SOME NOTES ON DIVISIONAL MEDICAL UNITS IN MOBILE WARFARE.

By LIEUTENANT-COLONEL G. A. K. H. REED,
Royal Army Medical Corps.

GENERAL CONSIDERATIONS.

So much has changed since the Great War in the organization of field ambulances and in the tactical dispositions of the fighting troops, that it is thought the following notes may be of use to those who have not had recent experience in field ambulance work.

In compiling these notes points are omitted as far as possible which are already exhaustively dealt with in "R.A.M.C. Training."

No attempt has been made to review the subject completely, and those who wish to study it fully are recommended to read many valuable articles which have appeared in the Journal from time to time—paras. 163-307 and 376-460 "R.A.M.C. Training" also refer to the subject.

Much that has been written must, however, be considered obsolete, as the conditions of warfare for which we are now preparing are in many respects different from those which obtained on most fronts in the Great War.

Reference will only be made to the field ambulance as at present constituted and to its normal functions, that is to say, the rapid collection of casualties from the regimental aid posts and their temporary treatment and concentration in a main-dressing station until they can be evacuated by the motor ambulance convoy to a casualty clearing station.

As these notes are primarily intended for those with little or no previous
experience of the work, it has been necessary to include a number of minor
details and to adopt a somewhat dogmatic style on points about which
there may be divergence of opinion.

Necessity for Mobility.

Under the conditions of mobile warfare a field ambulance is not the
place for elaborate surgical procedure; its chief duty is to ensure the rapid
clearing of the field of casualties. Treatment should be limited as far as
possible to first aid, as even the M.D.S. may be required to move at short
notice.

In mobile warfare a field ambulance must be kept mobile; its place is
with the mobile troops with whom it should be in close touch at all times.
Owing to the increased use of mechanical appliances and the augmented
fire power due to large numbers of mechanical weapons, the warfare of the
future will be one of rapid movement; for the same reasons the frontages
adopted now are much greater than they were a few years ago. Positions
will be held in depth also, and a decision will be obtained by the
successive attack and capture of local features of tactical importance
rather than by the simultaneous advance of a line of storming infantry.

Airplanes will harass the line of march, so that casualties will be
dispersed in groups over a very wide area and the work of the field
ambulances made correspondingly difficult. Their mobility and elasticity
will be tested to the full.

On the other hand, comparative difficulty of ammunition supply will
prevent vast barrages and indiscriminate shelling of back areas.

Shelling of back areas will be confined to salient features such as
villages near the line and important main and cross roads. It is therefore
thought that the evacuation of casualties will not be interfered with by
enemy action to such an extent as in sedentary warfare.

Importance of Close Liaison with the Fighting Troops, and
Accurate Information.

These are essential, without them the medical service with a division
cannot work effectively and delay in collection and evacuation will occur.

The scheme according to which the medical units will work must be
carefully thought out after the fullest information has been obtained.

The following arrangements are suggested in order to promote close
co-operation:

An infantry battalion may occupy up to 1,000 yards of front and depth in an attack;
in a defence these distances may be doubled. An infantry brigade will often occupy a
frontage of 3 to 8½ miles, so that in a "normal" formation of two brigades in the line and
one in reserve a division may cover a front of 7 miles.
(a) Administrative Liaison.

It is suggested that: (1) The A.D.M.S. should live with the 1st Echelon of Divisional Headquarters; he will then be in close touch with "G" and "A" and will hear the earliest news of impending events.
(2) The A.D.M.S. should attend all conferences.
(3) He should have direct access to the G.O.C. as well as to the G.S.O. 1., as the handling of field ambulances is to a large extent a technical matter.
(4) During an action he should be in close touch with Divisional Headquarters.
(5) He or his D.A.D.M.S. should also be in close communication with the M.D.S., and have first-hand knowledge of the state of evacuation from A.D.S.'s. He should also be in touch with the M.A.C. and keep it notified of requirements.
(6) The position of the appropriate medical posts should appear in Unit Orders, i.e., (1) M.D.S. and W.W.C.P.'s, and in certain cases A.D.S.'s should be laid down in A.D.M.S.'s draft for insertion in Divisional Orders.
(2) A.D.S.'s and W.W.C.P.'s (if formed) should also be in Brigade Orders and be repeated in Unit Orders.

All changes in position of these posts should be notified by the quickest possible means to all concerned. In addition to the signal service information may be sent, as far as medical units are concerned, by returning stretcher-bearers or wounded in motor ambulances, and by the field ambulance despatch riders. It would be an advantage if medical posts were connected by wireless or telephone and had expert signallers attached to them.

(b) Liaison between Field Ambulances and Infantry Brigades.

As noted before, the wide frontages on which troops work make centralization of medical control in front areas an extremely difficult if not impossible task during rapid movement.

Field ambulances or portions thereof will usually be affiliated to brigades and will generally make their own arrangements for the collection of wounded, forming C.P.'s and A.D.S.'s as required in consultation with the Brigadier and notifying their dispositions to the A.D.M.S.

The rôle of the A.D.M.S. during a mobile encounter is often necessarily limited to organizing preliminary arrangements, siting M.D.S.'s and W.W.C.P.'s, and supervising the evacuation of casualties from A.D.S.'s, also of course making new dispositions to meet emergencies. In certain cases he may, however, site the initial positions of A.D.S.'s, as in defensive warfare or when an attack is launched from a position which has been held for some time.

