that it was new and on each gate was a large red disk. The first two officers who rode, as did all other officers, jumped in a position far forward over their horses' necks. Both of the first two were thrown. A sergeant major rode the course and was the only man who really sat his jumps as we are taught to in our service. Major Walwin, R.A., was the Commandant of this establishment.

He fed his animals six times a day on a 10-pound grain allowance; he fed no long hay except three pounds the last thing

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at night. Chaff was fed with all grain feeds. The following were his hours of feedings:

7.00 A.M.	2 lbs.
10.00 A.M.	1 lb.
12.30 P.M.	2 lbs.
2.00 P.M.	1 lb.
5.30 P.M.	2 lbs.
8.00 P.M.	2 lbs.

The last hay feed was given after the grain feed. The first and last feeds of each day were boiled. Hay seeds were also boiled. He stated he fed his animals all extra feed possible, such as bread, carrots, etc. Bran mash was fed twice a week. He stated that he believed ordinary boiled feeds had no laxative effect, also that lights burning in stables at night did not bother animals, but that men moving about did. Crushed oats were fed only to horses in poor condition. Animals were daily wisped and hand rubbed in grooming. If possible, or necessary, work in the field would be stopped to feed animals the prescribed number of times, regardless of whether they were hot or to continue work that was heating. There was one man to about every ten horses. The Commanding Officer believed that horse standings that were hard made no difference if horses have regular exercise.

I was interested to learn that in the English service all material for shining, such as burnishers, brass polish, pipe clay, etc., was purchased by the men from their own money or by their officers for them; the Government supplies nothing. The Commanding Officer of this organization stated that discipline, shine and polish were entirely necessary and essential if you expect to have well cared for animals. The smartness of equipment and clothing that we saw at this place was really remarkable. Several of the warrant officers were as well clothed and dressed as the officers.

This Commanding Officer believed in clipping all over, including fetlocks.

We next visited the battery stables, found that here they

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fed grain six times a day. At this organization the latter part of October or the first part of November animals were clipped all over; the following time during the winter a blanket clip was used. Animals were in brick stables with standings of the same material. Stables were very clean and horses well groomed. One feed of hay was fed in chaff; only two feeds of long hay per day were used. The largest feed was given at noon, but the horses had very little work after this. Stable guard not permitted to walk up and down at night. No bran mash was used; rock salt was hung by wires in front of horses. We saw a new issue horse cover which is longer than ours, goes higher about the neck, and fits the neck more snugly. It was held on by a double surcingle, and was reinforced at the neck.

We visited the gun and caisson park; everything was wonderfully clean, and all metal parts highly polished and burnished.

The Battery Commander told me he would not attempt to feed six times daily in war; he had, however, at all times, regardless of conditions, insisted on everything being polished.

We visited the Veterinary Hospital which trains enlisted men for the Veterinary Corps. This place was by far the most immaculate we had seen to date. The Commanding Officer preferred dipping to the use of the spray for disinfecting, due to the difficulties encountered if you have a large number of horses to handle. Animals suspected of mange or lice must always be clipped around the tail, as this is a favorite place for the parasite.

The dip at the point where the animals stepped off had a vertical drop. Previous dips seen by us had been at an angle; we were told that horses were liable to strike their hocks in going in if the dip were not straight. Calcium sulphide was used for dipping. A Turkish bath, if possible, was given to mangy suspects before dipping.

The Commanding Officer stated that little and often was his principle of feeding; that he crushed practically all of his oats, and that he fed very few cooked feeds.

Lieut.-Colonel Brown, Veterinary Corps, was in command

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of this hospital. He did not approve of cooked foods, said he considered changing from soft to dry feed bad for animals. At this stable two ordinary stalls were frequently converted into one box stall by removing the centre swinging board and swinging it across the entrance. All temporary stables had been built in a large square so that horses' tails would be towards the centre of the square; the square itself was left free. The colonel said he considered this a great advantage over stables built in echelon, inasmuch as he could stand in the centre and see everything that was going on in all stables without moving.

At this hospital all shoeing smiths for the army were trained; hot shoes were used for fitting, but the use of the knife was prohibited. The colonel approved of oiling hoofs.

Seventy-five per cent. of the hay ration was fed as chaff; one bran mash was given per week. The Commanding Officer stated he considered dry bran had a laxative effect. He stated further that he considered walking about in the stables and lights burning interfered with animals getting their proper rest. No crushed oats were fed in the bran mash. The colonel stated that he could not get a polo pony or a horse doing similar strenuous work to eat too much oats. He stated further that he did not consider it made any difference whether you fed hay or oats first, as they did not mix in the stomach of a well horse and that bolting was prevented by putting chaff in the grain. He said he would give a feed of grain to animals that were hot, but he would make it small.

Went back to London and left for Aldershot at 9 P.M.

MARCH 13th:

Aldershot corresponds to Woolwich, except that it is for cavalry organizations. We visited a squadron of cavalry, commencing at 7 A.M. in order to see their daily routine. All equipment was hung on heel posts and was very well cleaned. We saw morning stables, held before breakfast there were no requirements as to dress, men being without puttees and all were without coats.

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Men were quartered above the stables.

On this morning there was to be a field inspection by the regimental commanders; saddles had been packed the night before.

No feed sheets or shoeing records were kept, though the officers in charge said they should have been. There was one shoeing smith per troop. No officers were present at morning stables, but we were told that the Squadron Officer of the Day should be. Stables, however, were being apparently well handled by the squadron sergeant major. Stalls were separated by iron swinging bars.

We learned that work started at 6.00 A.M., and that there was none required in the afternoon. All men were young and recruits; officers complained that they had everything to learn, and had never handled animals before.

Talked with a sergeant in charge of the transportation. He stated that breast harness was the only thing for military uses, as it fitted all animals and that when an animal became thin the collar did not cease to fit as in the case with ours. The officer in charge said that chains should always be kept polished. The transport of the regiment was very good, but not what I expected. We were told that all chains on the wagons should be painted and all chains connected with harness polished.

