THE ORGANIZATION OF DIFFERENT ARMIES FOR THE 
REMOVAL OF WOUNDED FROM THE BATTLEFIELD:1
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The removal of sick and wounded during military operations, although it has only during the last two or three years become in the British Army a matter with which the general and administrative staff officer has to be more or less acquainted, has long been a subject of study in Continental countries, more especially in Austria. Austria during the wars of the 18th century was fortunate in having a monarch, Joseph II, who had direct personal knowledge of war, and who saw for himself the neglect and distress that was being caused by the system then generally adopted of treating the sick and wounded as near their regiments as possible.

The experience of the war of the Bavarian Succession and previous wars showed how greatly armies were hampered by retaining with them or in their neighbourhood sick and wounded who required prolonged treatment; and it was under Joseph II's influence that the principle of basing field medical organization on a system of evacuation of wounded was first enunciated. The organization he adopted was that of a series of mobile and other hospitals, along a long line of evacuation, in order to remove such cases as far as possible from the zone of hostilities and give them at the same time opportunities of treatment under conditions free from anxiety and disturbance.

It was long, however, before other countries learned these lessons, although during the Napoleonic wars the Austrian Contingent became famous for the skill and care with which arrangements for evacuation of its sick and wounded were carried out. The Austrian organization for dealing with masses of wounded and evacuating them to fixed hospitals attracted the attention of the Commanders of the Prussian and Russian armies during the War of Liberation, and after the battle of Leipzig they sent their Principal Medical Officers to study and imitate it.

The principle thus practised in the latter part of the 18th century by Austria is definitely formulated in Von Schellendorf's "Duties of the General Staff," where he states that the system of evacuating sick and wounded forms the basis of the entire medical service in the field.

We ourselves have been particularly slow in grasping these ideas, chiefly because we have never in modern times had to deal with large masses of wounded. As an instance of our failure to grasp these principles, I might point out the organization of the Territorial Forces, where no provision in the original scheme was made for the evacuation of

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wounded. Field ambulances were well organized and a scheme for providing general hospitals in different parts of the country was put on paper; but no provision was made in the first instance for bringing the wounded from the field ambulances to the general hospitals. I understand that the reason for leaving out the essential links in the system of evacuation in England was that the idea prevailed that the wounded would be taken over from the field ambulances by the various townspeople and villagers in the neighbourhood, leaving their removal from there to the general hospitals a matter of chance, or haphazard organization whenever the need or opportunity arose. This, however, would have created exactly the same situation which led Austria in the 18th century to think seriously of the necessity of adopting a complete system of evacuation. If matters were to remain in our Territorial Force as had originally been intended, we would have the same historical experience as the Austrians had then, should the Territorial Force ever be engaged in actual war.

A somewhat similar state of affairs existed in the reorganization of our field medical service after the South African War when bearer companies and field hospitals were made into one unit, namely, the field ambulance, without providing any link between it and the lines of communication. This was subsequently remedied to some extent by the introduction of the unit called the clearing hospital.

Historically then, there has gradually been evolved in all armies, commencing with Austria in the 18th century and ending with ourselves in the 20th, a system of removal of sick and wounded which has become a distinct branch of staff work in the field.

The failure to recognize it as a concern of staff officers has been at the root of the so-called medical scandals of war. We, that is to say, the British Army Medical Service, have specially suffered from this. So have the French. So, too, have the Russians. In the Crimean War the sick and wounded of the Russian side were collected in Sebastopol and Simferopol, their advanced depot, with no organization for removing them. The conditions there became so distressing that trying journeys over the Steppes into the interior of Russia by rough means of transport were regarded by the wounded as a blessing. On our side we had equally bad conditions under the old system of regimental hospitals, with nothing but haphazard arrangements behind them. The French lack of a system of evacuation at Solferino provided the theme which led to the formation of Red Cross Societies and the Geneva Convention. Mr. Burdett Coutts's attack on the Medical Service at Bloemfontein was to some extent due to the fact that field hospitals were clogged for want of any recognized staff system of regulating how sick and wounded were to be dealt with under the conditions which arose.

The Austrians had no such scandals. Even in the disastrous opera-
tions leading to the battle of Koniggrätz on July 3, 1866, where they had 5,800 killed, 17,800 wounded and 7,800 missing, they were able to remove 11,000 of the more lightly wounded to Vienna along a definitely organized line of evacuation between it and Theresianstadt, before their decisive defeat. Only the serious cases were left in the hands of the Prussians on July 3.

