NOTES ON STAFF WORK AS APPLIED TO THE MEDICAL SERVICES.

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The following notes on Staff work as applied to the Medical Services, in connection with a Staff ride held by the Director of Staff Duties, are published at the request of the Director-General, Army Medical Service, and by permission of the Director of Staff Duties.

The Staff ride took place between May 27th and May 31st, 1907. The “General Idea” was that the British Islands were divided into three separate and independent kingdoms, namely, Northland (Scotland and a portion of the north of England), Westland (Ireland and south-west Wales, with part of Monmouthshire, the Welsh possessions being called “Cambria” for purposes of the ride), and Eastland (the remainder of England and Wales). Formerly, the whole of Wales was supposed to belong to Westland, but Eastland took from it the northern portion about twenty years previously. The object of the movement in Westland was to recapture its lost provinces. Northland remained neutral, but was in sympathy with Westland. Roads, railways, telegraphs, seaports and fortifications, with some slight modifications, were to be taken as they actually exist, and war establishments as laid down in the Field Service Pocket Book of 1907. The capital of Westland was Dublin, of Eastland, London. The army of the former was four divisions, with special army troops, a cavalry division of three brigades and fortress troops; of the latter, six divisions, with army troops, cavalry division of four brigades, and fortress troops.

The peace stations of these were:—

Westland.

Cavalry Division. 1st Brigade at Brecon, 2nd Brigade at Mullingar, 3rd Brigade and Divisional Troops at Dublin.
1st Division in Cambria, with No. 1 Brigade at Merthyr Tydvil, No. 2 at Builth Wells, No. 3 and Divisional Troops at Carmarthen.
2nd Division at Dublin (Brigades 4, 5 and 6).
3rd Division at Curragh (Brigades 7, 8 and 9).
4th Division at Limerick (Brigades 10, 11 and 12).
Army troops at the Curragh.
Eastland.

Cavalry Division. 1st Brigade and Divisional Troops at Aldershot, 2nd at York, 3rd at Blackburn, 4th at Hereford.

1st Division, Brigades 1 to 3, and Divisional Troops at Aldershot.

2nd Division at Cambridge (Brigades 4, 5 and 6).

3rd Division at Sheffield (Brigades 7, 8 and 9).

4th Division at Manchester (Brigades 10, 11 and 12).

5th Division at Worcester (Brigades 13, 14 and 15).

6th Division at Gloucester (Brigades 16, 17 and 18).

Army troops, 1st Mounted Brigade at Aldershot.

2nd Mounted Brigade at Shrewsbury.

Other troops at Aldershot.

Eastland's army was divided into Groups A, B and C, with headquarters respectively at Worcester, Sheffield and Aldershot. During the operations of the Staff ride only Group A, namely, the Cavalry Brigade, the 2nd Mounted Brigade and the 5th and 6th Divisions, came into play.

Of Westland's army the 1st Division in Cambria and the 1st Cavalry Brigade at Brecon came into play and were re-inforced during the period by the 2nd Division and 3rd Cavalry Division from Dublin.

Briefly, the operations that took place were as follows. In the earlier stages Westland distributed the available cavalry brigade along the Eastland-Cambria frontier for reconnoitring purposes, and concentrated its Division at Brecon, with small garrison posts left behind at Builth and Merthyr Tydvil; while Eastland proceeded to seize Three Cocks railway junction in Cambria, on the main road to Brecon, with the 4th Cavalry Brigade from Hereford and the 2nd Mounted Brigade from Shrewsbury; to throw its 5th Division on the road to Brecon at Hay and Three Cocks Junction, with one brigade directed to Abergavenny; and to send its 6th Division in three columns of one brigade each against Abergavenny, Pontypool and Newport. Subsequently Eastland altered this movement and sent the whole of the 5th Division on to the Brecon Road at Three Cocks Junction and the whole of the 6th Division on to Abergavenny.