At stables each man grooms his horse or horses, and is excused to clean his equipment as soon as his animal has passed a rigid inspection as to the grooming. The feeding was done at approximately the following time:

Morning feed and watering	7 A.M.
After drill and immediately before stables	long hay
After stables	water and noon feed
4.30 P.M.	grain
6.30 P.M.	grain
Bulk of long hay fed at 6.30 P.M.	

Officer in charge said he would feed crushed oats if possible. All animals were clipped to the legs. All equipment was thoroughly

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cleaned daily, Propert's soap and dubbing being used on leather.

All men grooming were called to attention on the entrance of officers to the stables.

The ration was 10 pounds of oats and 10 pounds of hay, half of the latter being cut as chaff, the bran used was taken out of the oat ration. Hay seeds were required to be returned to the depot. The grooming done here, as in every place, was of a nature never seen in our service; the men putting much more weight behind their brush, and apparently working hard continuously. The squadron commander had no belief in heel ropes.

All of the troops of this squadron did not feed long hay during stable time. The question of horsemastership is left to each troop commander. Animals were groomed in the stable, and kept standing indoors most of the time. Manes were roached down with hand machines; this roaching was done in the stable, which is bad, as the hair blows about.

Grooming was conducted in the following manner:

Early morning—Brush off.

After morning work—Thorough grooming.

Evening stables—Horses wisped all over.

English horse shoes were the same weight front and hind; appeared to be heavier than ours, and to have more nail holes. We were told that this was to allow the driving of nails in different parts of the hoof in case it was in bad condition.

A hot feed was fed every other night. Crushed feed as much as was possible.

I attended a steeple-chase race meet at Gatwick in the afternoon, saw five races, all of them very good. Condition, grooming and care of animals at this meet was most excellent. Left for Southampton; arrived there about 10 P.M.

MARCH 14th:

Visited Swathling Remount Depot, commanded by Lieut.-Colonel Hambro. This station was manned by ten remount

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squadrons and one personnel squadron, having approximately two thousand men. Practically all horses shipped to France had passed through this station, and now all those coming back were going through.

Officers were not permitted to take their own mounts to France unless they first sold these mounts to the Government. Special sales were now being held to permit officers to repurchase these horses, if they so desired, or to purchase mounts that they had ridden during the war and wanted to keep. Mares capable of being used for brood purposes were being selected and held at this station. This depot was established in August, 1914, and had handled 389,748 horses; there were at this time about 3764 animals in the depot.

Animals received about one and one-half hours' exercise per day, and one thorough grooming. This exercise was almost entirely done in pens, regardless of whether animals were shod or not, as long as they did not have heel calks. Poles were placed in the exercise pens about 20 yards apart and about 1 foot above the ground to require animals to jump. It was stated that it increased the efficiency of the exercise greatly. Squadron commanders were permitted to regulate their own horsemastership, but a minimum of four grain feeds per day were required. Some squadrons fed five times. Dipping was the means of disinfecting used here. The Commanding Officer had no objections to hot feeds and crushed oats being fed daily, but stated that if this was done horses acquire the habit of bolting, and not properly masticating their food, and that the digestive juices not being required to work the full amount, when cold or hard feed was given intestinal trouble almost always followed. He stated further, that he would not feed any of the above-mentioned forms of feed to horses in active service. He would, however, give a bran meal once a week, if possible. If the organization was in rest for four or five days he would give some boiled feeds, if possible. He believed in always feeding carrots, potato peelings, bread, etc., and stated that he liked his horses to have a certain amount of fat on them to fall back

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on in time of privation. Stated further, that he never shipped horses to France until they were well fattened, and that upon the trip across the Channel no oats were ever fed.

He also stated that he would never give oats to a horse that was hot or going to continue hot work; but that he would water the horse in moderation if the work was going to be continued immediately afterwards. He said a horse was very much like a man, that what hurt the latter would usually hurt the former. He said further that he considered on active service in the field three feeds of grain to be ample; that chaff should always be cut for the sake of economy, and to feed with grain. He said he would hay up an hour after grain, or long enough before grain so that it was all eaten; he preferred the former method because it left the horse something to eat later in the evening. He disapproved of small feedings of long hay, said that any not used as chaff should not be given in more than two feeds. His stable guard were permitted and required to walk about at night. Said that lights in the stable made no difference. His animals were branded for depot purposes by a scissors, cutting the number out of the long hair. He dried animals that were wet from dipping in the same manner as before mentioned, by putting straw under their covers. Creosote was used as a disinfectant on all wood work, and the blow-pipe on all metal. He did not approve of dipping. Chaff and oats were mixed before they were put in feed bin to insure its being thoroughly done. Salt was fed dry, placed on top of each feed.

He did not believe very much in saving hay seeds, or in boiling them. It was stated that nothing but soap was used on leather.

Fourteen days was the quarantine period, during which time the animals were dipped twice and malleined.

Several large sand pens were used to permit mangy animals, or those with lice, to be turned loose in and roll. He said it was a most excellent aid in the treatment of these diseases.

Manure was carried away from stables by a narrow gauge

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railway and deposited on an elevated platform; wagons drove up to this and the manure was pushed into them.

Chaff was made of straw and hay mixed and cut less than one inch in length.

Each squadron had a clipping stall, which was entirely sheeted in to prevent the hair flying about.

All tie ropes in saddle rooms were pipe clayed, bits were clean and burnished.

A twitch was used on animals that were fractious while being clipped.

It was stated that the fetlocks of Shire and Clydesdale breeds should never be cut, but that he believed in clipping fetlocks on ordinary horses. This whole depot was alleged to be quite self-sustaining in that they had their own gardens, etc. One squadron we found fed two hot feeds daily. In this they mixed hay seeds, crushed oats, and mangel-wurzel. The hay seeds were put in sacks and tied up for cooking. The squadron commander said he would use the six grain feed policy, if possible, whether the animals were working or not.