Close touch must therefore be kept between the O.C. field ambulance or field ambulance company and Brigade Headquarters if the medical arrangements are to work smoothly over the three to three and a half mile maximum frontage of an infantry brigade. The R.A.P. is, of course,
Notes on Divisional Medical Units in Mobile Warfare

It is a well-known fact that during the rapidly changing fortunes of a mobile action the most useful information often comes from the front. Divisional Headquarters is itself dependent on this to a large extent once the force is committed. The A.D.M.S. is also dependent to a large extent on the information he receives from his field ambulances; he may often get information more quickly this way than via Divisional Headquarters.

The "affiliated" medical unit keeps in touch with Brigade Headquarters as follows:—

(1) Before the action is joined, two runners, one if possible a N.C.O., should be attached to Brigade Headquarters, their duty being to keep the O.C. field ambulance company informed of all happenings.

The O.C. field ambulance company should be with Brigade Headquarters until just before the action. He carries out in fact a medical reconnaissance.

The A.D.S. or C.P. should be sited as close to Brigade Headquarters (2nd Echelon) as possible.

(2) In a similar manner two stretcher-bearers from the field ambulance company should be attached to each R.M.O., their duty being to keep touch between the R.A.P.'s and the field ambulance stretcher-bearers. They make the first "carry" to the collecting (car) post or A.D.S., and then act as guides to the field ambulance squads. If the R.A.P. moves forward they will act similarly between the new and old R.A.P.

R.A.P.'s are generally sited close to the Battalion Headquarters, and the position of the latter is always known at Brigade Headquarters.

It sometimes happens, owing to rapid changes in the disposition of troops, as when (1) fresh units pass through those already in position, or when (2) owing to the route of evacuation being changed it becomes necessary for the A.D.M.S. to move field ambulances to a flank where they may have to deal with additional troops, that liaison becomes extremely difficult. Every effort should, however, be made by companies and O.C. field ambulances to get into touch respectively with the new R.A.P.'s and headquarters of formations on the lines suggested above.

Reserve Medical Formations.

An ample reserve to meet unforeseen contingencies is necessary in mobile warfare. Units are very sparingly committed during the early stages of an action. In the case of the fighting troops a division usually has at least one brigade in reserve, each brigade in action has at least a battalion in reserve, and each battalion has a company in reserve, so that out of a total infantry strength of twelve battalions a strength equal to only some three or four battalions is usually engaged during the commencement of a fight.

The same principle must be observed in handling medical units. It is
a difficult matter to forecast where casualties are likely to be heaviest. A unit which attacks a "feature" may be decimated, while others on its flanks may have very few casualties. It is obviously therefore incorrect to deploy all the units at once, as some may be standing idle whilst evacuation is held up in another sector for want of sufficient bearers and transport.

Another point to remember is that even in mobile warfare the unit which makes an attack, even if successful, is usually brought to a stand in 2,000 to 3,000 yards. Further advance is maintained by pushing up fresh units through the exhausted formations, and this system of leap-frogging, whether local or general, must be "taken care of" by appropriate medical formations held in readiness.

A "general" and "local" medical reserve is therefore necessary:

(a) The General Medical Reserve.—At least one complete field ambulance should be held in reserve by the A.D.M.S. until the objectives have been gained and the enemy's counter-attack disposed of. This would be the unit corresponding to the reserve brigade.

(b) Local Medical Reserve.—Two field ambulance companies should be attached to each brigade in action; of these only one company should be deployed from the A.D.S. or C.P. at the commencement of the action. The second company should be kept in a position of readiness near the A.D.S., prepared to form new A.D.S.'s further forward and to help where casualties are heaviest.

It must be remembered that stretcher-bearers once deployed and in touch with R.A.P.'s, and A.D.S.'s once open, are difficult to extricate or divert. If, however, the single company is unable to deal with the casualties the bearers of the second must be used, even in the early stages of an action, theory notwithstanding. The situation would be easier if the number of bearers was brought up to its pre-war strength, or if some form of armoured cross-country ambulance wagon was used.

Some Remarks on A.D.S.'s.

A mistake sometimes made on staff rides by our officers is to site an A.D.S. too far forward. A line is given in Divisional Operation Orders as being held by the force; this line indicates the position held by the outposts. Battalion Headquarters and R.A.P.'s of the units concerned would be approximately 1,000 yards behind this line, and the A.D.S. should be about 1,000 yards further back still and beyond indirect machine-gun fire, unless cover is very good.1

Objection is taken to this by some, who say that the carry of a stretcher squad should not be more than 600 yards. The answer is that relay posts should be formed. Another point in this connexion is that the hand carry should be shortened as much as possible by bringing up wheels (wheeled stretchers, horsed ambulances, or light motor ambulances) in

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1 Indirect machine-gun fire can now be used up to 3,000 yards.
advance of the A.D.S. to a point usually known as a "collecting" or "car" post, i.e., the spot where hand carriage gives place to wheels. An A.D.S. cannot function if it is liable to frequent moves. Owing to increased frontages and mobility, it is thought that these subsidiary posts will nearly always be required. A question sometimes asked and not always easy to answer is, "When should the A.D.S. be 'opened'?" If by "opening" is meant unpacking of all equipment and a detailed organizing as laid down in "R.A.M.C. Training," the only answer is, "When its opening can no longer be avoided." There is nothing more annoying and wasteful of energy than, having opened an A.D.S., to find that the infantry have advanced (or worse still, retired), leaving it out of touch with the casualties, and this has often happened in war time, especially in enclosed country.