The next stage was the cavalry encounters at Three Cocks Junction with subsequent movement of Westland's 1st Cavalry Brigade to Crickhowell. This was followed by the 5th Division taking up a position across the Brecon road in advance of Three Cocks Junction, by the movement of the 1st Division of Westland...
against it from Brecon, and by the disembarkation of Westland's reinforcements at Swansea and their subsequent movement to Merthyr Tydvil, thence by road towards Crickhowell and Abergavenny to meet the 6th Division of the Eastland forces and 4th Cavalry Brigade that were pushing their way up the Brecon road from these places, and had already dispersed Westland's 1st Cavalry Brigade into the hills west of the Brecon road on the right bank of the Usk.

The final stage was an indecisive action fought out on the Brecon Three Cocks road, and the retirement of the 6th Division, taking the 4th Cavalry Brigade with it, from Crickhowell, owing to the advance of Westland's reinforcements from Merthyr Tydvil.

This brief abstract of the general and special ideas and narrative of events will enable the following notes to be followed, but the notes are in reality a criticism of more detailed work, and are only given as a general guide to the nature of Staff work as applied to medical services. The subject is a more or less new one for the Royal Army Medical Corps. In foreign armies, more especially in Austria, but also to a considerable extent in France and Germany, work of this kind has been highly developed, and these notes may help to foster its development here.

As the Commander of neither army had with him a Director of Medical Services, nor was there any one to represent technically the administrative work of the medical services with divisions, detailed orders in connection with the distribution, opening and closing of medical units, the evacuation of sick and wounded, and problems of field sanitation, were not to be expected. The work of the Staff ride brought out, however, much that is instructive, and showed the need of wider knowledge of the use and handling of medical services in the field.

The following notes are based on actual orders issued by various commanders, and will serve to illustrate the nature of the instruction that may be obtained in this direction on Staff rides.

It was assumed that the "field ambulances" had mobilised with their divisions and were ready to advance as soon as the divisions were ready to advance, although there was no specific mention of them in the "Special Idea," beyond noting the position of divisional troops at the time of mobilisation.

As regards "cavalry field ambulances," Eastland had one despatched from Aldershot to arrive at Hereford at 2 p.m., on May 28th, in order to join the 4th Cavalry Brigade, and Westland had one sent to join the Cavalry Brigade at Brecon. The 2nd Mounted
Brigade, it may be assumed, had a cavalry field ambulance mobilised with it at Shrewsbury, as one is included in the composition of a mounted brigade in war establishments.

The position of field medical units on May 27th, therefore, was as follows:

**Eastland Forces, Group A.**

Three field ambulances at Worcester for 5th Division.
Three field ambulances at Gloucester for 6th Division.
One cavalry field ambulance at Shrewsbury for 2nd Mounted Brigade.
One cavalry field ambulance on the way to Hereford for 4th Cavalry Brigade.

**Forces in Cambria.**

Three field ambulances at Carmarthen for 1st Division.
One cavalry field ambulance at Brecon for 1st Cavalry Brigade.

No arrangements of medical services for evacuating or distributing sick and wounded along the lines of communication were ready on either side. But Eastland had the large military hospitals at Aldershot, Netley, Woolwich and Devonport available, and there were general and stationary hospitals in mobilisation stores. In Cambria there were no such units in mobilisation stores. Such would have to be sent from Westland, but permanent military hospitals exist at Pembroke Dock, Brecon and Cardiff.

The general officers commanding both armies were thus faced with medical problems from the very beginning. There was every prospect of a conflict, with numerous casualties, by May 29th or 30th; an effective distribution of the field ambulances in the divisions was a matter of importance; the link between them and the lines of communication had to be established; the arrangements for evacuating wounded to the fixed hospitals had to be thought out; and sanitary questions, more especially those connected with ports of disembarkation, had to be considered.

As a rule, these matters were only slightly touched upon in operation orders, and in the majority of instances it was evident that the new field medical units and the method of handling and utilising them were not well understood.