This squadron commander alleged that you would fatten a horse more easily with chaff than long hay.

Left at 2.00 P.M. for Romsey Remount Depot, commanded by Lieut.-Colonel Sanders, who had ten squadrons, each of which could care for 500 animals. Each squadron did its own shoeing. Here they prefer the dip to the spray. Commanding Officer stated each squadron should have its own exercise track, the lack of this made it necessary for him to exercise his animals in convoy or lead them. In the latter case one man leads two horses; this method was said to be too slow when one had large numbers of horses to handle.

Horse covers and blankets were here disinfected by steam. They were left thirty minutes in the steam and then thirty minutes more to dry. The disinfector could hold thirty blankets at one time, and turned out about 300 per day.

Two hay feeds were fed daily.

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Here again the consensus of opinion was that breast harness was the only practical harness for military purposes.

Experiments had here been conducted with straw and saw dust as forage. Saw dust in any form was found to be indigestible. The Commanding Officer liked long hay in preference to chaff.

Grain was fed five times a day and hay four times. Hay seeds were not boiled, but were saved to feed dry. Salt was fed dry. The Commanding Officer stated that horses returning from France were coming in very good condition.

One of these squadrons fed one hot feed a day; they believed that dry bran had a laxative effect.

Propert's saddle soap was used entirely on leather; no oil.

Animals on arriving from France were quarantined for two weeks and malleined once.

Boiling was preferred to steaming, and all feeds were mixed before they were put in feed boxes. The Commanding Officer was a great believer in sand baths, permitting animals to roll if exercised, whether they had mange or not. At this station there were very few hay mangers; hay was almost entirely fed from hay nets.

Chains were burnished by shaking in a sack. In one squadron leather was treated with dubbing on the under surface once a week. This establishment, as others, was in general very clean.

MARCH 15th:

Went to Pitt Corner Veterinary Hospital, commanded by Lieut.-Colonel A. S. Head, R.A.V.C. The dipping solution here consisted of sulphur and lime mixed with water and treated with live steam for two hours. Where possible mangy horses were first given a Turkish bath in a room, the temperature of which was 100 degrees Fahrenheit. The horses were left in from one-half to one hour. Brushes and soap were used on animals, and great care was taken to leave no scales on the animal before he was dipped. Horses with mange were dipped

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once a week for three weeks, being made entirely clean by washing first. Dipping was done regardless of weather or temperature, animals being walked afterwards to dry them. The colonel said the most efficacious means of treatment of mange was to grease the horses all over with a mixture of sulphur and lard. The best treatment for lice is to clip the animal all over, then singe, then wash.

The Commanding Officer stated that he believed one thorough grooming a day would prevent mange regardless of exposure, and stated that mange and lice were dependent on proper grooming and proper stable management. He stated that the mange parasite, under ordinary conditions, lives for 15 days. He stated, however, that blankets, horse covers, etc., exposed to freezing temperature would disinfect them. That the mange period of incubation was 15 days, but that it had been known to go 60 days without hatching. He believed that the colder the weather the more the horse should be fed, and that if this were done the animal was better off without his coat than with it.

Stables here were sheds, stalls being about three yards by two yards, with two wooden sleepers put at the head of each stall to prevent pawing. He built a roof similar to a porch covering for the open side of his stables. There were no hay racks. We saw a singeing lamp which burned paraffin. This is good not only to remove lice, but to smarten the appearance of animals.

The colonel believed in small and frequent feeds and said he would not give a fit horse boiled food. Many sheds here had been converted into stables with box stalls. A door at the back of each stall had been reinforced by a split log to prevent damage by kicking. Long hay was only fed at night after the last feeding, the rest being given in chaff.

Operating tables were not used; animals being hobbled and laid on thick mats on the floor covered by a paulin. All animals undergoing painful operations were put under chloroform.

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We saw a bag for this purpose which was simply a nose bag.

Left the hospital at 3.30 P.M., returned to London *via* Aldershot.

MARCH 16th and MARCH 17th:

Spent in London.

MARCH 18th:

Left for Boulogne *via* Folkestone, where we were met by Major Houston of the 4th Royal Dragoons.

Left Boulogne for Neufchatel, which is an English Veterinary Centre. Visited Hospital No. 12, commanded by Lieut.-Colonel T. Burrige, R.V.C. His stables were in an old cement works that had been converted for this purpose. In one portion of this stable animals were fed on the ground, but a railroad rail had been laid along the head of the stalls to prevent animals pawing the feed back. He had constructed a number of cement mangers which were very good. He believed in cooked food for debilitated animals. Grain was fed four times daily, and one feed of long hay. He did not believe that five feeds were necessary. His animals were exercised twenty minutes a day on a track. He had one grooming, and had one man to twelve horses. He saved hay seeds and fed them dry.

The dip at this place had a very excellent and novel feature, in that it had a cement foot bath through which animals were led before they were dipped, and in this manner preventing a large amount of mud and filth from getting into the dip. Temperature or weather made no difference in the dipping. Mange and mange suspects were dipped three times every two weeks. His animals were clipped to the legs, well down on the inside of the hind leg, as he stated this was a seat of the mange parasite.

I saw some overhead hay racks which had been entirely improvised from bale wire. This officer objected to spraying on the grounds that the spray could not be kept hot. He fed crushed feed to debilitated animals. Locust beans, imported from Egypt, were one of his main articles of diet. Throughout

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this hospital centre work was greatly facilitated by a narrow gauge railway, which hauled away manure, distributed forage, etc. Everything was very clean. All lice cases were treated by singeing. Sand was largely used here for bedding.