It is necessary to lay down clearly the functions of an A.D.S. If the road to the M.D.S. is clear, the only work necessary is the re-application of loosened dressings, etc., and urgent first aid and "triage"; apart from this the A.D.S. is a relay post or car post, and nothing more.

If evacuation is held up behind the A.D.S. and numbers of wounded are accumulating, it is a different matter. It becomes no longer merely a relay post, but a place where the patient must be treated and cared for until he can be evacuated. Even then only the minimum amount of equipment should be unpacked.

As a general rule, it may be laid down that the A.D.S. should not be opened up completely until the influx of casualties greatly exceeds the efflux and stagnation on a large scale has set in. Technically, an A.D.S. is "opened" when the unit is established in a certain locality and ready to deal with casualties. An order to "open" an A.D.S. means this and nothing more.

If motor ambulances are used in front of the A.D.S., the question should be considered as to whether, when once loaded, they should not proceed direct to the M.D.S. It is unsound to load a motor ambulance up and unload it again about a mile further back.

In mobile warfare an A.D.S. is not the place for elaborate medical procedure. It is only a relay on the line of evacuation, and every effort should be made to get cases back quickly to the M.D.S., where they can be attended to more efficiently in comparative quiet and safety.

Another point not always realized is that much distance is not saved by siting A.D.S.'s close up. If there are three R.A.P.'s in a brigade they will often be one mile apart on the average, and distance from the flanking R.A.P.'s would therefore be at least a mile and the line of evacuation nearly parallel to the front, which is not desirable (see fig. 2). With large frontages the solution appears to be to put out two car posts for each brigade front, i.e., a car post for each one or for two R.A.P.'s.

It may sometimes happen that medical posts such as A.D.S.'s are approximately sited by the A.D.M.S. from the map, there not being time or opportunity to reconnoitre the ground. It must be recognized that this siting is only approximate, and if the senior medical officer on the spot
finds the position unsuitable it is his duty to select a suitable place near
at hand and report its position. He should, however, put a guide on the
original point selected for him so that intercommunication is not inter-
rupted pending the receipt of his report.

Siting of medical posts by a map, the scale of which may be one inch
to the mile, or less, is a difficult matter. A glance at the one inch one mile
ordnance map will show how difficult it is to follow contours and small
details without constant practice.

In siting medical posts near the line, very obvious points on the map
such as cross and main roads, or villages close to the line, should be avoided
unless adequate protection is available. A couple of hundred yards away
will make all the difference.

Sites on hills are conspicuous and liable to be shelled; deep depressions
may become untenable from gas.

To facilitate liaison, A.D.S.'s should be sited as near as possible to
Brigade Headquarters (2nd Echelon), report centre.

Provision to meet expansion must not be forgotten.

**WALKING WOUNDED COLLECTING POSTS.**

In the Great War these were organized in some central part of the
restricted divisional area, within walking distance of the line or on a light
railway. It is suggested that where the divisional front may be seven
miles and the depth correspondingly great, they are not always necessary
or feasible.

If, however, casualties are heavy, some arrangement must be made to
relieve the A.D.S.'s and M.D.S.'s of the presence of large numbers of
slightly wounded, but it is problematical whether a portion of a field
ambulance could be spared to work a W.W.C.P. as a separate and isolated
entity; the less medical units are split up the better, otherwise control
is hampered and elasticity suffers.

It may therefore be stated that if a W.W.C.P. is considered necessary
it should be close to an existing A.D.S.; probably more than one will be
necessary. Arrangements for extra transport to evacuate the W.W.C.P.
will usually be necessary. It is sometimes possible to utilize the returning
supply lorries for this purpose. Such cases should be evacuated direct to
the C.C.S. and not to an M.D.S., the necessary clerical work being carried
out at the W.W.C.P.

**MAIN DRESSING STATIONS.**

These are situated, as a rule, beyond “field gun” range\(^1\) (i.e., 18-pounders

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\(^1\) The range of field guns has been increased nearly 50 per cent since the Great
War, by increasing the possible elevation on the carriage or by improvements in fuses, etc.

Our 18-pounder has a maximum range with “H.E.” of 9,000 yards, and the 4.5 field
howitzer a range of 7,000 yards. The range of the corresponding gun in Continental
armies is similar.

If it is desired to keep beyond range of medium guns, the M.D.S. should be six miles
back at least.
and light field howitzers), and should therefore be about four miles behind the A.D.S.'s.

They are, of course, more elaborate than A.D.S.'s, but mobility must not be forgotten. They cannot, however, be pushed about like pawns on a chess board. When moving they cannot work.

They must be in some place easily found and with plenty of room for expansion. A "place" of this description if too far forward receives unwelcome attention from the enemy.

The further back they are, within limits, the less likely are they to be moved, and the more work they can do; two or three extra miles in a motor ambulance make little difference to the rate of evacuation.

The minimum equipment necessary for the work in hand should be unpacked to commence with.

The M.D.S. is formed by the headquarters of one field ambulance, the headquarters of another being parked near by. As a rule only one M.D.S. is required for a division at the commencement of an action.

If, however, the roads from the six to seven mile divisional front do not tend to converge at one point, it may be necessary to have two M.D.S.'s.