For example, the 1st Cavalry Brigade orders, dated Brecon, May 27th, were to the effect that its "field ambulance" should divide into three sections, one going to Brecon, one to Abergavenny, and one to Builth. A field ambulance, it is true, does possess three sections, but the general officer commanding had no field ambulance
under his command. He had only a cavalry field ambulance, which is a unit of quite different composition, and capable of being divided into two sections only. When it is remembered that its transport consists of two water carts, two forage carts, four light ambulance wagons, and six heavy ambulance wagons, the impossibility of splitting up a cavalry field ambulance into three sections is evident.

The general officer commanding the same cavalry brigade also issued the following order on May 29th:

"The Principal Medical Officer will arrange to send the wounded into Crickhowell and establish a hospital there."

There is no principal medical officer in a cavalry brigade. Each regiment in the brigade has a medical officer attached to it, and there is an officer in command of the cavalry field ambulance, but there is no special officer to whom an order such as the above could be given. Besides, the order to establish a hospital in any particular place is not within the province of a general officer commanding a brigade in the field; it would come from the general officer commanding the army, and his Director of Medical Services would deal with the matter. All that the general officer commanding the cavalry brigade need have done to carry out his intention, which was a perfectly sound intention, would have been to order the tent division of his cavalry field ambulance to open at Crickhowell. The officer commanding the ambulance would then, without further instructions, select a suitable place or building and cause his bearer division to bring the wounded to it. He would also, without further orders, have placed himself in communication with the Army Director of Medical Services as regards evacuating the wounded to whatever hospital the Director of Medical Services might determine.

It may be noted, however, that subsequent events would have inevitably led this cavalry field ambulance to be captured by the enemy. It would then be dealt with under Articles 6, 9, 12 and 14 of the Geneva Convention of 1906.

On the Eastland side the movements of the cavalry field ambulances with the 4th Cavalry Brigade and 2nd Mounted Brigade are not very clear. On May 28th the general officer commanding 4th Cavalry Brigade issued detailed orders for the advance of his brigade from Hereford on Three Cocks. The orders are dated 8 p.m., and the "Special Idea" notes that a cavalry field ambulance would begin to arrive at Hereford at 2 p.m. that day to join the 4th Cavalry Brigade. Yet no orders were issued regarding this ambulance, and, as far as the arrangements of the general officer commanding went, it would have remained at Hereford while the
brigade to which it belonged was seizing Three Cocks Junction. It may be that the general officer commanding included the ambulance in his general order respecting 2nd Line Transport, but this is scarcely the correct method of dealing with a distinct unit that has just joined his command. He had a good opportunity of dividing his ambulance into its two sections, and ordering Section A to follow his right column and Section B his left column. Or, if he did not wish the movement to be disclosed by the heavy ambulance wagons, he had it in his power to order the bearer division only to proceed with the columns, leaving the tent division of the ambulance to follow with the 2nd Line Transport. In any case, the disposal of the cavalry field ambulance in sections, or in divisions, or as a whole, should have been noted in these orders. The same general officer commanding, on May 29th, mentions cavalry field ambulances in the plural, presumably referring to the cavalry field ambulance of his own brigade and the cavalry field ambulance of the 2nd Mounted Brigade which had come under his command. He orders them to remain in their present positions, but there is no previous order to show that they were ordered to proceed at all from their original bases at Hereford and Shrewsbury. The general officer commanding 2nd Mounted Brigade, in orders of May 29th, speaks of his field ambulance remaining in bivouac in Gwernyfed Park. This order seems to clash with the order of the general officer commanding 4th Cavalry Brigade, just referred to, but it is possible that the latter used the term "ambulances" in the plural by mistake, or he may have meant ambulance wagons. In any case the order is ambiguous and, taken with that of the 2nd Mounted Brigade on the same day, confusing. The term "field ambulance" is again used in speaking of a cavalry field ambulance. The mistake is very similar to that of using the term "division" in speaking of a "cavalry division."

When the Cavalry Brigade landed from Westland at Swansea, and proceeded to Merthyr Tydfil, there is no mention of its being accompanied by a cavalry field ambulance. It was despatched either purposely or by an oversight without a cavalry field ambulance. The general officer commanding the Westland Forces in Cambria should have made inquiries on this point, and have had the oversight corrected, if he thought it necessary.