In the Russo-Japanese War the Japanese had a perfect system of evacuation, based on the existing German field medical organization. The extent to which it was worked may be grasped from the fact that out of 146,813 wounded admitted to field hospitals, 112,661, or 76·8 per cent, and of the 221,136 admissions for sickness 168,926, or 76·4 per cent, were removed to the fixed hospitals in Japan. The majority of the 7,742 Japanese wounded during the battle of Heikoutai between January 26 and 30, 1905, were comfortably in hospital at Dalny on February 4 and 5 waiting embarkation. The excellence of the system which could have achieved this rapid removal of wounded is more readily realized when it is remembered that the battle was fought at least one and a half days' march from railhead, with a temperature varying from 1° to 10° F., and with snow falling heavily on the two days, January 26 and 27.

I mention these facts because they give some idea of the extent to which the subject of removing sick and wounded has been studied in other countries, and of the success which has been achieved as the reward of clear thinking and adequate organization. Those of you who know how complicated and elaborate are the details which must be gone into in order to move an army of healthy men will realize how equally carefully detailed must have been the organization which could move without a hitch close on 300,000 sick and wounded from the battlefields in Manchuria to Japan.

In the official Medical and Sanitary Reports of the Russo-Japanese War you will find sketched diagrammatically the system by which this was done, and I propose in this lecture to show how far the principles should be or are applied in the field medical organization of our own and other armies.

In the first place, you will see that the system is divided into three zones—the collecting, the evacuating, and the distributing zone. Practically all armies have adopted this system of zones; and we have embodied it now in the British Feld Service Regulations, Part II. of 1909, of which a Provisional Indian Supplement was in proof in 1910.

The collecting zone is the zone in which the sick and wounded are collected from their various units and brought to a definite point (generally speaking the advanced depot or rail-head) by the agency of regimental medical arrangements and field medical units.

The evacuating zone is, so to speak, the handle of a fan formed by the convergence of the collecting zone ramifications. It commences at the point where the ramifications of the collecting zone converge, and extends...
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generally down the whole of the lines of communication to a sea or home territory base. The agencies of evacuation in this zone are chiefly ambulance trains, hospital ships or other means of convoy by road, rail or water.

The distributing zone is in a way comparable to the collecting zone, with this difference that the work in it, instead of converging to the evacuating zone, diverges from it and spreads over the whole of the interior of a country where there are fixed or permanent hospital establishments, convalescent depots, and so on.

At the point of convergence of the collecting zone with the evacuating zone, and at the point of divergence of the distributing zone from it, important medical arrangements have to be made. At the former, in the British and French organizations, there are the clearing or evacuation hospitals, and in other armies similar arrangements are made under different names, which can be explained later on.

To take the collecting zone first:

The main object of the medical service in it is to bring the wounded as rapidly as possible to the advanced depot or rail-head, surgical work being confined to applying temporary dressings, performing emergent operations for saving life, or rendering wounded fit for transport.

For this purpose there are:

(1) A regimental medical and stretcher-bearer service.
(2) Special field medical units composed of stretcher-bearer, dressing station and hospital service.
(3) Clearing hospital services.

The regimental medical service does not work during an action over a depth extending much beyond half a mile behind the fighting line; generally its sphere of work does not extend further back than the position of the regimental reserves.

Most armies have much the same system of regimental work in this connexion; that is to say they have regimental bearers in the proportion of sixteen per battalion. The new Field Service Regulations of the French Army promulgated last year give a clear definition of the limitations of this service in the work of removing wounded. It is directed to form small shelters for wounded behind any natural protection in the ground over which the battalion is fighting, wounded unable to get there by themselves being carried by the regimental stretcher-bearers as opportunity offers. At these shelters or "Aid posts" as they are called, the wounded receive first aid, and those who are able to walk are directed to make their way to definite positions further back. Others remain until the field medical units get in touch with the regimental medical service, when they are carried to the main dressing stations, and thence to field hospitals.

In the British and Indian Regulations there is nothing definitely laid down as regards the formation of regimental or battalion aid posts to
which wounded should be removed regimentally. Otherwise the limitation of regimental work is the same.