A brigade acting semi-independently at some distance, say five to six miles away from the main force, might have a complete field ambulance attached, which in this case would form its own M.D.S., making two for the division. At least one headquarters must be ready to move immediately, i.e., that belonging to the Reserve Field Ambulance.

Extra Equipment.

The tables of equipment are necessarily designed to cover a number of different situations; in the late war field ambulances had no less than fourteen different roles, ranging from their normal functions to that of semi-immobilized "hospitals."

Each C.O. has his own ideas on equipment, and when mobile action is contemplated a certain amount of equipment will have to be dumped in order to make room for other material considered necessary.

The following equipment extra to that shown on A.F. G.1098 and A.F. 1.1248-4 is usually necessary for any action; the quantity necessary is the maximum that can be carried. It is surprising how much may be taken without overloading the transport, as field ambulance equipment is bulky rather than heavy. Raves can be fitted to the limbered wagons to increase their capacity, and six to twelve extra stretchers can be carried in the rear limbers if strapped over the existing equipment. Extra boxes of dressings and splints can be carried in motor ambulances and horsed ambulances.

Sandbags, Empty.—These are useful for carrying dressings and splints, etc., required by company stretcher-bearers, also for making cover when filled—a stretcher supported on eight filled bags makes an excellent "bed" and on twenty-four a good operating table.
G. A. K. H. Reed

Stretcher.—The number shown on G. 1098, i.e., 48, is considered inadequate, at least twenty-five extra are required in each field ambulance. It should be noted that stretchers coming down under casualties must be replaced and sent up to the R.A.P.'s, etc. The same applies to certain other equipment.

Extra Blankets and Waterproof Sheets.—They are necessary for wrapping up “shocked” cases, for replacing “gassed” clothing, and for shelters.

Hospital Clothing and Pyjamas.—At least fifty extra suits are required for “gassed” and other similar cases.

Extra Dressings and Splints.—First field dressings, gauze, wool, bandages, Thomas's knee, thigh, and arm splints.

It is a convenience if the extra dressings, etc., are put up in rough cases and of not more than twelve pounds weight, so that during an action the headquarters can keep field ambulance companies and the regimental establishments supplied with dressings, etc., to replace expenditure. The word “headquarters” is used above advisedly, as it is a mistake to make dumps of extra equipment far forward; it is liable to be lost during a mobile action, and this may result in a real shortage later on.

Extra directing flags and poles are necessary owing to the wide frontages.

Hot-water bottles are required in large numbers for the treatment of shock.

Extra Rations and Medical Comforts.—If possible sufficient to feed 500 men. In mobile warfare the lightly wounded are as much in need of food and hot drinks as they are of medical attention, often more so.

It must be borne in mind that, although a field ambulance is equipped for 150 patients, it may have to accommodate temporarily three to four times that number.

In the late war, 1,250 cases came through one field ambulance in twenty-four hours! During mobile operations in Palestine one field ambulance carried six tons of extra equipment and stores. They were all expended in three weeks, as the advance had taken the unit out of reach of any source of medical or ordnance supply.

The Handling and Dispositions of Divisional Medical Units.

This may be considered under several phases:—

(1) Embarkation and entraining to the seat of war.
(2) In the concentration area.
(3) During the march into action.
(4) The battle, encounter, pursuit, defence, retreat.

Embarkation, etc.—This is carried out by the embarkation staff, and the arrangements are often out of the control of the A.D.M.S., but he should, whenever possible, make representations to ensure that a complete
field ambulance accompanies each brigade, so that they will be on the spot when required. They will be rationed by the brigade, and the brigade staff will become accustomed to a new and often unfamiliar unit.

The state of affairs in August, 1914, may be remembered. During the Battle of Mons one division had no field ambulances, several had only one or two, none had their complete complement. They were miles behind and out of touch. The moral effect of this on troops, however gallant and well-trained, fighting their first battle in a campaign, may be considerable.

Field ambulances were detrained "in the blue" with inadequate orders or none at all, and making their way towards the sound of the firing did what they could, often finding themselves with a strange division; many, as noted above, did not arrive at all. This state of affairs was due to insufficient liaison between the staff and the medical services, and to not unnatural inexperience in handling large formations.

If possible, equipment and transport should accompany the field ambulance at all times. This is an integral part of the unit, without which it cannot function, a point often not realized.

Do not put men in one ship, equipment in a second, and animals in a third, if it can be avoided.

Equipment should be packed so that the most necessary things are loaded on last, they will then be the first to be disembarked.

The contents of the "bearer's carts" (No. 1 L.G.S. wagon) will be the first required, then the remainder of the company equipment. The heavy stores belonging to headquarters can come later.

As regards priority of embarkation of divisional medical units, if the division is to remain in a concentration area for some days, the Field Hygiene Section should be there early. This is the first mention of a unit which is occasionally forgotten in the rush of mobile warfare. Its expert personnel will be required to supervise sanitary work in the area.

In the Concentration Area.—In this each infantry brigade with its attached troops (artillery, signals, R.E., R.A.S.C. and R.A.M.C.) is billeted in a certain area or certain groups of villages. A field ambulance is usually situated in each brigade area, and acts as an A.D.S. The field ambulance in the rearmost area of all acts also as a M.D.S., and all sick of the division requiring evacuation are collected there pending evacuation by the M.A.C.