The handling of the field ambulances of divisions brought out several points that are worthy of attention in connection with the operation orders. The 6th Division of the Eastland forces alone seemed to place its field ambulances in a proper position. The orders on this point,
issued at 9 a.m. on May 27th, in which a field ambulance was ordered to accompany each of the columns marching on Newport, Pontypool and Abergavenny, were good. The 5th Division orders, on the other hand, would have led to an awkward condition of affairs. In the first instance, the general officer commanding this division, in Operation Orders, No. 1, of May 27th, ordered a flank guard, composed of one brigade and other details, to proceed by rail to Abergavenny Junction, and, in the same orders, ordered a field ambulance for the brigade to proceed to Hay. It is difficult to understand why the field ambulance was not despatched in the same direction as the brigade to which it was attached. In any case it could not have been where it was wanted, when fighting in the neighbourhood of Abergavenny took place. It would have been about a day’s march distant. The same orders refer to the movements of the “Remainder Royal Army Medical Corps.” This is a vague expression, because Royal Army Medical Corps personnel are distributed with combatant units, and with head-quarters, as well as with field ambulances. The order could only refer to the field ambulances, and should mention them as such, and not as “Remainder Royal Army Medical Corps.” These orders were, however, cancelled by Operation Orders, No. 2, of the 5th Division, dated Worcester, May 28th, when the division was ordered to detrain at Hereford and Hay, presumably arriving at its destination early on the morning of the 29th. The field ambulances, however, were ordered to march behind the Ammunition and Supply Columns, from Worcester via Castle Frome to Hereford, as soon as possible. The distance from Worcester to Hereford by road is at least thirty miles, and at the best one could not have expected the field ambulances to reach the latter place before the evening of the 29th, and then only with difficulty. They would then be tired out, in all probability, and still some thirty miles distant from Three Cocks and the Brecon Road, where it was anticipated the division would be actively engaging the enemy, and endeavouring to push forward on Brecon. Thus, during the first important action of the campaign, the whole of the division would have been practically without its medical units, and the only line of medical assistance would have been the solitary medical officer with each battalion. Under the circumstances there could have been no proper collection of wounded, no reception of them into suitable dressing stations, no arrangements for clearing the division of its casualties, and no adequate attempt to save the lives of seriously injured, for at least a day or two after the action had taken place.
In a move of this kind, one field ambulance, at any rate, should have been pushed on immediately behind the advance guard, and one or both of the others brought up immediately behind the main body.

In the case of the Westland Divisions, the disposal of field ambulances is vague and, in one instance at least, confusing. The three ambulances of the division were, presumably, at Carmarthen. There is nothing to show that one had been attached to each of the brigades at Builth and Merthyr Tydfil. Yet, when the division is ordered to concentrate at Brecon, mention is made of the “field ambulance” only (general officer commanding 1st Division, Operation Order No 1, of May 27). This may be an error in copying. If the expression used had been “the field ambulances,” in the plural, the order would have been correct. When the division comes into action on May 29th, on the Brecon-Three Cocks Road, we have the following confusion in the orders: General officer commanding the division notes in his operation orders, 6 p.m., of May 29th, that the three field ambulances will march in rear of the main body, i.e., to take up the line across the road Brecon-Three Cocks Junction, occupied by its 1st Brigade. But on the same date the general officer commanding the 1st Brigade notes that he had sent a message at 8.15 a.m. to the general officer commanding the division asking for a field ambulance, and that the field ambulance had arrived at 10 a.m., having started before the message was received. He also notes that a dressing station was established at a certain point during the day. Evidently the general officer commanding 1st Division, in ordering his three ambulances forward at 6 p.m., had forgotten that one had already gone on in the early morning. It may be noted here that it is scarcely advisable to state in orders that a dressing station has been established at such and such a place. It would be more correct to say that “the Tent Division of Section A (B or C) of . . . . Field Ambulance has opened at (place).”

