THE ORGANIZATION OF THE FRENCH ARMY MEDICAL
SERVICE IN THE FIELD.

Lecture by Inspector-General Bassères.

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The following lecture was given during a course of medical exercises
in the 15th French Army Corps, held at Marseilles during September, 1922.

Amongst the recollections of the war there is one which, on this
occasion, I should like to mention, viz., the camaraderie in the various
medical units of the corps and of the army (of the latter of which I had
the honour of directing the medical services), between our colleagues of
the two categories—regular and reserve. This sentiment I have tried to
develop on every possible occasion, and Heaven knows whether the chances
that came to me during stress of battle rendered this particular rôle of
a Director easy. I endeavoured to transform it into friendship—the
powerful leaven of initiative! The friendship sealed during the heat of
battle has been continued during times of peace.

Many besides me have had the good fortune to make friends of their
immediate collaborators during the war—friends never to be forgotten.
A great medical family was thus formed during times of stress. Peace
has dispersed this family, but its vitality developed from the war and the
loss of so many of its sons remains as strong as ever, and here after four
years of separation this family is reunited, temporarily, of course, but in
a manner which only goes to confirm the indissolubility of the bonds
uniting the members.

You will understand therefore, with what emotion, after paying to our
fallen comrades the homage of our infinite gratitude, I extend to you in the
name of the Medical Service the most cordial welcome.

I hope our comrades from foreign armies will permit me to include
them in this welcome, and to greet in their person those who did us the
great honour to delegate them to take part in our training exercises in
company with their French comrades.

Our programme assigns to me the duty of explaining the general
organization of the Medical Services in the Field—an attractive subject,
as it is a kind of practical application of the principal lessons of the war,
but one which to me seems difficult to deal with adequately in the limits
of an ordinary lecture, without reducing it oftener than I would wish
to the dryness of mere nomenclature. I apologize beforehand, and beg
of you not to think ill of me if I attain but imperfectly the double object
aimed at, to deliver a not too lengthy discourse, and yet give a precise
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idea of our military organization. To assist me and to give as clear an idea as possible, I have placed before you a diagram showing a situation of an army during the war, on which we shall follow in the course of my lecture, the dispositions of our formations.

It might have been thought more rational, before giving details of our several formations and their movements, to describe their origin and the etiological factors, which during the four long years of war, determined and marked out the stages leading up to the present arrangement; and then, the working explained, to devote a little time to the personnel responsible for the moves and dispositions.

The advantages of this method were not very great. I tried it, and because I found that the complexity of the task for me was not compensated by benefit for my audience in the way of a clearer picture, I gave it up.

These two associated questions—the influencing factors and the directing personnel—I shall therefore deal with conjointly in my discourse, making quite clear their rôle, according to the sequence of events, and I shall bear in mind two factors which really dominate the whole problem of the medical service, (a) the influence of evolution of surgical methods which were so remarkable, and (b) the necessity of dealing with the problem of gas warfare.

The solution of all questions relating to the organization and functions of the medical services surely demands that one should act with due regard to special technical considerations, and also to military necessities. But, in this connexion, you will see that the first are preponderant although inseparable from the second, and I have considered it essential to note this before going on.

Let us therefore now try to follow in the cadre of an army summed up in its essential constituents, the organization of the medical services such as will be established under our new regulations—for as yet I have only the right to speak of proposals; but these proposals can be considered as the substance of a guide about to be issued after long and attentive elaboration.

Regimental Medical Service.

The first echelon has been modified only to a very small extent as regards means of transport and methods of treatment.

During the first ten months of the war, when regiments evacuated some of their wounded on wheeled stretchers, they were able to do so only with the assistance of the divisional stretcher bearers (G.B.D.), as their own equipment did not include this apparatus. From the very earliest engagements, the services rendered to regiments by the wheeled stretchers (which are pushed up far in front of the aid-posts) were so great, and the advantage they offered for the transport of wounded, especially during the night at points where the wagons cannot pass or can do so only at great risk, so
obvious, that this mode of transport very quickly engaged the attention of commanders of regiments and other front line units.