If however the division is in "close billets," as in a town, it may be convenient for one field ambulance to carry out the duties of A.D.S. and M.D.S. for the whole formation and thus avoid the necessity of opening the other two field ambulances at all.

Sick, other than "M. and D." cases, are collected by the motor ambulances of the field ambulance from the R.A.P.'s at fixed times once or twice a day, are re-examined and if considered suitable for evacuation are transferred to the M.D.S., where they are evacuated by cars of the M.A.C.
to the C.C.S. according to a fixed time-table. The number of sick requiring evacuation from a division would be approximately 0·3 per cent of the strength; of these two-thirds would be "sitting" cases and the remainder "lying." Whether sick would be "detained" at the M.D.S. for a few days or not would depend on the probability of an early move.

The field ambulances in the forward areas must be prepared to move in a few hours and the rearmost unit at twelve hours' notice.

The Field Hygiene Section will be hard-worked. Although in the late war "Q" was responsible for bathing and disinfection arrangements, there is no unit laid down in war establishments to do this work, so it will presumably have to be carried out by the Field Hygiene Section to commence with. Part of its personnel will also be required to supervise sanitary work in the brigade areas in conjunction with the R.M.O.'s.

The Field Hygiene Section would, therefore, be sited near the centre of the divisional area, and in some factory or institution capable of functioning as a bathing and disinfection centre with a minimum of improvisation.

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**FIG. 1.**—Showing typical arrangement of medical units with a division during an approach march on two parallel roads (units other than Infantry Battalions are omitted).

**THE MARCH INTO ACTION** (fig. 1).

(a) Dispositions of Medical Units.

It was sometimes the practice before the Great War to place all field ambulances together at the rear of the division. As a division occupies some fifteen miles of road (a day's march) the incorrectness of this is obvious.

Airplane and other casualties make it necessary for medical formations to be dispersed through the column.

Part of a field ambulance must march with each "infantry brigade and attached troops" so that it may be in close touch when the moment of encounter arrives.
If a brigade is forming an advance guard or is marching on a parallel road over four miles away from the remainder of the division, or is for any reason out of immediate touch, a complete field ambulance should accompany it. The following may be taken as typical dispositions for medical units on the march when an action is imminent. The division is presumed to be marching on two parallel roads some distance apart with few or inconvenient connecting roads. In mobile warfare formations usually march on parallel roads in breadth whenever possible so as to facilitate deployment over the extensive frontages which now obtain.

Let it be supposed that No. 1 Brigade is marching westward on one road and Nos. 2 and 3 Brigades in that order on a parallel road to the south the two routes being over four miles apart.

(a) No. 1 Field Ambulance follows No. 1 Infantry Brigade, its motor transport moving in rear by "bounds."

Starting time and point will be arranged between O.C. No. 1 Field Ambulance and the Brigade Commander concerned under instructions issued by A.D.M.S. in his R.A.M.C. (in India "Medical") Operation Orders.

(b) No. 2 Brigade is immediately followed by one or two companies of No. 2 Field Ambulance with the horsed transport. Starting place and time arranged as in (a).

(c) No. 3 Brigade (which will go into reserve) is followed by No. 3 Field Ambulance complete (less motor transport). This field ambulance will be used as a reserve. Starting time and place will appear in Divisional March Table or A.D.M.S.'s Orders.

The companies attached to Nos. 1 and 2 Infantry Brigades will be in close touch with their Brigade Headquarters, and will be prepared to form collecting posts (car posts) and A.D.S.'s as and when required in consultation with their respective brigade staffs, reporting position of these to O.C. field ambulance and through him to A.D.M.S. The O.C.'s of field ambulances will usually march with their headquarters, but must keep in touch with their companies and with respective brigades (they are now provided with motor cars) and with A.D.M.S. by motor cyclists.

(d) Headquarters of No. 2 Field Ambulance marches in rear of No. 3 Field Ambulance, and will be prepared to form a M.D.S. under orders from A.D.M.S., and also to take in casualties occurring on the march, starting time and place as in (c). It is placed behind No. 3 Field Ambulance in this case, so that latter may be in close touch with the reserve brigade, also its position will leave it the correct approximate distance from the front when the division deploys.

(e) The Field Hygiene Section follows immediately behind Headquarters of No. 2 Field Ambulance, starting time as in (c). Its motor transport accompanies that of No. 2 Field Ambulance.

(f) Motor transport of Nos. 2 and 3 Field Ambulances follows by bounds in rear of the division, reporting position from time to time to A.D.M.S, and to their own field ambulance headquarters.
Note.—(g) The number of field ambulance companies attached to brigades depends on circumstances. If a heavy action is expected, two should be attached—one company has only thirty-six stretcher-bearers, and as a brigade and attached troops takes up some five miles of road, the second company will be approximately two hours' march behind if further to the rear.

(b) Medical Arrangements on the March.

Casualties occurring on the march would be notified by the R.M.O. to the field ambulance company marching with the brigade. The company would accommodate these in the most suitable manner, either carrying them along in their horsed ambulances, if slight, or putting them under cover and notifying Headquarters No. 1 or 2 Field Ambulances of their whereabouts by means of despatch riders. The field ambulances concerned would arrange to collect these casualties by means of motor ambulances when the troops have passed on and left the roads comparatively clear.