Perhaps the most elaborately organized regimental medical service is the Russian, where a regimental field ambulance with 128 bearers, 32 stretchers, 4 ambulance wagons, a dressing station, tents and equipment for a 16-bed field hospital from part of the regimental medical service of each 4 battalion regiments, but the work done in action by this organization is more that of a brigade ambulance than of a regimental medical service in the strictly continental sense of medical tactics. In Austria-Hungary the regimental medical service works somewhat differently from that of other armies. It is massed during an action to form one regimental aid post for a group of battalions, the grouped battalion bearers forming a bearer company for bringing the wounded from the fighting line to it.

As a contrast to this, the Japanese, in the Manchurian battles, generally formed aid posts for each battalion. They were placed under cover of a ravine, behind a mud wall, or in a village temple or house as close to the objective of the fighting line as possible. There was never any difficulty in keeping in touch with the fighting line, because the rate of advance if many casualties were occurring was very slow; often not much more than a few hundred yards a day. When the advance was rapid, there were only isolated casualties, which could be dealt with rapidly and left to the field medical units coming up behind.

The field medical units, which collect the wounded from the regimental medical service, and take temporary care of them until they can be removed to the head of the evacuating zone, work in two echelons in most armies. The first echelon in practically all armies is of the nature of bearer companies, with a dressing-station party, which are under the control of the Divisional Administrative Medical Officer. In our Army, until after the South African War, the units of this echelon were brigade units.

All armies recognize the necessity of having this first echelon composed of a stretcher-bearer unit with a dressing-station party. This principle, however, was not given effect to when our bearer company and field hospital were amalgamated into a field ambulance after the South African War; for the bearer division of our field ambulance has no dressing-station, although it is intended to represent the old bearer company. It has to borrow its dressing-station from the tent division, which represents the old field hospital, and which essentially belongs to the second echelon of field medical units. This organization of our field medical unit makes it somewhat difficult to draft operation orders which provide for the movements of the bearer division of a field ambulance, because something has to be added to indicate that a portion of the tent division must accompany it as a dressing-station. The new French Regulations make the bearer company a kind of bearer convoy, as a
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separate unit from the dressing-station; and in this respect it is similar
to the bearer division of the British field ambulance; but its field
ambulance is essentially a dressing-station in itself, with so-called
"hospital sections" brought up and tacked on to it whenever wounded
have to be taken over from it as they would be in the field hospitals of
other armies, or in the tent division of the British field ambulance.

But neither the British nor the Indian organization has quite the
same divisional bearer company arrangements as in that of the contin­
ental armies and of Japan. In these armies the division has what is
practically a divisional bearer battalion of two or more companies com­
manded by combatant or non-medical officers, but with an additional
or head-quarters section, under a medical officer, composed entirely of
medical personnel and equipment for the purpose of forming a main
dressing-station.

In Austria-Hungary, on the other hand, there is no bearer company.
The whole of the stretcher-bearer work of removing wounded is done in
the area over which the grouped battalion bearers work, as already
noted, the work of removing wounded from the regimental aid posts
being carried out entirely by wheeled transport from the ambulance of
the division. The position of the regimental aid posts is determined
accordingly, i.e., they must be at or near a position to which wheeled
traffic can be brought up.

The Germans and the Japanese have practically only one kind of
ambulance, namely, a divisional field-ambulance or bearer-battalion
equipped for work with infantry. Other countries such as the French,
Austro-Hungarian, Italian, and British have cavalry field ambulances,
specially equipped for moving with cavalry divisions. In India there is
a fast moving hospital, now called Indian cavalry field ambulance; but it
is not different from the slow moving field hospital or field ambulance, as
it is now called, except in transport, and can scarcely be called a specially
organized cavalry field ambulance.

It may be noted here that, as a result of the South African War, the
British Cavalry Division is by far the best endowed of all armies in
respect to cavalry field ambulances, the field ambulances of the French,
Austro-Hungarian, and Italian Cavalry Divisions or Brigades being
much smaller and fewer.