Proposals were submitted by the D.G.M.S. to the Commander-in-Chief, and the latter in a note dated March 5, 1915 (this marks the first stage in the organization of the medical services in the front line), caused wheeled stretchers (two per battalion) to be included in the regimental equipment. At the same time the note provided for an additional wagon for the transport of these stretchers. These arrangements have been confirmed.

As to the improvement of the means of treatment, this has been realized chiefly by the inclusion in the regimental equipment of (a) the apparatus of Jeanbrau (a form of webbing for immobilizing limbs and fixing splints to the body), the Blacke-Thomas splint, and that of Lardenois [modification of Thomas' splint, of which a description was published in the Corps Journal in December, 1922]; these completely revolutionized the conditions and methods of transport of fractures—those of the thigh in particular; (b) rubber tourniquets, which did away with the brutality of the old tourniquet, the cause of so much harm; (c) the equipment necessary for giving first-aid to gassed cases; (d) drugs in ampoules and tablets—a simplification of the mode of administration as well as of replenishment.

To these improvements, which did so much for the wounded in the forward area as regards treatment and transport, decisions of the Commander added others as regards personnel, which led to the addition to the regimental establishment of a pharmacist officer and a dental surgeon, the former chiefly employed (when not in battle) with the upkeep of drugs and surgical material, the supervision of water and food supplies, and in the carrying out of many measures of hygiene, of which the importance increases with the proximity to the front line. To these must be added cyclists in sufficient number to ensure constant liaison between the D.M.S., the A.D.M.S. and his subordinate officers, and with executive officers.

It is useless to attempt to give figures for the establishment of personnel and material with various units, of which, as you all know, the war has increased the number of categories (tank regiments, aviation units, etc.). Varying naturally with the strength of the unit, the establishment varies with the constitution of each unit. Figures, therefore, become very complex. But the principle is simple, and it is this alone that it is important to bear in mind.

DIVISIONAL MEDICAL SERVICE.

Here we come to a series of more important changes.

In principle, Article 3 of the Regulations for the Medical Service in the Field, of April 26, 1910, states that the army corps has four ambulances and three hospital sections per division.

Four ambulances per division! By December 16, 1915, following the
increase of the total numbers engaged, these establishments were brought
down to three ambulances and two hospital sections per division working
independently, and two ambulances and one hospital section per division in
a bigger formation. One year later they were still further reduced. The
note of August 10, 1916, of the Commander-in-Chief, recognizing the advan­
tage of uniformity, as far as possible, as regards medical establishments in the
existing types of divisions, viz., the division acting independently, and that
in larger formation, decided that these units would possess henceforth
similar establishments, viz., two ambulances and one hospital section per
division—these formations forming the organs of treatment of the division,
while the G.B.C. (the corps stretcher-bearer group), which had likewise
undergone important internal changes (with which I do not propose to
deal), constituted the organ of transport.

Of the two ambulances remaining with the division, one is called the
"surgical ambulance"; it ensures the proper sorting out of wounded and
the carrying out of urgent surgical measures. I am not unmindful of the
service rendered by this unit in its double function, but as soon as the year
1918 brought back war of movement, then proof was given of its limited
use and fragility. In the earliest engagements during the "Battle of
France" it became evident that another type of unit must be substituted—
one more compact and better equipped—one whose establishment of skilled
personnel makes a thorough sorting out of cases a certainty. I shall
explain later how the surgical elements of the army corps accomplished
this by a policy of concentration of surgical forces after the initial policy of
dispersion.

After the lessons of March and June, 1918, while D.M.S. of the III
Army, I arranged that the surgical ambulances of divisions were directly
administered by the army, and that the army ensured adequate surgical
arrangements for the larger units in the forward area. The abolition of
the surgical ambulance was confirmed in July of the same year, the second
ambulance henceforth acting in various roles, as a sort of reinforced aid-post,
or as a centre for treatment of gassed cases during active operations, and dur­
ing quiet periods as a centre for slighter cases under various designations—
divisional hospital, convalescent centre, etc. Thus, at the end of the cam­
paign, the division has only one medical unit proper, the ambulance with its
hospital section, and the group of divisional stretcher bearers, to which,
however, must be added the Motor Ambulance Convoy, which although not
really pertaining to the division can be considered as belonging to it, as it is
placed under the orders of the A.D.M.S. for evacuation.