Arrangements would be made by the A.D.M.S. for the M.A.C. to keep in touch with the Headquarters of Nos. 1 and 2 Field Ambulances, the position of these at certain times or, if this is not possible, the exact route along which they are moving being notified to the M.A.C.

It will be noticed that No. 3 Field Ambulance does not enter into the medical arrangements.

The Encounter (fig. 2).

(a) Arrangements in Forward Areas.

(1) When contact is established with the enemy the O.C.'s field ambulances or companies affiliated to brigades will keep very close touch with their respective Brigade Headquarters, so that they may have early intimation of the situation in front and of the position of R.A.P.'s. This information must be passed back to their superiors.

(2) The O.C. field ambulance, or O.C. company, will fix sites for his A.D.S. and C.P. in consultation with brigade, assembling his wheeled ambulance transport and bearers at the latter place.1 He will receive information from A.D.M.S. and brigade of the site of M.D.S.'s and W.W.C.P.'s (if formed). He will notify A.D.M.S. of his dispositions. Brigades will notify battalions of the sites of C.P.'s and A.D.S.'s. This information should also be sent direct by O.C. field ambulance, etc. to R.M.O.'s. The field ambulance stretcher-bearers already attached to the R.A.P.'s will bring back the first lying cases and then guide the other field ambulance bearers to the R.A.P.'s. The site of these is usually near

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1 Whether the O.C. company or O.C. field ambulance would site the C.P.'s and A.D.S.'s would depend on the time available. If time was short they would have to be sited by O.C. companies.
Battalion Headquarters. Walking wounded will be directed to the A.D.S.'s or W.W.C.P.'s.

(3) As soon as the influx of wounded exceeds the number which can be speedily evacuated he will open out his A.D.S.'s gradually to meet the situation.

![Figure 2](https://example.com/figure2.png)

Fig. 2.—Rough scale diagram showing typical dispositions of troops and medical units at the commencement of an action.

It will be noticed in fig. 2, which shows the actual dispositions of troops in a certain tactical scheme, that the divisional front was seven miles. The R.A.P.'s were on the average over one mile apart. It was therefore necessary to establish two car posts for each brigade, the bearers working between these posts and the R.A.P.'s, except in one instance (right battalion of No. 1 Infantry Brigade), where cars could evacuate direct from the R.A.P.

The A.D.S.'s at the commencement of the action acted as relay car posts (i.e., two cars were kept there and replaced cars returning from C.P.'s) and also as W.W.C.P.'s.

It is thought that with these large frontages this arrangement would be the normal one.

The alternative of having two A.D.S.'s for each brigade would be incorrect, as no local reserve would be available.

Only three companies per battalion are shown in the sketch, as the M.G. Company would probably be divided up.

(4) The second company (B Co. in the fig.) will be kept in reserve under the orders of the O.C. field ambulance near the A.D.S. as long as possible. If heavy casualties occur in a certain sector, or if the advance...
continues out of "range" of the existing A.D.S.'s, they will be available to deal with the situation.

It must not be forgotten that the A.D.M.S. may wish to move a company in accordance with information not available to brigade.

(5) If a proportion of motor ambulances have been sent up to companies, single cars should be established at C.P.'s with a relay car post at the A.D.S.; as loaded cars approach A.D.S, an empty one is sent forward to take its place; convoys of motor ambulances should not as a rule be used in forward areas.

(6) Any move of the C.P.'s or A.D.S.'s should be notified to the next superior.

(7) It must be remembered that if the advance is rapid it may not have been possible for the regimental stretcher-bearers to get all lying cases back to the R.A.P.'s, so that groups of wounded will have to be searched for and collected in consultation with the R.M.O., help being obtained from brigade if necessary, as the number of stretcher-bearers in a field ambulance is usually not sufficient for this work.

The Reserve Field Ambulance bearers should not be used for this purpose except as a last resort, and under explicit orders from the G.O.C., as otherwise the A.D.M.S. has nothing left to meet a sudden change in the situation or to conform to the movements of the Reserve Brigade, and chaos is likely to occur later.

(8) The Divisional Mounted Troops.—A difficult problem is to evolve some method of getting in casualties from the divisional cavalry (one squadron), or from a detachment of "tanks."

As regards the former, it is not easy to help them, as they are widely scattered in small bodies over a 2 or 3 mile front "out in the blue," feeling their way forward, getting into touch with the enemy, sending back reports, and altogether having a very busy and mobile time. Their casualties, unless they run into a trap, are not as a rule heavy, but will be widely scattered. They are quite out of touch with the field ambulance; something must, however, be done for them, and it is suggested that one light motor ambulance with two stretcher-bearers should be attached to their A echelon transport, and used to convey casualties from notified spots to some place on the road whence they may be collected by cars sent out from the nearest field ambulance, somewhat on the lines laid down in "R.A.M.C. Training" for Cavalry Field Ambulances.

As regards detachments of "tanks," similar arrangements would be made; each tank has a first-aid box, and casual wounded would have to remain in the tank until it returned to its "base," as a tank will not stop when in action, being then more likely to be hit.

If a tank is hit directly by a shell its crew will be beyond the reach of first aid. Tanks must replenish with petrol and ammunition, which will be brought to some "base" in "tank" vehicles, and there a light motor ambulance and some personnel, etc., should be in readiness to remove casualties.
The artillery must not be forgotten; some batteries may be a considerable distance from the R.A.P. of the single M.O. in charge of the Field Artillery Brigade, and they may also be some distance from other medical posts. Under these circumstances their wounded must be evacuated by motor ambulances from time to time.