Some armies, notably those of Italy and Austria-Hungary, have
ambulances specially organized for warfare in mountainous countries,
with pack animal transport, special apparatus for carrying wounded on
the backs of bearers, and detailed regulations as to how they work during
an action. The Italian regulations, for example, on this point are
instructive. The mountain ambulance of Italy has two light sections,
with a dressing-station party each, and one complete infantry division
field ambulance as a head-quarters' section. This head-quarters' section
opens in a valley or accessible place near the spurs over which the
fighting is taking place, and where there are roads, while the light sections go up the heights on either side of the valley and open advanced dressing-stations as high up as may be necessary to keep in touch with the medical service of the fighting units. They form there shelters for the wounded, who are then brought down to the main dressing-station below by relays of bearers.

The work of removing wounded to the main dressing-stations of field ambulances is carried out in some armies, such as the Japanese, entirely by stretcher-bearers, i.e., by the bearer companies; in the Austrian entirely by wheeled transport; in our own army, and in most other armies partly by stretcher-bearers of the ambulance and partly by wheeled ambulance transport; while in the French Army not only stretcher-bearers and wheeled transport but pack animal transport all form part of the ambulance transport for removing wounded to the dressing-stations.

The depth over which ambulances, i.e., bearer companies, work is determined by two considerations: (1) by the necessity of bringing wounded as far back out of the zone of fighting as possible, and (2) by the distance over which stretcher-bearers or wheeled transport of the unit can work without losing touch either with their own unit on the one hand, or with the regimental medical service on the other. In the battles in Manchuria the Japanese ignored artillery fire, as they found it impossible, with stretcher-bearers as the only means of transport, to place the dressing stations further back than about one mile or even less from the regimental medical service. They were consequently frequently exposed not only to severe artillery fire but also occasionally to rifle fire. When ambulances have both stretcher-bearer and wheeled transport, positions fairly safe from field artillery may be selected for the dressing stations.

In connexion with the question of stretcher-bearer transport of field ambulances, it may be interesting to note that in the army of United States of America only two bearers are given to each stretcher, most armies allow four, and the British six, just as in India six are allowed for the dandy. I will not enter into a discussion as to the reasons of this difference in the number of bearers for each stretcher; but it may be noted that some experiments were made in the United States to test the carrying powers of two bearers with unexpectedly favourable results. Yet for the arduous work of collecting wounded when there are large numbers to deal with, two bearers per stretcher would undoubtedly be insufficient, just as six are probably more than enough.

The second echelon of medical units, in the process of collecting and removing wounded from the battlefield, is the field hospital. In this echelon the organization of different armies varies considerably. In the British the echelon no longer exists except in the form of the tent divisions of field ambulances, and in the Indian organization the term field hospital, as applied to a medical unit, has also disappeared.
In Japan it forms an important divisional echelon of four field hospitals of 200 beds each, under the control of the Divisional Principal Medical Officer. In France, Germany, Italy, and Austria-Hungary this echelon is not under the control of divisions but is composed of medical units belonging to army corps troops.

But whatever the organization, the principle in all armies is the same, namely, to have a series of units ready to take over wounded from dressing stations and provide them with temporary shelter, food and treatment, to a more elaborate extent than is possible in a dressing station which has been shifted possibly every day, or even more frequently. The stay of wounded in dressing stations is short, from one to twelve hours, or in some circumstances longer. In any case the object should be to get them away from the dressing stations as fast as circumstances permit. In the field hospital echelon their stay is usually from one to three days or more, according to the nature of the wound, the conditions of the fighting and the resources at hand for clearing the field hospitals.

In the diagrammatic scheme the field hospitals are shown in an area behind the dressing stations, and in one alignment. In actual practice they would not all open together in fixed areas of the field, but as circumstances demanded at different times, on different days probably, and at different distances behind the fighting line. Thus hospitals opened at the commencement of the fighting might be far back at the end of it and remain for a day or two in that position; while others would come forward, occupy the positions of the dressing stations, if the fighting line advanced, and set free the dressing stations.

It is this use of the field hospital echelon that makes it necessary to keep it under the direct control of the division, and not of smaller units such as brigades. The field hospitals are, as it were, held in leash until the fighting ranks have more or less exhausted themselves for the day, they are then sent forward or opened where required. It is on this principle that most Continental armies do not even let the divisions, but only the army corps, control the movements of field hospitals. Generally after a battle lasting two or three days field hospitals will be found scattered over an area several miles in depth; those furthest back being the units opened in the earliest stages, and those furthest forward those opened at the end, or possibly too those opened early which have been already cleared and again brought up to be opened a second time. This was invariably the practice of the Japanese in the battles of Liaoyang, the Shaho and Mukden, and their method of controlling the field hospitals in this manner was of the greatest value in facilitating the removal of wounded subsequently to the lines of communication.

