THE LOAD OF THE INFANTRY SOLDIER.

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The question of the equipment of the Infantry soldier, as it at present exists in the majority of European armies, may be said to date from the era of the Napoleonic wars. Up till that time the importance of strategical mobility was not so clearly recognised, as later, under the influence of Napoleon, it came to be. The kit that the soldier carried appears to have been to a great extent his own business, and the baggage wagons carried as much as they could to supplement deficiencies. With the commencement of the new era, however, it became important to make the infantry soldier as far as possible independent of wheeled transport, the more so that the means of communication, in the end of the eighteenth and the beginning of the nineteenth centuries, were certainly no better, and probably not so good, as under the Roman Empire in the second and third centuries of our era. At the same time, owing to the comparatively short range of ballistic weapons, in the old muzzle-loading days, tactical mobility, that is, rapidity and ease of movement on the battlefield, was by no means so serious a problem as it is now that the range of the rifle and the gun have so enormously increased. It was possible, therefore, to load the infantry soldier fairly heavily for the march, without hampering him excessively when he came to actual contact with his enemy on the field of battle.

The progress of later years has, however, brought a great change. Communications have improved more in the last hundred years than in all the previous history of mankind, prior to the introduction of steam and railways. Strategical mobility has become largely a mechanical question. On the other hand the demand for tactical mobility has increased enormously. The infantry soldier can no longer reserve his fire till his officer has had time to settle with the commander on the opposite side the delicate question of etiquette, as to who should have the honour of receiving the fire of the other, much less can he advance in parade formation till he can see the whites of the eyes of his opponents. Already, at 3,000 yards, he comes under effective
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artillery fire, and at 1,400 yards under effective infantry fire. Consequently, from within a mile and a half to a mile of the position attacked all movements must be made with the utmost rapidity, and from one piece of cover to the next. Nor is this all. The enormous size of modern armies entails extraordinary exertions on those troops which are far back in the column of route, if it is intended that they shall be present at the decisive moment. It may be necessary on occasion to place more than one army corps on the same road, so that the most distant troops will be from 25 to 30 miles in rear of those in touch with the enemy. This distance will have to be made up at the last moment in one forced march, or at the best in a march and a half, the troops from the rear perhaps having to go into action straight from the march, without any rest. Again, since the decisive battle or battles will probably take place in the opening weeks, or even days, of the campaign, the reservists who have been called up to fill the ranks will not have had time to get hardened, as in the old days, by a long period of route-marching to the enemy's frontier. The clerk or the shopman will be called, untrained and soft, from the desk or the counter, and thrust straight, with 50 lb. or 60 lb. weight on his back, to march to the sound of the cannon. It is obvious, therefore, that something must be done to lighten the soldier's load. Our men are comparatively fortunate, as they carry under 58 lb. The French private carries 62½ lb., the German 59 lb., the Austrian 61½ lb., and the Chasseurs Alpins, 70½ lb., the heaviest load of all. Even these weights fall below the 80 odd lb. that the Roman soldier of the Empire managed somehow to get along under.

However that may be, there is little doubt that the weight is too great for the modern civilised conscript. The man in the ranks in his period of colour service may stand it, but the reservist, out of condition and soft, will not.

What means are there at our disposal by which we may lighten the soldier's load?

In the first place I will detail shortly what that load consists of, and will take the weights carried by our own men, and place beside them for purposes of comparison those carried by the French, German, and Austrian infantry soldier, an average of these being shown on the table.

For the purpose of this discussion I divide the equipment into six classes, namely, (A) Armament, (B) Clothing actually worn, (C) Accoutrements, (D) Appliances for Shelter, (E) Food and Water carried, and lastly, (F) Necessaries.
It is obvious that these different classes vary in their relative importance, and before deciding what articles, if any, must or can be dispensed with, we must agree on the relationship which they bear to the efficiency of the soldier.

Under A (Armament) I include rifle, side-arm, ammunition, and cleaning materials for the rifle. Under B (Clothing worn) I include tunic (greatcoat in the French Army), trousers with braces or belt, drawers, flannel belt (when worn), shirt, neckcloth, handkerchief, head-dress, boots and putties, socks, identity disc, and first field dressing; these being the articles which the man under ordinary conditions actually wears on the march. Under C (Accoutrements) I include knapsack, belt, braces, ammunition pouches, haversack, water bottle, and mess tin. Under D (Shelter) I include tente-abri and greatcoat (with the exception of the French Army). E (Food) means the reserve ration, unexpended portion of day's rations, and water in the water bottle. The last, class F (Necessaries) means all those odds and ends that are necessary for cleanliness or personal comfort, e.g., spare linen, personal cleaning materials, knife, fork and spoon, small book, &c.