Administrative instructions should direct them to apply to the nearest medical post.

(b) Arrangements in Rear.

(1) The M.D.S. will usually be formed by the headquarters of one of the field ambulances, whose companies are responsible for clearing its front. One or two M.D.S.'s may be formed according to circumstances (see before).

(2) Disposal of Motor Ambulances.—The A.D.M.S. will direct a proportion of the motor ambulances to rejoin the headquarters of their respective field ambulances, retaining under his own control if necessary a number of cars to work as a divisional motor ambulance convoy in order that he may be able to aid in evacuation if heavy casualties occur in a certain sector of the line. He will also arrange with “Q” for the evacuation of the lightly wounded by means of returning supply vehicles or specially ear-marked lorries. These would usually be evacuated direct from A.D.S.'s or W.W.C.P.'s to the C.C.S.

(3) The Reserve Field Ambulance should be kept intact as long as the Reserve Infantry Brigade is not deployed, and if possible until the enemy's counter-attack has been dealt with. It should, however, be in touch with the principal M.D.S., where its personnel can help in 'shifts.'

As regards the Reserve Brigade, if this eventually advances through another brigade it might be feasible to use existing A.D.S.'s, C.P.'s, etc., and reinforce the bearers working in the area from the Reserve Field Ambulance. If the advance is over two miles, new A.D.S.'s will have to be formed further forward, allowing the original ones to close and leap-frog in their turn.

If the Reserve Brigade operated to a flank, however, a new series of A.D.S.'s, and even M.D.S.'s may be required. Early information on this and other points should be given to the A.D.M.S. by "G."

The general principle of not splitting up a field ambulance more than is necessary, and not removing it from the control of its own C.O., must not be forgotten, especially in mobile warfare over wide frontages.

Although the dispositions shown in fig. 2 may be taken as typical it may be that in a rapid advance without heavy opposition three brigades would be in line over an eight to nine-mile front, with perhaps six A.D.S.'s and three M.D.S.'s functioning either side by side or more likely in echelon. On the other hand, a division forming part of a larger force meeting with heavy opposition might act on a one-brigade front with only
one A.D.S. and one M.D.S. This latter formation is, however, unlikely in mobile warfare.

(4) The Field Hygiene Section should be sited near the M.D.S., so that its personnel can assist there if required.

**The Defence.**

The disposition of medical units would be generally as in the encounter, but more careful and detailed organization can be carried out, and the A.D.M.S. would personally site the A.D.S.'s and W.W.C.P.'s and M.D.S.'s. A.D.S.'s would be dug in and protected, and as a rule not so far forward as in an encounter or attack.

Probably the defence would be on a smaller frontage, and conditions would approximate to those obtaining in "trench warfare," for which see "R.A.M.C. Training."

Alternative positions for medical posts well to the rear would be chosen by the A.D.M.S. in consultation with the divisional staff.

**The Pursuit.**

General arrangements would be as in the encounter, but it would probably be necessary to use all three field ambulances, advancing them by leap-frogging, M.D.S.'s taking over sites of A.D.S.'s, A.D.S.'s of K.A.P., and so on. Organized R.A.P.'s might not be established and dumps of wounded left under cover by the R.S.B.'s would have to be located and cleared.

Two of the weak links in the medical chain would make their presence felt, i.e., the paucity of stretcher-bearers and the "stretching" which is likely to take place between a mobile M.D.S. and a practically immobile C.C.S.

Help from the combatant troops would be required, and also extra transport to deal with walking wounded and to move up the "light" section of the C.C.S. Whether either would be forthcoming under such conditions is a debatable matter, as the combatant services would have their hands full in turning the enemy's retreat into a rout.

In the event of the "stretch" resulting in a "fracture," it might be necessary to withdraw a field ambulance and make it function as a C.C.S. as a temporary measure.

**The Retreat.**

Dealing with casualties in a retreat is a difficult matter and much depends on individual initiative, but, as far as possible, sites for medical posts in rear should have been reconnoitred previously. All heavy medical equipment and all transport except the minimum must be sent back out of reach of the enemy to a point behind the proposed limit of the withdrawal, where the headquarters will open a M.D.S. The stretcher-bearers
and motor ambulances alone are of any use and equipment should be limited to that carried in, say, one limber per company and in the improvised dressing boxes of the motor ambulances.

The stretcher-bearers would work among the troops just covered by the rear guard.

If wounded had to be abandoned, permission must be asked before leaving a minimum of personnel with them. Those abandoned should be the more serious cases, the lightly wounded who will fight another day must be got away. Sacrifice of medical personnel should be avoided as far as possible, they will be badly needed later. "It is not magnificent but it is war," and the above principles, which are generally held, will go against the grain.

What usually happens is this: The Reserve Brigade organizes a line of defence some four to five miles back and holds this to cover the retreat of the remainder of the force. The Reserve Field Ambulance with this brigade will form A.D.S.'s and M.D.S. The original M.D.S.'s will of course be too far forward and will close at once and withdraw behind the limit of the retreat, the casualties being evacuated by the M.A.C., and fresh casualties switched over to the Reserve Brigade M.D.S.