In future Staff rides there are two main points to remember in connection with the mobile medical units, i.e., the cavalry field ambulances and the field ambulances. The first is that they are not only divisible into sections, but that each section has a bearer and a tent division; the former for collecting and bringing in the wounded, and the latter for receiving and temporarily taking care of them. The bearer division is simply the old bearer company, and the tent division the old field hospital; and it is advisable, when an action is pending, to move the former to an échelon considerably more advanced than the latter. This point was
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apparently not understood by any of the general officers commanding. The second point is that in disposing of field ambulances in order of battle, the probable course of the action and the anticipated number of casualties should be considered. If the action is likely to be a running action, with a few scattered casualties and a rapid advance over a considerable distance, it would be inadvisable to open all the field ambulances for work. Probably one complete ambulance, or a section of each of the ambulances, would be sufficient, the other ambulances or the remaining sections being held back in reserve, ready to be pushed on at once, as required. If, on the other hand, the fighting is concentrated against certain strong positions, with anticipated heavy casualties, the field ambulances should be brought well up, and opened at convenient places near the area of fighting. But, even then, it is well to keep one ambulance, or section of an ambulance, in reserve until the very end.

The Staff ride brought out no definite problems regarding the evacuation of the wounded. It was only in the cavalry action at Three Cocks Junction that details of casualties are given. They were comparatively few, and it was estimated that the ambulance wagons of the cavalry field ambulances would have been sufficient to bring them as far as the railhead. The problem of evacuating a supposed case was correctly worked out by the staff of the General Officer Commanding, Eastland. But in future Staff rides many problems might be set to test the sufficiency of ambulance transport material in dealing with given numbers of casualties, and to determine how far local resources or other means of transport could be made available. In dealing with problems of this nature it is necessary to note that there are at least four categories of wounded: (1) Those that can walk; (2) those that can be removed sitting up; (3) those that must be carried lying down; and (4) those that should be left alone, and whose removal should not be attempted. It is also necessary to remember the probable proportion of killed to wounded. To help in the solution of such problems, therefore, the following proportions may be noted as the average of experiences in recent wars:

Killed to wounded as 1 to 4.

Wounded fit to walk ... ... ... ... 20 per cent.
" requiring sitting accommodation ... 60 "
" requiring lying down accommodation 15 "
" unfit for transport ... ... ... 5 "

The problems connected with evacuation of wounded would depend not only on these categories but also on the distance to
which they have to be taken to the lines of communication, and on
the nature and amount of transport material available. When
these factors are determined it would be possible to calculate, fairly
accurately, the time taken to clear the area of operations of masses
of casualties, and to anticipate the arrangements necessary for
dealing with them when they reach the lines of communication.

As regards the lines of communication medical arrangements,
little was attempted by either the Eastland or Cambrian com-
mander-in-chief. The latter, in his orders of May 27th (No. 1),
ordered his principal medical officer to form a stationary hospital
at Brecon and a general hospital at Carmarthen. But both of these
are definite field units, with personnel that has to be mobilised and
with material held in mobilisation stores. The principal medical
officer in Cambria could not form them, unless they were already
in the country, and presumably they were not. It seemed a per-
fectly sound course to establish a general hospital at Carmarthen,
but for this purpose an immediate requisition should have been
sent for one to be despatched from Westland. Similarly with
stationary hospitals, an immediate requisition should have been sent
to Westland for whatever was required. Pending their arrival the
existing military hospital and barracks at Brecon might have been
utilised and kept ready for sick and wounded, and local civil practi-
tioners might have been called in to assist. Orders to that
effect would, therefore, have been more correct. Action of this
kind was subsequently taken by the general officer commanding the
forces in Cambria in his communication of May 29th, to the
adjutant-general, Dublin, when he requested permission to accept
the offer of the civil hospitals at Swansea to place 600 beds, &c.,
and of the Chamber of Commerce two hospital ships, at his dis-
posal. These were excellent suggestions, and, if the general officer
commanding had remembered that there were no general or
stationary hospitals mobilised in Cambria, he would have done
better to accept the offers at once on his own initiative, informing
the War Office, Dublin, that he had done so, instead of first asking
permission.