It appeared that by this method of allocation of divisional units the
height of simplicity had been reached, yet since the termination of the war
still further progress has been made. Utilizing to the full the lessons
derived from the early engagements of the "Battle of France," and
confirmed by later events, those who are revising regulations considered it
to be advantageous to apply to the medical units of the division the
principle of concentration of which I spoke a little earlier. And having this object in view, they have merged in a single unit, called the G.S.D. (groupe sanitaire divisionnaire) the divisional medical group—the elements of the ambulance and of the stretcher-bearer group.

The Divisional Group (G.S.D.), the result of this fusion, is a well organized adaptable unit for medical attendance and transport, suitable for the large formation for which it is designed, whose movements it must always be ready to follow.

With ninety stretcher bearers who, if necessity arises, may be divided into three sections, it has also for medical attendance the necessary establishment of personnel and equipment to ensure the proper functioning of a central divisional aid-post during battle, affording first-aid to gassed and wounded, continuing the treatment of those already admitted, carrying out the sorting, and retaining those unfit to be moved. During non-battle periods the G.S.D. is perfectly equipped for forming a divisional hospital or convalescent centre, and it is also equipped for carrying out routine work in the matter of hygiene.

The train of the unit is considerable, consisting of a total of twenty-six wagons. I have just a word to say regarding the unit for transport of the sick and wounded from the division to the corps area—the motor ambulance convoy (section sanitaire auto). During the war when its utility was at its greatest, it was put at the disposal of the division but was not under divisional control. We wish it to be definitely allotted to the division.

The same organization applies to a cavalry division as regards its medical organization.

The aerial division, however, forms part of army troops, but to avoid any confusion with aeroplanes adapted for the medical service and considered as a special method of evacuation to which I shall have to refer later, and moreover as what I have to say regarding the medical services of fighting formations like the aerial divisions is extremely brief, it seems more simple to deal with it now.

Aerial Division.—This comprises at least seventeen dispersed aerodromes (this dispersion is the characteristic of the formation) on an area of 100 to 150 kilometres, roughly sixty-two to ninety-four miles.

The medical services of the formation are placed under the control of an A.D.M.S. (médecin divisionnaire) of the rank of Lieutenant-Colonel or Major (médecin principal de deuxième classe or médecin major de première classe) attached to divisional headquarters.

The medical organization is such that attendance is afforded either on the aerodromes or in the medical unit nearest to a casual landing.

There remains the question of the directing personnel, to conclude this discussion of the new form of the divisional medical service.

I should have nothing to add to what you know of the divisional A.D.M.S. (médecin divisionnaire), that is to say of his duty in regard to the
installation of regimental or divisional aid posts, of the importance of his initiative in the matter of evacuation of casualties, of his personal action in the co-ordination of all the workings of the service of which he may be looked on as the mainspring, if I did not consider it necessary, as this is the first important formation, to bring out quite clearly a special point, viz., the liaison which must be established in a general way between the medical services and divisional headquarters. Perhaps you may think that this is not organization and that I am departing from my subject. I am not of this opinion. The war taught me too many lessons which I cannot forget. Is not liaison the very core of the work of organization when in the fitting out of a formation it associates the commander and the chief of the medical services, be the formation division, corps, or army? And once the medical edifice is erected, and the various wheels which it shelters are put in motion, is it not liaison which ensures that they work smoothly, that their upkeep is attended to, and that the service is efficient? However, it is not sufficient that the necessity for this liaison should be pointed out in orders; experience on this point has provided in particular cases very suggestive observations.

It is important that one should work out and generalize the application of the principle of collaboration brought to notice in orders of the Commander-in-Chief on April 25, 1916. One must refer to it unceasingly because, creating a common obligation, it also creates a common responsibility, and as a result one can refer to it in case of forgetfulness or neglect.