Visited Veterinary Hospital No. 13. This was by far the most model institution of its kind seen by us. Every chain on the stables, including those used to close the entrance of stalls, were burnished, and every piece of rope about the stable, such as for swinging kicking bars, was pipe clayed.

The officer in command had pivoted a barrel diagonally through its long axis on his electrical chaffing machine. All his metal was put in this barrel for burnishing. He said a small amount of bran put in the barrel helped. He thought the best thing for this purpose was small pieces of leather cut to about one to one and a half inches.

His feed schedule was as follows:

7.30 A.M.	Grain
10.30 A.M.	Grain
12.30 P.M.	Grain
4.30 P.M.	Grain
7.00 P.M.	Grain

His hay allowance was 14 pounds, of which 9 were chaff. Long hay was fed twice daily at 12.30 and 7.00 P.M. Sand was used for bedding. His kicking bars were double the depth of those normally used. The colonel stated he would feed one cooked feed per day to animals if possible, even if they were working. A bran mash per day to animals not working. Here animals were clipped all over in October.

This officer believed in crushed oats; said he would feed them to fit animals as much as possible.

The animals at this place were exercised by convoy, twenty-four horses on a rope, handled by three men. They were exercised for from one-half to three-quarters of an hour.

The blow-lamp was used entirely for disinfecting on both wood and metal.

The hospital had eight blacksmith forges for a capacity of

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2000 animals. Blankets and horse covers were disinfected by steam.

Tar and paraffin mixed were painted on the wood work of the stables. The blackened wood work, white ropes and burnished chains in this place gave it a most striking effect.

Dubbing and Propert's soap was used on leather. The leather here was in very good condition.

Chaff consisted of one part straw and three parts hay.

Operating tables were not used. Animals were thrown on soft pads on the floor. Chloroform was used for operations; said not to be dangerous for normal horses, but that animal's heart should be examined before administering.

Each veterinary hospital was complete as to carpenters, shoemakers, tailors, etc.

I was very much interested in the men's bath room at this place. It was a large room containing mostly shower baths. All fixtures in it were brass. I have never seen a cleaner place in my life; everything scrubbed and polished. I asked how many men were necessary to keep this up, and was told that one man kept it always in this same condition.

This hospital group consisted of four veterinary hospitals and three convalescent horse depots.

We lunched with Major General J. Moore and his staff. He is chief of the veterinary service of the British Expeditionary Force. After lunch we visited convalescent horse depots. These depots were oval in shape, and divided into three parts, each being a section containing stalls and its own large corral, or sand bath, into which the stalls opened directly.

Here we saw standings made of logs, cut about five inches in length and driven into the ground vertically. Also standings made of heavy planks. The former type were considered the most satisfactory, as they did not permit of urine soaking through and collecting under the floor.

Grain was fed three times daily; of this at least two were steamed or crushed. Each section of the depot was surrounded by an exercise track.

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Started for Rouen at 3.45 P.M., arriving at 6.45 P.M.

MARCH 20th:

Left for Le Havre in the morning. En route our driver ran into a Frenchman, and most of the day was taken up in settling this affair.

We visited Remount No. 2 at 4.00 P.M. This station was commanded by Major John Taylor, R.S. His labor was largely done by German prisoners. Feeds of long hay at this place for each animal were prepared in a forage room, and bound up with a hay rope. Three grain feeds per day were used. There were about ten animals per man. Hot feeds were fed only to those animals in need of building up. He did not believe in them for normal animals, nor in crushing oats, except for run-down animals. He did believe in the principle of frequent small feedings, however. Long hay was fed twice daily, at 11.30 A.M. and at 7.00 P.M. Animals were here exercised on a track which was oval and consisted of two tracks with corals in the centre. Wire hay racks had been improvised. Wooden sleepers were set in standings to prevent pawing. Hay seeds were saved. Part of the stables were equipped with canvas wind breaks. The dip was used for disinfecting animals; it had rather a novel feature in that it was filled to above the level of the step-off place. An animal in walking did not know when he was going to be submerged with the result that much less balking was encountered. The overhead wire mangers were strongly reinforced by horizontal wires, and we were told caused no trouble due to animals getting their teeth caught.

A hot bran mash, mixed with epsom salts, was fed once a week to animals. Loose salt was fed with dry grain.

Return to Rouen.

MARCH 21st:

Visited Remount Depot No. 1, commanded by Lieut.-Colonel E. C. Tromblings, 8th Hussars. This was the first depot formed in France, having been established on the 5th of August, 1914. It consisted of five squadrons, with a capacity

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of 2500 animals, and a picket line capacity of 2000 more. We were told that as many as 3000 animals had been shipped from this depot in one week. The depot was constructed on one central street with squadrons running out to the right and left of it. Some labor was being performed by German prisoners. Each squadron handled only one kind of animal, *i.e.*, officers' chargers, cavalry mounts, etc.

Improvised wire mangers were used; woven wire partitions had been constructed between stalls. A large number of standings were of both the plank and block type. We were again told that the blocks were preferable. Saw dust was used for bedding. The Commanding Officer stated that sand used as bedding was liable to produce colic. Kicking bars were made of double logs. When plank standings were used they were filled in underneath with sand and gravel.

Animals were exercised from one to two hours per day. Exercise pens were not used. There was one grooming per day. In exercising on a rope four men handled twenty-six animals. The Commanding Officer believed that exercising in a track had a tendency to make animals wild.

A narrow gauge railroad was also used here. Tubs of disinfectant were set in each stable for grooming kits.

Feed to be steamed was placed in sacks. Hay seeds were saved and boiled. Linseed was fed every Saturday night to animals, five or six ounces each, which had been soaked for fifty-six hours; this was given in place of bran. Three grain feeds per day; and three feeds of long hay per day, fed before grain. The Commanding Officer said he would feed all crushed oats possible. He believed in oats and boiled feed even for working organizations.

The Commanding Officer did not believe in turning English horses loose in corrals. He did not believe in feeding potato peelings, bread, etc. Loose salt was fed by spraying it on the grain feedings.