A curious mistake was made by the general officer commanding
1st Division, in repeating the orders of the general officer com-
manding the forces in Cambria, relative to this formation of a
general and stationary hospital. He ordered his own principal
medical officer to carry out the order. But the principal medical
officer of a division (the correct term now is administrative
medical officer), has nothing whatever to do with general or
stationary hospitals. These are essentially lines of communication
units, and the orders of the general officer commanding the forces in Cambria on this point would have been noted and carried out by the general officer commanding lines of communication and his deputy director of medical services (i.e., the principal medical officer of the lines of communication).

The use of the new medical unit, the clearing hospital, was not referred to in orders. It would have been the duty primarily of the general officer commanding an army to order a clearing hospital up to any point, and of the general officer commanding lines of communication to give effect to the order, but a general officer commanding a division should be aware of the fact that a clearing hospital is the unit by means of which his field ambulances are cleared, and it would be within his province to ask the general officer commanding the army to send a clearing hospital to any convenient point within his area of operations. Whenever there is risk of his ambulances becoming clogged with wounded and unable to follow the movements of the division, he should invariably do so, if he finds that the general officer commanding the army has not already anticipated his wants. During the operations of the Staff ride, a clearing hospital should have been brought up to Hay, and another to Abergavenny, as early as possible, for clearing the field ambulances of the 5th and 6th Divisions, and one to Brecon for the Westland forces. A clearing hospital should also have been embarked at the same time as, or immediately after, the division and cavalry brigade from Westland, and sent up to Merthyr Tydfil or Brecon. In fact, two clearing hospitals should have been sent, one for the 1st Division, already in Cambria, and one for the division sent from Westland.

The general officer commanding, Eastland, made use of an ambulance train for evacuating wounded from clearing hospitals at Hay and Abergavenny. It was ordered to Hereford, and from there to go in two portions, one portion to Hay and the other to Abergavenny. It is questionable whether an ambulance train can conveniently be divided into two portions; but, as neither the equipment nor composition of the train is to be found in any documents, it is impossible for a general officer commanding at

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1 It may be useful to note that the term principal medical officer, formerly applied to all commands, has been abolished because of the confusion that used to arise sometimes from not knowing to which principal medical officer an order referred. This is now obviated by the use of the designations director of medical services, deputy director and assistant directors of medical services, and administrative medical officers, for armies, lines of communication, and divisions respectively.
present to know what the nature of the unit called "an ambulance train" is. War establishments give the personnel of a train for the conveyance of 100 lying down, and the mobilisation instructions for the Army Medical Service show three ambulance trains as ready for mobilisation, but nowhere is there a scale of equipment or statement of the composition of the trains. This is a point that might be considered elsewhere, and, at present, until more details are known, one cannot say whether the unit is divisible into two sections or not. The use of ambulance trains was of much importance to Eastland, just as the use of hospital ships would would have been to Westland. With clearing hospitals suitably placed, and ambulance trains running regularly, Eastland could have evacuated the sick and wounded direct to the large military hospitals at Netley, Aldershot, Devonport and Woolwich, without mobilising stationary hospitals for intermediate posts on the lines of communication. Minor posts, such as rest or refreshment stations at the chief halting places along the line of railway, would have met the requirements of the operations in this respect, and with organised local branches of a National Red Cross Society might have been established at once by voluntary effort.

As regards the prevention of disease in the army, there seems to have been some misconception of the new lines of communication units called "sanitary sections" and "sanitary squads." In the communication of May 29, sent by the General Officer Commanding forces in Cambria to the Adjutant-general, War Office, Dublin, on the subject of sanitary and medical services, sanitary squads are spoken of as being formed of men trained in each unit for the duties of a sanitary squad; and reference is also made to the formation of sanitary squads for divisional headquarters and for cavalry, infantry, and artillery brigades.