Before actually going into the question of reduction, it is necessary to lay down some limit of weight, inside of which we must keep, and for that purpose I must say a few words on the physiological effect produced by the weight carried on the man who carries it.

Every kilogramme of additional weight carried means, of course, an additional expenditure of energy. As long as the load does not exceed 30 kilos., say 66 lb., this increase is regular, if the weight be evenly distributed on the shoulders, and amounts to about 10 small calories per kilo. per minute. Between 30 and 40 kilos. the increase is 13½ calories per kilo. per minute, and above 40, 22 calories. As long as the weight is below 66 lb., therefore, the proportionate increase of energy expended to weight carried is regular, and this weight may be taken as the maximum weight which a man can carry economically.

But it is different if the weight, or any of it, be carried in the hand or asymmetrically. The increase per kilo. per minute is now three times as great as when the weight is symmetrically distributed, and it must be remembered that one of the heaviest individual weights carried by the soldier, the rifle, has to be carried in this manner. This weapon weighs as a rule rather over 4 kilos. (8½ lb.), and to compare it with the other weights, which are as far as possible balanced, we must multiply it by three. If we do this we must obviously deduct about 8 kilos. from the limit
of 30 to which I have already referred, to give us the actual limit of economical weight. This reduces the load to 22 kilos.

The above calculation is, of course, only approximate, but in the result it coincides almost exactly with the limit laid down by Kirchner, for a man weighing 66 kilos., which is within a few pounds of the average weight of the British private of the line, and also tallies fairly with the observations of Zuntz.

Taking then 22 kilos. (48½ lb.) as our limit, we have next to see which of the different components of the present load of 58 lbs. can be most readily got rid of with a view towards lightening the total amount. The first class, armament, which includes the rifle, side-arm, ammunition, entrenching tool, and cleaning materials cannot well be interfered with; at least if so the suggestion would naturally originate with the General Staff. I may note in passing, that some suggestions have been made with a view to the reduction of ammunition. (See an article in the Jahrbücher für die Deutsche Armee und Marine for February and March 1910, by Major von Schreibershofen, of which an abstract appeared in the Journal of the Royal Army Medical Corps in July last year.) There is a suggestion to the same effect from the French authorities. However, we are not concerned here with that question and must accept the deduction of an average weight of 9 to 10 kilos. (in our case rather over 10 kilos.) from our limit of 22, on account of armament: leaving us with 12 kilos., or 26 lb., in hand. As regards the next class it is again difficult to make any reduction. The clothes included are the minimum for actual comfort in a temperate climate. The slight excess in weight shown by our clothing over the average is due principally to the heavier nature of the under-clothing issued by us. Our boots and putties together weigh also more even than the long German boot. Any reduction here would, however, be purchased at the expense of health or efficiency, or would certainly entail a distinct risk in that direction. This class, therefore, absorbs nearly 6 more kilos., bringing the unavoidable weight on account of classes A and B up to 16 kilos., about 35 lb., leaving us with a balance in hand of 6 kilos., say 13½ lb. Any reduction in weight must then be limited to the four remaining classes, and must consist, obviously, either in the rejection of certain items, of which they are composed, or of utilising lighter material in their construction, or both. Apart from his fighting gear and his clothing a soldier carries food, water, shelter and necessaries (as already defined). To enable him to carry these, he is provided
with certain receptacles, e.g., knapsack, haversack, water-bottle, and mess-tin, and also with various straps (belt and braces), to enable him to suspend these receptacles on his shoulders and round his waist; these we term accoutrements. (I have included cartridge pouches under accoutrements, on account of their being made of the same material as the belt, &c. This somewhat illogical arrangement is useful, on account of the question of using a lighter material for the construction of these straps, &c.) The first point to notice about accoutrements, then, is that they impose an additional weight merely for the purpose of enabling the man to carry certain weights. They are, so to speak, a necessary evil, and should therefore be kept as light as possible. They can be lightened in two ways: (1) By constructing them of lighter material; and (2) by utilising non-absorbent material. The water-bottle and mess-tin can be materially lightened by using aluminium in their construction. Thus the German water-bottle holds 800 cc., and weighs 200 grammes, the Austrian holds 500 cc., and weighs 140 grammes. The French "bidon," holding 1 litre, weighs 455 grammes, and our own with the same capacity, of 1 litre (35 ounces), weighs 663 grammes (1 lb. 7 ounces). If we reduce these bottles to the common denominator of 100 cc. capacity, we find that whilst the Germans and Austrians carry 28 grammes of aluminium to 100 cc. of water, we carry 66, and the French 45 grammes, of enamelled iron and block tin respectively, for the same amount. Taking the Austrian and German figures, it seems obvious that we can get a reduction here of nearly 400 grammes, or about 14½ ounces by the adoption of aluminium, and still retain our relatively large bottle. The same remark applies to the mess-tin. The German mess-tin, weighing 384 grammes, holds 2½ litres, whilst ours weighing 679 grammes holds rather less than 1½ litres. Here, again, retaining the present shape of tin, we could engineer a saving of about 450 grammes, or about 1 lb. On mess-tin and water-bottle we could save very nearly 2 lb., or 850 grammes, by using aluminium. As regards the haversack weighing 1 lb., not much can be done as regards material. This has to be fairly stout, to withstand wear and tear, and in fact the general weight of the haversack is about 1 lb.