Responsibility! Everything depends on it. "If one holds a chief responsible," said General Buat, on December 20, 1921, at the annual dinner of the Federative Union of Medical Officers of the Reserve and Territorial Forces, "it is essential that he should be kept closely informed as to the objective of the commander."

Such is the principle. Here is the application. He will be such a chief, for he will be present at all the conferences held daily or otherwise by the commander of the large formation to which he belongs; he will get the ideas of the commander at the fountain head. And turning to the Director of Medical Services at the Ministry of War who had spoken just before him, "Inspector-General Toubert," he added, "knows this system very well as he practised it while he and I were at general headquarters."

Remember these words, gentlemen; they will appear very natural to those who had no previous knowledge, but how much more do they mean to those who have had experience! And because they come from the lips of a chief whose merit carried him to the top of the tree, who knows what the medical services did in the war and who remembers it, I am glad to have the opportunity of reminding you of them, for we have here, besides valuable testimony, the fulfilment of a definite promise.

It was difficult for me as you can see, in speaking of general organization not to lay special stress on the relation between our service and
the commander of the formation; so I have taken as an illustration the medical organization of the division, the first large formation. The A.D.M.S. of the division has no assistant (D.A.D.M.S.). Has this been forgotten or is it an error of organization? Whichever it is, it must be rectified. Innumerable instances show that faulty liaison between the divisional headquarters (from which orders emanate) and the medical services, led during the campaign to many regrettable incidents. These would have been avoided if during the absence of the A.D.M.S. the latter had been represented at headquarters in the same way as other branches of the service. The allotment of a junior medical officer would meet this necessity.

Corps Medical Service.

We have seen that in the division the principle is to evacuate as rapidly as possible, and to bring medical and surgical aid to those unfit to be moved. In the corps, on the other hand, the object is to have accurate classification of cases and more efficient methods of treatment. In these respects the war left the army corps with a well-equipped, rational, medical service, with the hallmark of experience.

The new organization will have simply to ratify what existed in 1918. Let us see then of what the service for classification and treatment of casualties in the corps during the Battle of France consisted.

A Light Surgical Ambulance.

This has been approved. It consists of the Plisson type of 1921, slightly modified, of which our exhibition shows a model—if not complete in every respect, it is at least sufficient to give a good general idea.

By the perfect adaptation of the personnel and the equipment to the requirements of surgery, this unit has, from the technical point of view, profited by the lessons of the war, and from the military point it conforms to the requirements of a war of movement: its motor transport and its type of shelters (abris) allow of free movement and rapid installation; if it has not the solidity and power of its elder sister, the "Autochir" (a motor surgical unit, specially designed for operative work) its mobility resembles that of the latter and it has in adaptability what it lacks in power.

The train of the unit, entirely motor, comprises twelve vehicles:
- Three specialized lorries (radiology, surgery, pharmacy and drug store).
- Three store lorries (dressings, stretchers, marquee).
- Three trailers (operating theatre).
- One wagon for personnel.
- One wagon for baggage.
- One mobile kitchen.

There is one important point: the chief of the unit is at the same time the consulting surgeon for the army corps. His selection is a matter requiring careful consideration, for while he has the responsibility of the
sorting out and selection of cases, he has also that of the unit to which he is attached, and the latter must be able to adapt itself rapidly to the movements in battle—advance or retreat. It is important, then, that the consulting surgeon of the army corps should be not only a surgeon of known repute but also an organizer full of activity and of quick decision. Experience has shown me that these qualities are not only desirable but absolutely necessary.

A MEDICAL AMBULANCE.

This is known as Ambulance "Z" because in addition to its usual rôle, that of receiving medical cases, it plays the same part towards gassed cases as the surgical ambulance does for wounded.

I mention as an interesting point the fact that the eye specialist and the ear, throat and nose specialist, who are included amongst the six medical officers of the unit, constitute the first line of specialists, whose general distribution I shall very shortly refer to later on.