This depot was equipped with electric chaff machines and oat crushers.

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Riding horses when sent to the front would go fully equipped, saddle, bridle, etc.

In the shoeing shop there was one man at the forge to two men nailing. The rasp was not supposed to be used on the outside of the foot. The blacksmiths were native Indians. Hot shoes were used only to show inequalities of the hoof.

Women were largely employed at this depot. They did all of the cooking for the organizations, clerical work, etc.

We visited the officers' school at Veterinary Hospital No. 6, which was run by Major J. R. McCall, R.A.V.C. This was an agricultural school, intended to fit officers for this pursuit in civil life after demobilization. Animal management formed a large part of the course. We were told schools of this type had been established for noncommissioned officers and enlisted men who were about to leave the service. The officers' course lasted one month. At this place there were thirty to forty students in each class. The faculty consisted of the Commandant, who dealt with animal industry, one poultry expert, and one instructor in agricultural subjects. The Commanding Officer stated that they taught students that in civil life, in commercial stables, all hay should be chaffed. He did not believe in hot feeds for working horses. Said small feeds of grain did not hurt overheated animals. Advocated four feeds of grain for Army animals. Believed in small amount of water for overheated animals, if they were to continue work. Believed in crushed oats. He said, in his opinion, it made no difference whether long hay was fed before, after, or with grain, provided chaff had been put in the grain. Believed that lights in stables and guards moving about greatly disturbed animals.

We returned to Rouen for luncheon, going back to this school at 3.00 P.M. to be present at a demonstration of types of animals.

First type: Heavy draft, Shire, over 17 hands; weight, 1700. Massive throughout, no good for Army work off metal roads, as they are too heavy to handle themselves in mud. Neck should not be too long; very stout and muscular, resembling that of the

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stallion; fair slant to shoulders; short cannon bones. All bones and feet large, feathered on fetlocks. Head big and heavy, must not have short, upright pastern. Short back, big girth, good loins, big quarters; must not be "tucked up." We were told this type does not endure hardship well.

Second type: Light draft, crossed between Shire and Percheron. This horse better for Army work, had much more activity; good for heavy artillery type. Otherwise, generally a smaller specimen of the first type.

Third type: Light artillery horse; crossed between Hackney stallion and draft mare. Shoulders draft, depth all over, a very game head with ears well set on. The major was of the opinion that Hackney blood, mixed with draft, gave excellent results.

Fourth type: Heavy draft, part Clydesdale; in general the same as first, but the hair of this breed is much more silky, particularly as to the feathers on the pastern. Pasterns must have good slope, must have great depth all over; not too much "daylight" under animal. This type has more slope to shoulder than Shire. Finest traveller of all draft breeds; very beautiful action at the trot. Hocks in this type should always be close together in action.

Fifth type: Percheron. Good shoulder, with considerable slant, fine forearm and short cannon bones; slant and spring necessary to pastern. Good hips, usually more or less "gooserumped."

Sixth type: Saddle animal. Good neck, long and not thick; head set on well; ears, nostrils, and lips fine. Good eyes. Good slope to shoulder, not too much "daylight" under him. Close coupled, good boned, short cannon bone. Must not have thick withers; good quarters, broad chest.

MARCH 22d to 24th:

Spent in reaching 3d Cavalry Division Headquarters, English Army in Belgium. Route: Paris, Amiens, Albert, Batume, Cambrai, Namur and Huy.

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MARCH 25th:

Reported at Division Headquarters. Found that this organization, with the exception of one staff officer, had moved forward into Germany. Lieut.-Colonel E. C. Pragnell, 4th Hussars, A.A. and Q. M. C., of the division advised us to continue to Germany. We accordingly left, passing through Liege, arriving at Headquarters at 5.30 P.M., which were located at Quailbrath, near Cologne. The division was commanded by Major-General R. L. Mullins. Major Houston left us here to take advantage of a leave. Went on to Cologne, where we were billeted.

MARCH 26th:

Reported to Cavalry Division Headquarters, from where we were sent to inspect the battery of horse artillery belonging to the division. We were accompanied by Major J. Grabbe, G. S. O.-3. This battery had 236 horses, 202 men, and 6 thirteen-pounder guns. Horse artillery used with cavalry was armed with this lighter gun instead of the 18-pounder, which is the normal infantry light piece. The battery was commanded by a major, who had under him a captain and three lieutenants. This battery was stabled in the same manner as were many of our organizations, *i.e.*, in a number of small barns, holding from two to twenty animals. The stable management was just as good as though they had been in one stable. The major in command stated that he simply held his chiefs of section responsible, that the work was properly done. The battery was divided into three sections of two guns each; each section commanded by a commissioned officer. The feeding and horsemastership was done by the sections as prescribed by the Commanding Officer. Six feeds of grain per day were fed at the following hours: 7.00 A.M., 10.30 A.M., 12.00 M., 2.30 P.M., 5.30 P.M., and 8.00 P.M.

Only one feed of long hay was given per day, the rest being used in chaff. The long hay was fed the last thing in the

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evening. The battery commander stated that he would feed on the march, if possible, in order to maintain this number of grain feeds, and that he always fed as many times as possible, up to six, regardless of regularity.

Leather and equipment in this battery were in excellent condition; dubbing was used on the under surface, and all metal was polished, and entirely free from rust. He said that he had been able to maintain the same condition almost always, even when they were fighting. He said he would feed as much crushed oats as possible, and whenever possible the last feed at night was hot. This latter, he said, was usually impossible during war, as their transport would not permit of carrying the utensils. There was one real grooming a day, with a brush off in the morning and a wipping in the evening. The Commanding Officer stated that an hour's hard grooming was as much as any man was physically capable of at one time. Rust on metal was removed by use of sand, polished with metal polish and burnished. He also stated that breast collar harness was the only form for war. His animals were well groomed and he maintained that he had kept this standard always. They were clipped trace high; he said he did this because they might have to stand outside. All fetlocks were trimmed. No improvised feed boxes or mangers were used. Hay nets and nose bags were used.