The next items to be considered are the belt, cartridge pouches, and suspending braces. These are made of webbing in our Service and in that of the United States, and of leather elsewhere. The advantage of the latter material is its non-absorbent character. Webbing, on the other hand, though absorbent, can be manu-
factured of a much lighter material than leather. As long as it is lighter it is to that extent preferable to leather, but this advantage, of course, disappears if it is as heavy as leather at the start. Taking the average of the three chief Continental armies, we find that their belt and braces work out at 655 grammes, whereas our webbing belt and braces weigh 616 grammes. As a matter of fact, those of the German and Austrian armies weigh decidedly more, 750 grammes about, whilst the French (of somewhat inferior leather) weigh decidedly less, viz., 450 grammes. It is obvious that in this respect we gain little by the adoption of webbing. In the German and Austrian weights solid brass buckles are included, so that there is not the slightest doubt that with a little modification leather belt and braces of good quality could be furnished at the same weight as our webbing articles. On the other hand, there is the disadvantage that webbing is absorbent, and the thick material used by us just now is extremely so. I have tried the experiment of soaking some webbing in water and find that a piece with an original weight of 160 grammes took up as much as 30 grammes of water. Calculating on these figures we see that our belt and braces might, after very heavy rain, weigh well over 700 grammes. Webbing can, however, be made much thinner than that used by us, and still retain its strength and elasticity. The webbing used in the old bandolier equipment for the water-bottle strap, intended to bear a weight of 3 lb. 7 oz., is an excellent example of such material. Not only is it strong but, being much thinner, is much less absorbent for the same length. There seems no reason why belts and braces should not be made of a material of this nature. The saving in weight would then be probably as much as 300 grammes, if not more.

We now come to the knapsack. The average weight of this portion of equipment in the French, German, and Austrian armies is about 1½ kilos., say 3½ lb. Our pack weighs 677 grammes, say 1½ lb. Obviously we have here a very positive advantage, except for the fact that the material is absorbent. Using our previous calculation we find that the weight of this pack might conceivably mount up as high as 1 lb. 13 oz.; still, even so, we have a great advantage over the continental nations. It is doubtful whether the pack could safely be made of thinner material, since it suffers more than the rest of the equipment from wear and tear. The canvas, of which the Norwegian ryper-sack is made, is in my opinion, very much superior to that used in our present pack, and
it appears to be decidedly lighter, though the sack as a whole, owing to its enormous capacity, is heavier.

As regards cartridge pouches, we carry five small pouches on each side, the Germans two large ones in front, and the French and Austrians two in front and one behind. Ours weigh about 1½ lb., and the French and German somewhat less. The Austrian pouches weigh nearly 3½ lb. On the other hand, our pouches carry 150 cartridges, whereas those of the Germans carry only 90, the French 120, and the Austrians 100. From the point of view of the present discussion the chief objection to them is that they are made of absorbent material. Perhaps aluminium might be used here again, but the question is difficult for us to discuss here.

As regards accoutrements then, there is distinct room for improvement in the materials of which the water-bottle, mess-tin, belt, and braces are made. The former should be made of aluminium, and the last of light, stout webbing, or rather girding. On the whole we might save here about 1,150 grammes, or say 2½ lb. Keeping to our present weights our balance in hand is now reduced to 2½ kilos., or just about 5 lb. Even so apparently insignificant a saving as I have just mentioned is not to be despised. Assuming its possibility, our balance in hand is raised to nearly 3½ kilos., or 7½ lb.