Thanks to the addition of a section for hygiene, cleansing and disinfection, of which a model has been fixed up on the demonstration ground, the "Z" ambulance is equipped to receive, wash and clothe gassed cases, and to give them special treatment.

It is desirable that keeping in line with what we have seen in the surgical ambulance, the chief of the unit should be at the same time the consulting physician for the army corps. The new organization makes no mention of this point.

Why not reproduce here the arrangements that have given such happy results?

Organization for the treatment of medical cases for dealing with the gas problem, for the prevention of epidemic disease (by vaccination, inoculation, etc.), and for the general hygiene of the zone of the army corps, are these not sufficient reasons, quite apart from other arguments, for justifying this arrangement?

Both of these corps medical units, the light surgical ambulance and the ambulance "Z" have sufficient equipment for the installation of 250 beds each, and as the necessities arising from a forward march must be arranged for, the army corps has a quantity of shelters (abris) consisting of twenty tents of the Bessonean type, destined to permit of the formation of two echelons, essential to ensure continuity of function during a move.

The surgical ambulance and the ambulance "Z" are naturally independent, but things are so arranged that on orders from the D.D.M.S. of the corps they could be associated on the same site under the orders of a single chief, and would be known as the ambulance group of the army corps. All other designations should be forgotten. During the offensive in April, 1917, there was often a question of having ambulances for sorting out and others for treatment. There is no longer any reason for such a separation; each of these ambulances ensures by itself the triple measures
of sorting out, treatment (for those unfit to be moved), and evacuation of
the wounded or gassed cases received.

When circumstances permit of these ambulances being grouped, the
group is located about ten to twelve kilometres (6\frac{1}{2} to 7\frac{1}{2} miles) from the
line, and the director can, if his staff is insufficient, or if he is threatened
with being overwhelmed, ask the D.M.S. of the army for reinforcements,
either a surgical team or an army ambulance (medical or surgical).

When the wounded and gassed received from the divisional medical
groups have been sorted out and treated in the ambulances, they are
evacuated by motor transport placed at the disposal of the director.

To these two corps medical units which deal with sorting out and
treatment of sick and wounded must be added a third, the means of
evacuation, represented by two sections of a motor ambulance convoy.
Their function is to ensure the transport of lying and sitting wounded from
the corps ambulance group of the army zone to the H.O.E. (casualty clearing
stations) or specialized army units, the first of their kind as a general rule,
as you know.

For a long time the medical service has insisted that the motor
ambulance convoy, no matter with what formation it is working, should be
allotted to the medical service in the same way as other specialized units—
surgical lorries, X-ray units, etc. Is their special technical purpose
(especially after the improvements that have been effected) so less evident
that they are not allotted? So far as I personally am concerned, since I
have had the honour of directing the medical services of a large formation,
I have stuck to the following formula, which has, in my opinion nothing
against it, "the director responsible, master of his motor ambulance
convoy." Needless to add, the allotment of two motor ambulance sections
is not fixed; the number may be increased in case of necessity, like that
of the division, by the provision of extra cars or even whole sections as
reinforcements, and for walking wounded by the provision of transport used
for personnel or stores.

These units and formations of the three zones of the army corps which
I have just described must be kept in full working order and must be
kept fully supplied with personnel, dressings and drugs. This is the
function of the "groupe sanitaire de ravitaillement" (medical supply
group).

MEDICAL SUPPLY GROUP.

This is none other than the old corps stretcher-bearer group (groupe de
brancardiers de corps) hardly changed, or at least only so far as the war
brought about slight changes. The function of stretcher-bearing was
carried out only occasionally during the latter years of the war. But on
the other hand, its function as a supply unit became more important as a
result of gas warfare, the frequency of frostbite, etc., and the title of
advanced reserve depot was conferred by certain directors of army corps;
it is the last-named function which has prevailed and has earned for it the present designation.

The total group consists of thirteen cars or motor lorries, of which six are allotted for the transport of equipment.