Stables had been occupied without disinfecting, though he said he knew mange was present in the town, none had developed in his organization to date.

Hay seeds were saved and fed dry. Bran mash with epsom salts was fed once a week.

He always carried his chaff cutter with him (which was a good-sized machine), and stated that it was the last article of equipment he would part with. Tails of animals were wrapped to shape them. No bedding was received by him, though he exchanged his manure with the populace for straw. He advised clipping and singeing for lousy animals. Animals were watered entirely from canvas buckets, there being one per animal. He

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laid great stress on the value of these buckets; said that many times on the march he was able to water by this method, whereas it would have been impossible otherwise.

We left at 11.00 o'clock for the Division Escort Squadron, which belongs to the 8th Lancers. This was purely a show organization, but was the best military horse organization I have ever seen. They were stabled in a large factory with a cement floor; were plentifully supplied with straw bedding, which was kept in place by a woven straw mat all around the edge. Animals were clipped to the legs. I have never seen such grooming; they were positively polished. The animals were of a type far superior to our average officer's mount. Saddle and leather equipment was placed on racks in the centre of the room. In addition to dubbing and soap, polish was used on the leather. Everything that could be was pipe clayed; all metal was burnished. We were showed how to pull a horse's tail; told that the long hairs should first be pulled from the middle of it; that the required length in the English Army was four inches above the hocks, the bottom of the tail being squared by scissors, the top being wrapped to shape it. This squadron had been through the entire war, and there were fifteen men and fifteen horses in it who had never been absent. We were told that in war they had never had a growth of mane of over a week or ten days' duration.

Grain was fed four times a day, long hay once, at night, about four pounds, the balance being chaffed. Grooming was the same as in the battery. Animals exercised one hour per day. The cleaning and polishing of leather extended even to halters. The Commanding Officer of this squadron was very much in favor of small type chunky horses for cavalry use. One boiled feed at night was given daily.

Lunched at Division Headquarters, after which we left for the Machine Gun Squadron, billeted in Cologne. Each cavalry brigade has a unit of this kind, with twelve heavy guns to the squadron, divided into six sub-sections of two guns each, under the command of an officer. Steel hats had been painted and

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varnished and insignia stenciled thereon. Guns were transported by pack horses; the equipment of each squadron includes a sufficient number of limbers to permit of transportation in this manner. The packs were very good and compact, but the divisional machine gun officer stated that moving guns in this manner was sure to lay up animals, and that he was entirely in favor of a new form of caisson, to be built very low, for the transportation of guns.

Four feeds of grain were fed daily. The Commanding Officer stated he had never failed to feed grain three times daily during the war. He considered regularity better than feeding as much as possible. He also laid great stress on the necessity of always carrying a chaff cutter. Major H. W. D. Wathem commanded this squadron.

MARCH 27th:

Reported to Headquarters, London Division, where we were sent to Colonel F. Wilson, D.D.V.S., 2d British Army. He was an Army veterinarian, whose experience dated considerably before the Boer War. We had a long, interesting talk with him. He stated that at the beginning of the war the veterinary service had been charged with the maintenance of health, prevention of disease, and supply of medicine. Later this had been changed, eliminating the first responsibility. He laid great stress on the fact that all officers, regardless of rank or branch of service, should have instilled into them a knowledge of horsemanship and kindly feeling towards animals. He said that in 1917 Horse Masters had been introduced in the British Army. They were men who had, of necessity, no veterinary knowledge. All horse masters, veterinarians and remount service, while not actually coördinated, were supposed to and did work in harmony. He was not greatly in favor of Horse Masters; seemed to feel that this work should be done by veterinary officers. He said a certain number of Horse Masters were assigned to the larger units. When a smaller unit was found to be neglecting or having trouble with their animals a horse

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master was detailed to actually live with that organization until all difficulties had been removed.

He stated that good grooming was seven-eighths of the prevention of mange. He believed in advance billeting parties to disinfect stables, and that this process should be continued once a week for three weeks after occupancy. He preferred dry heat for disinfecting horse covers and blankets. To disinfect leather he advocated wiping harness with gasoline to remove grease, rather than washing with soap and water, or soap and paraffin mixed. He said the first step in building up horse-mastership was to have compulsory horse shows. He said that everyone in every unit should feel that all officers always looked at animals and equipment, and that if they were not properly kept they would get into serious trouble; if they were they would receive the praise due them. He laid great stress on working up the interest of privates and enlisted men, making them realize by lectures that a horse must be cared for. Wastage of feed must be entirely eliminated; the unit should always check to see that they get their full ration, then should see that every ounce is fed. He stated that the simple things were the things that counted. If a horse was off color a veterinarian should examine at once. If necessary an animal should be evacuated while he is treatable and not wait until he becomes a wreck. The veterinarian's word should be taken in this matter. During the war all English units were allowed ten per cent, spare animals to permit this evacuation. This was not always kept up, but, as a rule, was.

Harmony and interest between the Commanding Officer and the veterinarian is necessary if proper care of animals is to ensue. All officers having to do with animals should get in touch personally by being present at stables, etc. Great care should be used in the detailing of men to the care of animals, and once a man has placed a team in good condition and is proud of them, his heart should not be broken by taking them away from him. Always strive to make horses as comfortable as possible. If animals are billeted all over town, the responsibility

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must be definitely placed and the men in charge made to do their work properly. The colonel considered it much better to put horses in small billets than to put them in the open. He laid great stress on remembering that if animals are not right the unit becomes immobile, and that if it is immobile it cannot fight. He stated that an efficient service to look after animals is the best investment a Government can make, otherwise wastage becomes beyond appraisal.