The next necessity of the soldier is shelter. All nations practically, with the exception of ourselves, provide a shelter tent, weighing from 2 lb. to 3 lb. If there is one point on which the British soldier may be considered an expert it is in variety of climate. I do not refer to our native climate, though that alone is a liberal education in this respect, but to the climates of the different countries in which our army has fought. We have managed so far to carry on without a shelter tent, and I do not think that its introduction is necessary. On this question I would like to point out that the chief object of a shelter tent is to assist in maintaining the body temperature. This can be done probably just as easily by assisting the production of heat as by hindering its dissipation. In my opinion the weight of the tent would be better expended in food. In addition to the tent there is the greatcoat. This, again, is extremely heavy, our army heading the list with a weight of 6 lb. 13 oz. I am very doubtful if this weight is well expended. A greatcoat is excellent as far as the waist; below that it hampers a man in walking, and rucks up, leaving his legs exposed when lying down. What is needed for the protection of the lower limbs is either a long full cape or kilt hanging
round the waist (Burberry makes something of this nature, and I believe the 5th Gurkhas thought at one time of adopting this pattern), or a pair of stout overalls, such as men use for motor bicycling, or policemen wear on point duty. These last would not hamper the man to any extent in his movements, and would certainly keep in position during the night. These could be supplemented by a rather full-skirted pea jacket, such as the "coat, warm, British," which all who have served in India know well. It is to be noted that the Norwegians do not issue a greatcoat, but provide in lieu of this a thick "sweater" weighing 1,072 grammes, plus a sleeping bag weighing 1,500 grammes. The combined weight of these is 5 lb. 11 oz., decidedly lighter than the greatcoats of the British, American, or Austrian armies. Whilst on this subject of greatcoats it is perhaps only fair to refer to the French experience in this matter, as giving the other side of the question. In a very interesting book, "In Morocco with General d'Amade," by Mr. R. Rankin, the following statement occurs: "One would have thought that the long greatcoat would be the most uncomfortable article of clothing, very ill suited to campaigning in a hot climate; but the legionary swears by it, and says it is cool in summer and warm in winter, an easy thing to march in with its flaps buttoned back, and a warm thing to sleep in with its flaps let down." As is well known to you all no doubt, the French soldier wears a greatcoat without a tunic or jacket underneath, as his regular service dress. I think a pound or so might conceivably be saved on the greatcoat. The German coat, which is of excellent material, weighs only 3 3/4 lb., and the adoption of a similar material might save us, say, 3 lb.

Considering the equipment so far, we see that by using a lighter material for the construction of our mess-tin and water-bottle we could save 1 lb. 14 oz. (650 grammes), by using lighter webbing for the belt and braces, say 1/2 lb. (226 grammes), and by lightening the greatcoat perhaps another 3 lb. (1,359 grammes), making a total of 5 lb. 6 oz. (2,435 grammes). The present weight of the articles I have referred to is nearly 16 lb., so that the saving mentioned is not inconsiderable.

We have considered so far the armament, clothing, accoutrements, and shelter which the soldier carries, and in doing this have expended at present weights 22.941 kilos., or nearly 49 1/2 lb.

Admitting the reductions in weight that I have suggested, we still have rather over 4 lb., say 2 kilos. in hand.

We must now discuss food and water.
Obviously these are of extreme importance, in fact, of more importance than shelter, and if it is a question of a conflict of choice they should certainly be awarded preference.

The water carried by the British private weighs 2 lb. 3 oz., and here no reduction is possible. The food carried by the man is at present one emergency ration weighing 9½ oz., and the unexpended portion of his previous day's ration. This last is an indeterminate amount, but if we place it at 12 ounces of bread or biscuit, and 6 ounces of meat, with, say, 2 ounces of groceries, we are giving a liberal margin. The total of this is then under 2 lb. The only reduction possible here is in the tin of the emergency ration. This weighs empty 3 ounces, so that the soldier carries one part of tin for each two parts of nutrient material. Obviously the reduction, if possible, is slight only. As a matter of fact, if there ought to be any alteration in the weight of food carried it should be in the direction of an increase. The subject of provisioning in the field is far too lengthy a one for discussion at this point, but there is a general consensus of opinion among thinking soldiers that the man must be made more independent in this matter. The Germans carry two iron rations weighing 3 lb. 9 oz., the French 4 lb. 3 oz., the Austrians 6¼ lb., in each case additional to any unexpended portion left from the last daily issue. These weights therefore should be balanced against the 9½ ounces of our emergency ration. Obviously here we must calculate not on any saving but on an increase if, weight.