Stretcher-bearers are not as a rule employed in removing wounded from dressing stations to field hospitals, unless the divisional bearer
battalions are very strong in numbers. The two-company bearer battalion of the Japanese division was intended to provide one company to work between the regimental medical service and the dressing station, and the other to work between it and the field hospital. But this was found quite impossible with the numbers which had to be carried; the whole battalion was required in the first line, and the men were too tired to work subsequently in the second line.

The army which is most adequately provided with transport for this purpose is the Austro-Hungarian, for its field hospital unit has an ambulance transport column specially attached to it, and, in addition, its equipment wagons are so constructed as to act, when empty, as ambulance wagons. The Indian field hospital unit is also provided with ambulance transport to work between it and dressing stations in advance; but as a rule when large masses of wounded are collected at dressing stations their removal to field hospitals can only be achieved rapidly by impressing every available kind of transport or by waiting until the field hospitals come up to the spot where the dressing stations are opened.

The final stage in removal of the wounded in the collecting zone is that of clearing the field hospitals and bringing the wounded to rail-head or wherever the advance depots are opened.

This is the work of the echelon known now in our army, both Imperial and Indian, as the clearing hospitals. It is on the correct working of this unit that we must depend for evacuating wounded rapidly, without confusion and with the least degree of discomfort to them. As is noted in the Field Service Regulations it is the pivot on which the whole system of removing sick and wounded turns.

It has two main objects:—

(1) To take over all wounded from the field hospitals, or, in our own army where there are no field hospitals, from the field ambulances.

(2) To carefully classify wounded for further evacuation and act as a sieve, which will retain those who are either unfit for further transport or likely to be fit to rejoin their units in a comparatively short time, and prepare all others for transport down the line.

Some armies, notably the French, add other duties, such as preparation of empty railway trucks, vans and other rolling stock into improvised ambulance trains; but the two functions mentioned above are the essential duties of a clearing hospital in the system of removing wounded.

The clearing hospital takes over wounded from the field hospital echelon in front either by being pushed up to the area where field hospitals are being clogged with wounded after a battle or by opening further back, usually at the advanced depot and throwing out connecting links, such as rest stations, or refilling points, and arranging for the transport of wounded back from the field by means of locally requis-
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transport, supply wagons returning empty, and any specially organized ambulance columns. This work of transport of wounded from field hospitals to rail-head in the German and Japanese armies is arranged and carried out by special units, called sick and wounded transport units, usually in the proportion of one for each division. These units are concerned solely with the work of collecting, requisitioning, preparing and bringing kinds of transport material to the field hospitals; taking care of wounded during the journey; forming intermediate rest stations if the journey cannot be accomplished in one day; and finally handing the wounded over to the clearing hospital, or other unit at rail-head. Ambulance columns of this nature are contemplated, I understand, in the field organization of the Indian Army. They are important and, in my opinion, indispensable links in the system of removing sick and wounded from the field.

In the British Army the clearing hospital at present is practically a converted stationary hospital of 200 beds. In the Indian Army it is in the first instance formed of the existing field hospital (ambulance) units, but there seems no reason why, if circumstances permit, a clearing hospital should not be formed of general hospitals, or sections of general hospitals, at rail-head.

In France the clearing hospital is always a special unit at rail-head, but in France and operations on the Continent generally rail-head may be regarded as never being more than a short distance away from a field of battle. We must not, therefore in consequence of continental literature on the subjects, be led into the belief that rail-head is necessarily the position of a clearing hospital.

In Germany, Austria, and Japan the units for clearing hospital purposes are chiefly of the nature of a reserve personnel, with or without material. This is specially so in Germany, where the clearing hospital unit is a unit of personnel only, which takes over a whole village or section of a town, and forms a clearing hospital out of the local resources; or, in the case of a victorious action and advance, by moving up to the spot where the field hospitals are open, by taking over such material from them as is necessary for temporary purposes, and obtaining more subsequently from local or other resources further back.