To summarize, the characteristic of the medical organization of the army corps is the high specialization of its units, as we have just seen; this of course does not prevent its meeting requirements of all conditions other than those of battle—normal sickness, epidemics, and the treatment of slight cases on the spot.

If one adds to this specialization, the substitution to the greatest possible extent of motor for animal transport, not only for the evacuation of sick and wounded, but also for the transport of stores, and further the possibility of developing almost immediately the resources of the authorized medical units according to requirements, it is easy to see to what extent the corps medical service (like other branches of the service as we shall see later on) has attained the objective which circumstances imposed to adapt itself in the highest possible measure to the new conditions of war by the quality, force, and high standard of its medical aid.

I have only to mention here as regards the director of the corps medical service what I have already laid down for the A.D.M.S. of the division on the subject of his relations with the commander of the formation. As to his technical advisers, I once again express the desire to see the personnel of corps headquarters completed by the addition of a consulting physician.

The Medical Services of an Army.

The army formations are in two groups—those of the forward area and those of the back area.

Medical Units of the Forward Group (see the diagram).—From the corps ambulance group the current of evacuation takes us to the units in the forward army area of which the primary casualty clearing station (hôpital d'évacuation) forms the essential element and comprises amongst other units shortly to be described, specialized formations. Here we are at the very core of the medical organization of the army—this term we can take as a figure of speech and as a reality. It is in point of fact in the primary casualty clearing stations that the current of evacuation is regulated—patients coming from the line, and others going back to a more peaceful zone—units in the back area.

And it is there that the D.M.S. of the army, ever on the watch over these regulating units, can get a collective impression from the local picture and get ideas of measures to be adopted so as to ensure the regular working of the various units.

I have often said of the casualty clearing station that it is the keystone of the arch in the medical edifice of the army: everything in fact depends
What then is necessary so that it may fulfil the conditions which such a rôle involves? The primary casualty clearing station is too well known to make me inflict you with a description of it, but I am speaking of our organization, and its place there is fundamental. Let us see briefly from what lessons the present regime has been evolved.

(1) Experience has shown the risk of its being situated near depots of stores or munitions, important supply stations, etc. It is accepted that casualty clearing stations should never be in the vicinity of any but stations of minor importance and with little going on, and that they should have a protective zone with a minimum radius of 1,000 metres (five-eighths of a mile).

(2) Experience condemned large casualty clearing stations of 2-3,000 beds, much too heavy and cumbrous even before commencing to function, from the large number of personnel employed. A casualty clearing station of 1,500 beds has been selected, 500 hospital beds and 1,000 for evacuation.

(3) When large evacuations were in force, the old sorting hutments failed, and there was difficulty in arranging cases for the train without large shelters; the new casualty clearing station will have hangars for reception and sorting out and others for collecting cases for the train.

(4) Division of labour, to be efficacious demands a sectional arrangement of the casualty clearing station, each section self-contained and well adapted for the special work. The new type of casualty clearing station has blocks for each type of case; severely wounded, with the mobile surgery as its nucleus; lightly wounded having as nucleus a light surgical ambulance block for gassed cases with a medical ambulance (army) as nucleus; personnel block, administrative block.

(5) Cases were not uncommon in 1918 where corps medical units went forward and their place was taken by the casualty clearing stations: the well organized sections for wounded and gassed, and the possibility of immediate reinforcement responded well to the conditions necessitated by such circumstances.

(6) Finally the normal working of a casualty clearing station depends on the possibility of a daily evacuation to other centres. It is therefore provided with a motor ambulance convoy.

In this list of desiderata and methods of meeting them, I have only dealt with the material part of the problem.

For this unit (which even the regulations of 1910 called the most important unit of the army) it is necessary, more than in any other unit, to have a director selected beforehand, one of the right type with adequate experience. No duties demand more authority, sangfroid, idea of organization and intelligent adaptable initiative.

I shall finish these essentials of the primary casualty clearing station by adding that the organization provides for one casualty clearing station per army corps composing the army and that these units are situated at an
average distance of twenty-five to thirty kilometres (about fifteen to eighteen miles) from the line.