What exactly that increase should be I am not going to discuss now, but taking the average of the three nations mentioned, it is probable that the total carried on this account should be 4 lb. 12 oz., making a total of about 6½ lb. for rations, or about 8½ lb. as food and water.

It is possible, however, with the reductions I have suggested, none of which are, I venture to say, extremely revolutionary, to so reduce the weight of certain items of equipment (so far we have come across none that we can absolutely dispense with), as to leave us with a deficit of only a little less than 2½ kilos., say 5 lb. It might be possible, with further modifications, to go even a little lower than this, say by lightening the boots and the underclothing, but personally I should object to this on sanitary grounds. In short, I cannot see that at present we can reduce the weights carried by the soldier below about 24½ kilos., or 54½ lb., if we wish him to be fully armed, clad, fed, and sheltered.

I have so far left out of consideration Class F., or Necessaries. As will be seen, these bulk fairly considerably in the Continental
armies. They may be divided into: spare linen and other clothes, personal cleaning materials, drinking cup and cutlery, and personal documents, *e.g.*, small book, and, in the case of the German soldier, a song book. If these are to be carried always by the man, then whatever other modifications we make we impose on him an excess weight of 4,300 grammes, or about 9 lb., which is an unfair impost. It must be remembered that every kilo. of this weight is equivalent to 1.3 kilo. of weight below 22.

The question at once arises—are these so-called necessaries required? Is it absolutely essential that a man should wash and shave every day? Personally I have had to abstain more than once from these luxuries, and for a considerable time, and so, I daresay, have most of my audience. The condition is one of acute discomfort at first, but within limits it is not necessarily a cause of serious disease. If a man, to put the matter brutally, is well fed, well clothed, and well sheltered, he will not suffer in health merely because he is dirty and unshorn. Of these so-called necessaries I would abolish all as compulsory articles (to be carried, that is, by the man himself on all occasions) except the cup, and cutlery, and small book. The weight of these is not great, under 400 grammes, and could be lessened by making the fork, spoon, and knife-handle of aluminium. The great point of this reduction is that if we dispense with these necessaries we also dispense with the receptacle in which they are intended to be carried, and that is the pack, weighing 800 odd grammes.

My idea is that all what may be called luxuries, and a clean shirt is a luxury, should be carried on wheels. The soldier is an expensive specialist, and it is false economy to turn him into a baggage animal, which is a poor form of unskilled labour. It would be necessary to have some waterproof cover for the greatcoat which could be carried on the back. This should not be soft and shapeless, like the present pack, but as rigid as compatible with lightness, so that the points of contact with the body should be as few as possible. In this and the haversack the food and other articles could be carried. The pack should be available when possible, that is, during periods when the troops are stationary or moving under no particular stress. When the real call comes for work the soldier should go stripped into action with no weight on his back but that demanded by the actual needs of fighting, which must come first, and of keeping body and soul together, which, except as a condition precedent to the fighting, comes second. To quote from a German officer, Major H. v. Feldmann, "Anything that
the Infantry soldier carries which he can afford to do without for a fairly long time without serious injury to his health is extremely superfluous.”

**NOTE.**

Since reading the above paper I have come across a very interesting essay on the same subject (“Bekleidung und Ausrüstung der Infanterie”), published in *Streifleurs Militärische Zeitschrift*, in 1907, by Oberst im Generalstabscorps Alfred Kraus, of the Austrian Army. This paper contains a most interesting quotation from a memorandum of von Moltke’s, which seems worth reproducing in this connection. It was originally written in 1860, in connection with a report furnished by Oberstleutnant Ollech, of the Prussian General Staff who accompanied the French Army in the Italian Campaign of 1859 as Military Attaché. In his report Colonel Ollech suggests the advisability of forming, presumably as an experiment, though this is not stated, “one battalion of genuine Light Infantry.” Von Moltke’s minute on this runs as follows—

“From the standpoint of the higher strategy what we want is not a ‘light battalion’ but a ‘light army.’ . . . A tactical victory is only decisive when it occurs at the strategically correct position, and that can only be attained by an army equally mobile in all respects. . . . An army which, starting from Rossbach on November 5th, could fight at Leuthen on December 5th, would be as good as doubled. . . . Such mobility is only to be expected when the army is formed of sturdy men, well practised in peace, well fed in the field, and carrying as regards all arms a really practical equipment. . . . An army which marches light will also manoeuvre freely. Therefore every weight that man or horse carries is of importance, and also the way in which it is carried. Every one agrees that our equipment must be lightened, but when it comes to the point, and we have to decide what actual articles have to be dispensed with, there is endless variety of opinion.”