The Japanese clearing hospital system is based on the German, but a certain amount of material is carried with the personnel, who form what is called a stationary field hospital near the area where the field hospitals are opened. This is their divisional clearing hospital. Their main clearing hospital, however, is invariably formed at the head of the lines of communication by what is called "a lines of communication hospital."

The Austrian clearing hospital system is the most complete and most instructive. This is what one would expect from an army which has had so long an experience in field medical organization. It consists of a
group of three medical units, namely, a mobile reserve hospital, a mobile Convalescent depot, and a field rest station. Each army corps has two such reserve hospitals, two mobile rest stations, and three field convalescent depots. They are kept at the head of lines of communication, and are army units, ready to be sent forward to clear the field hospitals as required. These three classes of units form one or more clearing, or evacuating stations as they are called, for the two or more army corps of which the army is composed.

An evacuating or clearing station of this kind is formed as follows:

The mobile reserve hospital, normally organized for 600 patients, receives all the wounded unfit for further transport; the convalescent depot, organized normally for 500, receives all the lightly wounded likely to recover soon, and the rest station all other wounded, namely, those fit for further evacuation down the lines of communication. A staff officer is appointed commandant of the station. He has a medical officer as his technical assistant, and has a special staff consisting of a representative of the Director of Railways, of Steamer Transport, of the Assistant Quartermaster-general Lines of Communication, and of Voluntary Aid Associations and Local Civil Authorities.

The duties of this staff are:

1. To receive all sick and wounded as they come in from the field, and classify them or check previous classification.
2. To determine those who are to be retained as unfit for further transport (to be sent to the mobile reserve hospital), or as lightly wounded (to be sent to the convalescent depot), and those who are suitable for further transport (to be sent to the rest station pending entrainment).
3. To prepare convoys of those last going down the line, and to transmit intimation of their despatch, &c.
4. To prepare transport material, such as improvised trains and river steamer transport.
5. To arrange for care of the patients during the journey.
6. To prepare and complete their documents.
7. To requisition for material to replenish expenditure.

These duties indicate generally what is meant by the clearing hospital being the pivot on which the evacuation of wounded turns. It is kept constantly ready for reception of new arrivals by a systematic flow of wounded, either down the line when fit for transport or back to their units when fit to rejoin. The first step is classification, and this system of classification into categories of wounded as regards fitness or otherwise for transport is an essential feature in the organized system of removing wounded. It should be commenced at the dressing stations, repeated at the field hospitals, and again at the clearing hospitals, because the condition of wounded may vary during the different stages. Much importance is rightly attached to this in the Field Medical Regulations of continental armies.
Once the wounded have reached rail-head their rapid evacuation to
the point to which they may be distributed to permanent hospitals is
simple, and depends on the number and capacity of ambulance trains,
steamers, &c., which can be utilized and run regularly for the purpose
from rail-head, or landing stages on rivers. The organization and pre-
paration of transport of wounded by rail forms an interesting chapter of
study in itself; so too, though to a less extent, does transport by water.

When wounded reach the base, either in the home territory or else-
where, they should be received by a distributing station which should be
organized in the same way as the evacuating or clearing station at rail-
head, chiefly with a view to classifying wounded previous to despatching
them to the various permanent hospitals in the home territory, arrang­
ing their routes, and so on. The Japanese had two such distributing
stations, one at Hiroshima and the other at Osaka, the two ports to
which sick and wounded were brought back from Manchuria. Each of
these had 15,000 beds, in properly arranged huts; the sick and
wounded were classified there and those fit for further transport were
distributed to the hospitals of their own divisions, at the head-quarters
of each of which 10,000 hospital beds were as a rule prepared.

I have been obliged from want of time to omit many points, some of
importance, such as the variation in the use of field medical units during
strategical concentration, marches, advances to attack, during and after
battle, in operations of defence, encounter battles, planned battles,
sieges, and so on, which are dealt with in the Field Medical Regulations
of some armies, although scarcely touched on in ours. They have all
special features of their own affecting the medical service which are full
of military and medical interest and well worthy of thought and con-
sideration. In fact each stage in the system of removing wounded and
each phase of field operations have many practical points and details
worthy of study and discussion. The principles, however, which per-
meate the system may, I hope, be gathered from these notes; and it is
only the general principles which can be illustrated in a single lecture,
such as this, by the field medical organization of our own and other
armies.