The companies will work as suggested above, evacuating casualties to the "Reserve" Field Ambulance A.D.S.; as soon as possible casualties should be switched to the new M.D.S.'s formed behind the limit of retreat. The medical posts of the covering brigade must be kept as clear as possible as they may have to get out in a hurry. As the headquarters of a field ambulance is mechanized, the M.D.S.'s behind the limit of retreat should be able to open fairly quickly and will be used as soon as possible. The M.D.S. and surplus medical equipment and transport of Reserve Brigade will then retire, and the retreat of the brigade will be managed in a manner similar to that suggested before, casualties being evacuated direct to the new M.D.S.'s. It is quite possible that at the same time the C.C.S. will be engaged in packing up and getting rid of its casualties to railhead, and the strain thrown on the M.A.C.'s will be enormous.

Every means of transport will have to be used to get back the wounded, including supply lorries, if obtainable, transport vehicles, etc.

**Equipment.**

The horsed ambulances, with four horses each, are useful for work where motors cannot go. When a motor ambulance really capable of going across country has been invented, the horsed ambulance will disappear, at any rate in Western European warfare. They are very conspicuous and early steps should be taken to make them less so, by painting in a similar manner to motor ambulances. If for any reason they are required to be conspicuous, as when collecting wounded between the lines during an "armistice," a "Red Cross" flag could be flown from them.

Medical and other equipment is suitable for the conditions visualized,
but if a change to pack transport has to be made at short notice, as often happens in Eastern warfare, its carriage presents many difficulties, as the panniers are not of uniform weight. It is interesting to note in this connection that the R.A.S.C. have worked out an alternative “pack” scheme for Divisional Supply and Transport.

A WEAK LINK IN THE CHAIN OF MEDICAL AID.

As mentioned before, there is a weak link in the chain of medical aid where the conditions of mobile warfare have to be met, and that is the comparative shortage of stretcher-bearers taking into consideration the much larger area of ground which will have to be covered.

(1) Regimental stretcher-bearers.—The regulation number is 16 per battalion, organized into eight squads of 2 men each or four squads of 4 men each.

These bearers may have to collect lying cases over an area about one mile broad and about 1,000 yards deep. If ten per cent casualties occur, approximately twenty lying cases would have to be carried back to the R.A.P., each squad (if organized into four squads) would therefore have to carry five cases 1,000 yards and return = six miles, three miles of which would be carrying a man and his kit, and this might have to be done after a long march.

It may be argued that wheeled transport would eventually be brought up closer, but, on the other hand, the fact that the battalion might be moving forward should be taken into consideration, also the effects of enemy interference. It will, I think, be obvious that their numbers are not sufficient and should be at least doubled.

(2) The field ambulance bearers are also, I suggest, insufficient; even if the eighteen squads of the two companies are working the proportion is about the same “per battalion” as that of the regimental stretcher-bearers, and as the average hand carry to a collecting post would be about 1,000 yards their work would be equally arduous (see fig. 2).

The numbers of bearers in a field ambulance was reduced by one-third as the result of a reorganization based on an abnormal type of warfare.

The “lost subdivision” will be badly needed in mobile warfare, unless its place is taken by a larger number of armoured cross-country motor ambulances.

The reply that “help must be obtained from infantry formations when casualties are heavy” is not quite sound, as with the more dispersed formations now in force such help will not be forthcoming readily. The element of surprise is so much in evidence that a commander will be very reluctant to use reserve formations for this purpose.

TRAINING OF PERSONNEL.

Of all our field medical units the work of a field ambulance diverges most from the normal peace-time work of the Corps.
A field ambulance is the most "military" unit in the Medical Service, and although only coming into existence on mobilization, has to take its place in the division among highly trained troops. Its personnel in peace time has been employed on technical duties in hospitals and, owing to financial exigencies, with a minimum of military training. The reservists and specially enlisted men come as a rule from sedentary employment and have had no training whatever for a considerable time.

(a) The first thing necessary is to train all ranks as "soldiers" with the exception of the actual use of weapons, in other words, accurate and rigid drill and strict march discipline to inculcate steadiness and alertness and to shorten the "latent period" are necessary.

(b) Each man must then be trained in his own special work and practised in it until he can function almost automatically under conditions of stress. Every detail must be gone over repeatedly, from loading medical equipment into a wagon upwards.

(c) The technical personnel in headquarters and in the "A.D.S. party" of the companies have had experience in their work, as it approximates to what they have done in peace time, but quickness and method must be practised. A field ambulance, when functioning, is always working against time.

(d) Stretcher-bearers.—These require very special training and should be practised in stretcher drill, visual training, marching on bearings, deploying in extended formations, control by signal and in the use of ground and cover. (This matter has been described at length elsewhere, see "Random Notes on Training"), and in really practical first aid.

In training these men in first aid, it is not sufficient to recite pages of "R.A.M.C. Training" to them. The instruction should be by "demonstration." It is easier to learn by the eye than the ear. The practical methods, based on what they will be called on to do later, should be well rubbed in: the carriage of the wounded with reference to their injuries, the controlling of haemorrhage, splinting of fractures, treatment of shock, etc.

(e) Transport Animals.—The R.A.S.C. N.C.O.'s are experienced men, but like all lovers of horses they sometimes like to see their animals fat and sleek, and the question of "training" is forgotten. It is as well to have an officer placed in charge of the transport who is keen on the job and has had previous experience. The animals should be got into hard training gradually, and if the field ambulance is not moving they should be exercised to the extent of 10 miles per day, including journeys to and from water.