The communication is quite correct as regards the formation of sanitary squads for each combatant unit out of men belonging to the unit and trained for the purpose; but it is incorrect as regards the formation of sanitary squads specially for divisions and brigades, and also as regards the statement that one non-commissioned officer and three men have been trained in each unit in the methods of purifying water. The sanitation of the headquarters of divisions and brigades would come directly under the sanitary officer on the division headquarters, who would generally supervise the work of sanitation within the units of the division and brigades so far as the sanitary requirements of the field army are concerned. No special squads would be formed for this purpose, because with the mobile troops it is desirable that sanitation
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should be the concern of each unit and of each individual in it. But as regards water purification, this is the duty of one non-commissioned officer and four privates (two to each water cart) of the Royal Army Medical Corps, who are attached in war to each battalion for the purpose. They are not trained in the unit, but in the Royal Army Medical Corps. The units called specially "sanitary sections" and "sanitary squads" are, on the other hand, lines of communication units of the Royal Army Medical Corps, and mobilise with a personnel definitely laid down in war establishments. All that the general officer commanding forces in Cambria need have done was to ask for the required number of sanitary sections (i.e., two sections, one for the base and the other for the head of his lines of communication, or one for Swansea and the other for Brecon, and as many sanitary squads as there are likely to be posts on his lines of communication). It would be left to the general officer commanding lines of communication to issue the necessary orders for placing the sanitary sections and squads; and they would be under the deputy-director of medical services, lines of communication.

It was brought to notice that two brigades bivouacked alongside a stream, one higher up than the other, on a hill outside Aber-gavenny; and the question arose whether this was dangerous from a sanitary point of view. Such a disposition of troops would only be justifiable if it was absolutely necessary for the strategical or tactical requirements of the moment. Latent cases of enteric or other infectious disease might have been present amongst the troops on the upper portion of the stream, and any pollution of the stream by them might readily have caused a considerable, possibly a very extensive, outbreak of disease amongst the troops lower down. This would not necessarily have shown itself at once, but two or three weeks later, and perhaps at a critical stage in the operations.

In any case, were the conditions unavoidable, special precautions should have been taken with regard to the water supply, and all units should have been warned.

A number of other points were suggested during the Staff ride, but to deal with them instructively it would have been advisable to have had an officer, Royal Army Medical Corps, to act as Director of Medical Services on the headquarters of the general officer commanding, Eastland army, and another to act in a similar capacity for the forces in Cambria, with a junior Royal Army Medical Corps officer as assistant director with each, in addition to the Royal Army Medical Corps officer attached to the Directing Staff.
The following are some of the problems with which they might deal, attention being specially directed to acquiring information regarding local resources, and to calculating the time and requirements for clearing the Field Army of its sick and wounded:

(1) What shelter is to be provided for troops—tents, bivouacs, with or without tentes abris, or billets in towns and villages? If the last, what is the condition of the inhabitants as regards epidemics or infectious diseases, and how far will this alter the arrangements for moving or sheltering troops?

(2) Are the cavalry and field ambulances to carry tents for sick and wounded, or is accommodation to be provided in buildings? If the latter, what buildings are to be marked down for the purpose, and how many will they accommodate?

(3) What arrangements are to be made for clearing field ambulances during or after an engagement?

The Director of Medical Services and Divisional Administrative Medical Officers will want information, in anticipation of an engagement, regarding the probable area of an engagement and the probable number of casualties. What transport is available for clearing the ambulances, and how long will it take, with this transport, to get the probable number of casualties to a clearing hospital and to railhead?

(4) What arrangements are to be made for further distribution of sick and wounded down the lines of communication? What lines of evacuation are fixed for this purpose, and to what hospitals are the patients to be distributed?

(5) What are the available local resources on or near an area where an engagement is likely to take place, as regards:

(i.) Civil medical men?
(ii.) Chemists’ shops and supplies of material for dressings, &c.
(iii.) Local transport material, suitable for conveyance of wounded?
(iv.) Local civil hospitals?

(6) What proportion of the casualties is likely to be:

(i.) Left on or near the area of an engagement as unfit for transport?
(ii.) Removed, lying down, to line of railway and clearing hospital, and down line to stationary or general hospitals?
(iii.) Removed, sitting up, to same destination as in (ii.)?
(iv.) Sent back to clearing hospital on foot?

(7) What arrangements are to be made for evacuating these different categories in accordance with the anticipated proportions of each?