The veterinary service in the English Army supervises the shoeing of animals. He stated hot shoes should only be used to mark the inequalities of surface on the hoof with a view of rasping this off. That the knife should never be used on the sole of foot unless the foot was very long. He advised trimming of the frog with a knife slightly if necessary, but stated, of course, the bar should never be touched.

He advised the clipping of animals as much as the military conditions would permit; if you can blanket your horses or stable them, then clip all over, except legs. If possible do not do this later than the last of November. He believed that if horses had to stand in mud it was preferable to leave the fetlock hair on, but this applied more to feathered hairs than others. If the animal is clipped in November he will grow another coat before the cold weather that will permit him to go without cover. He stated clipping in the English Army had been about as follows: The first winter animals had been clipped twice; the second and third winter once; the fourth winter only parts of the horse once. He said this difference in clipping was largely due to the results caused by the blizzard in the 1917 Arras battle. He advocated the following clip as a preventive of mange: Clip down the gullet on each side of the neck, under the belly, and around tail. Under normal peace conditions clip twice, once in November and at the end of January.

He stated that long coats made horses sweat to such an extent that they lost condition. (While we were in his office he received a telephone message that the English Government was sending out 60 dogs to be distributed as pets among the horse

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organizations for the benefit of the men.) He stated the months of February, March and April were the worst for mange, and further that their Army of Occupation had moved into Germany under practically the same conditions as ours, and that they had had a surprisingly small amount of mange, in spite of the fact that they had occupied stables without disinfecting. He attributed this entirely to thorough grooming and good horsemastership. He stated he considered three feeds of grain a minimum and five the maximum, and that these always should be fed with chaff.

He said that if it were possible all hay should be chaffed, if this were not the case long hay should be fed in not to exceed two feeds, and that regardless of irregularity always feed as many times up to five of grain as possible. He advised the use of crushed oats for animals in poor condition only. The same for boiled foods. If possible always give one bran mash a week. He said he considered dry bran to have the opposite effect of a laxative. He believed in frequently mixing a little dry bran with food. He stated it was not essential that animals have salt, and that he had known them to go over long periods of time without it, showing no bad effects. When loose salt is issued it is better to make salt water of it than to feed it dry. He mentioned the disadvantage of mixing feed in a common place, as it meant some animals would not receive their full share of grain. He was very much opposed to the exchanging of grain for less amounts of other forms of feed, as it necessitated a reduction of grain to the fit horses. He said he believed no animal should receive less than eight pounds of grain per day; that heavy draft animals in the English Army had been reduced as low as eight pounds. He did not believe that guards or lights in stables interfered. He said calcium sulphide dip was the most efficient and should not be used unless it is heated to 110 degrees. He stated further that the dip was preferable to spraying, due to the time involved. He thought nothing could be as good as complete immersion, and called attention to the fact that harm could be done by spraying and too vigorous

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rubbing with a brush. He stated that in the field there was one cardinal principle for the treatment of mange, that all cases should be immediately evacuated and never treated within and by an organization.

Reported to Headquarters, London Division, at 2.00 P.M., commanded by Major General Sir Sidney Lawford. We paid our respects and were told to report the following morning.

MARCH 28th:

We visited a battery of field artillery, commanded by Major J. D. Milne. Some horses were stabled in wooden sheds with wood standings. Three grain feeds and three of long hay per day were being fed. Again all were in favor of nothing but breast harness for war. Dubbing and soap only leather cleaning materials. English artillery drivers do not use cantle pack, their blankets are strapped on the off horse, causing many sore backs we were told. Cannoneers' packs are carried on vehicles. Saddlers we were told go to school before assignment to batteries. Nose bags were plain canvas sacks; this was put on under the nose band of the halter to prevent spilling the food, and was said to be very satisfactory. Hoof hooks are not issued in the English Army; they are made by the blacksmith. Dandy brush was used to take off mud; hair brush to clean. Each horse has his own water bucket. All spare straps were issued, none made. Hand clippers issued. This battery was equipped with a new picket line which comes in sections, each section four feet and nine inches to each horse. Animals were fastened to a loop in one end of the section, after the sections had been joined; this insured that each animal had a proper amount of space and prevented crowding on the line, due to tie ropes slipping. This organization commander was in favor of halter chains instead of rope. His feed schedule was as follows:

7.30 A.M. Water and feed, grain and chaff, 3 lbs.

10.30 A.M. Two lbs. long hay.

12.30 P.M. Water and feed, 3 lbs. grain and chaff.

2.00 P.M. Two lbs. long hay.

5.00 P.M. Water, 3 lbs. of grain and chaff.

9.30 P.M. Two lbs. long hay.

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Crushed oats and boiled food to thin horses only.

We left at 11.30 A.M. for Division Ammunition Column, commanded by Captain E. H. Bindless. The horse-drawn unit of this column consisted of three sections, the first and second artillery, the third small arms ammunition. Each section divided into two sub-sections. Harness was treated with soap, soft and hard mixed together by boiling, and some dubbing. Metal had been kept bright even in war time.

Horsemastership and care of equipment in this organization was excellent. Enlisted men were largely drawn from Indian troops. Animals were exercised every other day without transportation. He said the idea of dress exercise (with transport) was necessary in order to keep up the men's pride in their organization. He laid great stress on the necessity for discipline, shine and polish. Each man had two sets of harness and two mules to care for. Saddle and harness rooms were in wonderful condition. He stated that when men knew how to clean harness its upkeep to the proper standard can be done with a very small amount of labor, much less than that which follows even a day's neglect. He called attention to the fact that leather girths not folded, but having a cut edge caused many galls, that this could be stopped by the use of a felt pad; he preferred the folded leather. Splits in leather girths also caused chafing. This officer had secured a number of wine casks that he had cut in half, carrying them under wagons to be used for watering purposes. He also laid stress on water discipline which we witnessed. He chaffed about five or six pounds of hay per day out of eight. He gave only one feed of long hay and that at night. Grain four times, water three times. For mixing his forage he had run two wagons together, back to back, utilizing the floor space thus gained. His long hay was fed in nets. He stated he groomed twice a day and sometimes three times, divided as follows: Twenty to thirty minutes in the morning; an hour and a half at noon, and twenty minutes in the evening. Wiping was not part of his daily routine. He insisted on the under surface of halters and neck collars being cleaned daily; he also

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stated that breast collars were the only practical kind for war. He was violently opposed to clipping, and stated that clipping had killed more horses during the war than shell fire. He insisted that breast collars of harness always be adjusted high. This organization used mules entirely.