As Colonel Kraus says, this last sentence of von Moltke’s speaks volumes. Von Moltke advocates in his minute the abolition of the individual mess-tin and the provision of travelling kitchens, and also suggests that the man should no longer have to carry his reserve rations. Colonel Kraus himself suggests the following reforms:

1. The abolition of the knapsack, replacing it by a smaller and lighter article.
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(2) Restriction of the equipment to the absolute necessities, as follows: Rifle, if possible without bayonet, 200 cartridges, entrenching tool; two reserve rations; a spare pair of foot-cloths or socks; a pair of light shoes; abdominal belt; plate and spoon; water bottle; and identity disc.

(3) Light-grey uniform of light cloth cut to fit easily, leaving the throat unconfined; leather straps to be grey or natural colour; metal parts dull; a light, short cape, with sleeves, cut almost circular in shape (möglichst radförmig geschchnittner mantel), it would appear that something like a sleeved poncho is intended.

(4) These articles of clothing to be supplemented in winter by warm underclothing and by a thicker lining for the cape, or if necessary, fur. These extras to be sent to the front as needed.

DISCUSSION.

Surgeon-General GUBBINS agreed that the pack and necessaries should be carried in the cart. He referred to the use of “shorts” instead of trousers as a means of saving weight, and as allowing greater freedom in movement.

Lieutenant-Colonel R. J. S. SIMPSON referred to the fact that the present greatcoat is no protection against rain.

Lieutenant-Colonel J. B. WILSON said he would have liked to have heard some suggestions as to how the weight should be carried.

Major W. S. HARRISON related an experience in the Khyber, where a “scout section” of a regiment took to the use of “shorts” with the result that every man was laid up for a week with blisters round the knees; possibly this would not have happened if they had been accustomed to leaving their knees bare.

Major LYLE CUMMINS suggested experiments with single-wheeled carts for carrying packs.

Lieutenant-Colonel BURTCHAELL said, with reference to the use of carts for carrying packs, it was very difficult for men to get their property at night when their packs were carried on the carts. The Gurkhas used “shorts” largely, but after Magersfontein a very large number of Highlanders suffered from severe blisters behind the knees as a result of lying out in the sun all day.

Surgeon-General BABTIE agreed that it was necessary to increase the amount of food carried by the soldier. The present form of greatcoat would have to go.

Major BEVERIDGE agreed that aluminium should be used for mess-tins and water-bottles; it did not give a taste to the food if it was pure, but if there was more than 1 per cent. of iron in it the food acquired a
marked taste. Probably the new alloy with magnesium would prove the best material.

Colonel Sir David Bruce found in South Africa that where men could carry baggage on carts, the baggage grew very rapidly. He had seen severe blistering of the knees among the Highlanders at Ladysmith. In German East Africa single-wheeled rickshaws were used.

Colonel Melville, in reply, said that he would like to see the introduction of the rucksack, but it was doubtful if one could persuade the British authorities to adopt it as it was so difficult to pack neatly. Experiments with waterproofing were being undertaken. He thought that men should all carry three days' "iron rations" of 2 lb. each. To get over the difficulty of blistering with "shorts," and as a protection to the knees at night, it might be possible to arrange a turn-down fold at the bottom of the coat.

THE TRAINING OF TERRITORIAL MEDICAL UNITS.

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The subject on which I have the honour to address you this evening is one of some importance to most of us, and more particularly so to those who contemplate applying for one of the Adjutancies of the Royal Army Medical Corps (Territorial) Schools of Instruction.

The officers, to whom the training of the Territorial branch of our Service is entrusted labour under certain difficulties which are peculiar to the body with which they have to deal. In the limited time at the disposal of their pupils, they have to train them to a state of efficiency as nearly approaching that of their regular brothers as possible, and at the same time to devise their instruction in such a manner as to make it attractive, in the hope that by so doing they may encourage the enlistment of fresh recruits, and so maintain their units at proper strength.

I trust that my remarks, which are based on an experience of three years as Adjutant of one of the Territorial Medical Schools, and of those who may be good enough to join in the discussion later, may prove of real assistance to the numerous officers, Regulars and Territorial, who will sooner or later have to undertake these duties.

The raising of the requisite number of recruits for all units of