We visited another battery of field artillery. This organization fed three grain and two long hay feeds per day. Animals were all picketed outside, due to the fact that mange had been discovered and stables were being disinfected. Its animals had no horse covers. No special effort was made to save hay seeds; chaff was always fed with grain. The organization commander stated he had not always kept his chains polished during the war. He laid great stress on water discipline. Hay nets were used entirely; no improvised mangers.

We had luncheon at Division Headquarters, afterwards visiting Division Train commanded by Lieut.-Colonel F. B. Lord. This officer had commanded the train of the 24th English Division when I was on duty with that organization in front of St. Quentin in October, 1917. Though the weather was bad and the sector more or less active, I have never seen animals and leather and transportation in better condition than was his. At that time they had no cover for animals except such as could be improvised.

He stated that the secret of success with animals was individual supervision and interest in their care on the part of officers. He fed his heavy draft animals grain four to five times a day, the evening feed being the biggest. Long hay was fed four times. He believed watering and grooming were the principal items in horse management, and laid much stress on water discipline. He always had fed hay during early morning stables. In the morning, first water, then hay up, then groom. Grain was fed as follows: In the morning 2 pounds, at noon 2 pounds, 2 pounds in the evening, and balance at night. Feeding should be varied according to horses. He did not run a feed sheet, but made his officers and noncommissioned officers

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responsible for this. He watered in the morning, at noon and in the evening.

His train consisted of four companies; headquarters company for division troops, the three others for brigade units.

The wagons used in this train were on the whole of the G. S. type, though there were one or two limber types in each company.

Strength, roughly, 400 men, 300 horses, 126 wagons, all teams two horses, driven from box, one driver and one leader per wagon. The colonel believed in trace-high clipping, or clipping all over if you have covers. If animals were in stables, even if clipped all over, he would not put on horse covers. He did not believe animals should stand on stone or cement floors without bedding. Stated hay should not be fed on the ground. He stated that one of the most important things was stable ventilation.

The colonel stated his metal was always kept free from rust, even in war, and that discipline, "spit and polish" were necessary in any horse organization. His harness was washed with soft soap, then treated with dubbing mixed with paraffin. The leather was soft.

He was a strong advocate of breast collars. Said that, in general, breast collars, traces and breeching should be in one line parallel to the ground, as nearly as possible, in order to get the maximum draft. He said one should be able to get the breadth of both hands between the breeching and the buttocks, and called attention to the fact that withers pad of breast collars must always be kept clean; also that the adjustment of harness was largely dependent on the conformation of the horse. Stated that in burnishing chains in a sack torn-up newspapers helped greatly. He saved his hay seeds, to be used with chaff, and selected the worst of his hay for chaffing. One bran mash a week was given, if possible, no work the next day. He did not like boiled foods or crushed oats, except for animals that are poor. He reiterated the necessity of personal observation in

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horse management. In this organization all men did the morning cleaning of stables.

On all wagons each wheel was fitted, on the axle, with a large drag washer, to which ropes could be attached in order to pull the wagon out of mud by hand; each wagon carried two drag ropes. Eight fitted shoes were nailed to the wagon in a visible place. He spoke of the necessity of reinforcing tails boards with extra wood, the grain of which should run in the opposite direction to that in the board. His saddler inspected all leather daily; the farrier all animals. Driver and loader were equipped with rifles, which they never carried on their backs. The traces of all English military harness are made of steel cable, covered with leather. Complete sets of all kinds of repair tools, both for harness and wheelwrights, were always carried. Also a portable canvas watering trough that the colonel alleges to be necessary. In peace times he had all his old horse shoes made over into new ones.

Chaff was fed with every grain feed. He stated he would not part with chaff cutters. He demanded that all concerned with the stable management always watch droppings for evidence of undigested food. He advocated the feeding of linseed, which should be boiled four to five hours, making a jelly. He also believed in all extra kinds of feed possible. He fed loose salt dry with grain; he preferred to always keep a piece of rock salt in each manger, and was a great believer in locust beans when he could get them. He had them broken up before feeding. He did not believe in feeding more than one and a half pounds per day, mixed with other foods. He stated that if one had to feed barley it was better to parch it, and if parched it should be crushed. To fatten a horse, he stated it was excellent to feed corn boiled four or five hours, also giving the horse the water to drink.

MARCH 29th:

We were sent to the 122d Infantry Brigade of the London Division; there visited the battalion transport of the 23d Middlesex

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Battalion. This organization also separated in small billets. It was very well run, and the stable management most excellent. We saw the first hay screen here. Chaff was mixed with salt brine; four grain feeds were fed, two of long hay. Animals were well groomed. The organization was in process of changing light draft horses for mules. In spite of this even mules recently received were in excellent condition. The Commanding Officer here laid great stress on discipline. He believed in clipping. Harness rooms were in excellent shape, the leather the softest we had seen. This officer had secured from England, free, oil, which he used as a preservative. He had no belief in boiled or crushed oats, except for poor horses. He kept a feed book for animals. On inspection this was found to be complete and up to date. Also a horseshoeing record. His billeting conditions were probably the worst we had seen on our trip. His horsemastership and the results shown were as good as any witnessed. He reiterated the opinion of others as to the great necessity of chaff cutters.