The cadre of army units (of the forward group) is completed by units more or less specialized, installed not far from the primary clearing stations, and receiving from them—for the most part, sick or wounded requiring special treatment; they however also receive cases direct from Corps and Divisional units. They are formed from the light surgical ambulances and medical ambulances (of the army) which have not been taken to form part of the primary clearing stations.

The following are examples of these army units:—

(a) Fracture centre—F.
(b) Centre for wounded officers—O.
(c) Infectious hospital to which I invariably recommend the attachment of a bacteriological and a chemical laboratory—C.
(d) Centre for severe infected wounds and non-evacuable convalescents requiring prolonged treatment—B.C.
(e) Hospital for special surgical cases (ophthalmic, ear, throat and nose and jaw cases)—S.C., this unit having all the principal specialists of the army to whom I personally added a surgeon for head cases and eventually a neurologist—constituting the third and last line of specialists, of whom the first was located at Ambulance "Z" of the corps group, and the second at Ambulance "Z" of the primary clearing station.

(f) Hospital for special medical cases—S.M., where besides ordinary general diseases the following cases are dealt with: neuro-psychological, cardiac, respiratory and digestive, the respiratory ward having an annex for the observation and diagnosis of tubercular cases.

(g) Centre for light cases from the army area, and convalescent centre with a section for skin and venereal cases: this centre is generally situated on the lines of communication.

(h) Finally, supplementary hospitals in the forward army area, which if need be can be specialized as was done in our III Army, when one was allotted for prisoners of war and known as the supplementary hospital of Clermont—P.

There still remain to complete this picture of the forward area formations and units, the following services of which, for lack of time, I confine myself to simple enumeration.

Army hospital sections of 500 beds divisible into four sections of 125 beds with bedding and equipment suitable for the formation of primary casualty clearing stations such as I have just described.

Group of army shelters one for each corps in the army, and consisting of two hangars and sixty tents of the Bessoneau type.

Sections of hygiene, bathing and disinfection, one per corps in the army.

Motor ambulance convoys, two per army corps which are additional to those actually allotted to the army corps or divisions, and form a powerful reserve at the disposal of the D.M.S. of the army.
There is no need to emphasize the importance of this allotment of motor ambulance convoys; at certain times they are the sole means of solving a difficult problem, e.g., quite frequently they have to reinforce the forward motor ambulance convoys during active operations, or (and it is here especially that their co-operation solves the problem of which I spoke) they surmount the difficulties during a rapid advance, of keeping the corps ambulance groups and the primary casualty clearing stations in touch.

I close the list of these units in the forward group of the army by referring to the Advanced Medical Reserve (called the R.A.M.S. in the field). I fought for the R.A.M.S. against certain criticisms which were made against it. In 1918 in the III Army it rendered most valuable service. Perhaps the new function of the Corps Supply Group renders it less necessary. But it has stood the test of experience and it has been wisely retained.

All these units or services are situated in the army zone as shown on the chart. They form, as has been said, the forward group of the army.

**Medical Units of the Back Area.**—In this group we find medical units of the same type as in the forward area; supplementary hospitals with sections of 125, 250, or 500 beds, of which certain may be set aside as special hospitals, on the same lines as those already detailed:—Auxiliary hospitals organized by the Red Cross, convalescent depots, laboratories, motor ambulance convoys, sections of hygiene, bathing and disinfection. I merely mention these, and shall deal with the units of the headquarters, lines of communication, and this other unit, which we meet for the first time during the battles of 1918, of which it was perhaps the essential lesson—the secondary casualty clearing station (see the chart).

In reality these formations in the back area do not belong to the army; situated on the line of communications (zone des étapes) they come under the control of the General Commanding the Lines of Communication (général directeur des étapes) (D.E.), who is assisted by a colonel of the medical service to control their proper working; the latter officer is known as the D.M.S., Lines of Communication (directeur du service de santé des étapes).

It often happened during the "Battle of France" that the D.M.S. of the army had the technical responsibility of certain of these units. We can, therefore, consider these units as a prolongation of the medical organization of the army into the lines of communication, and as such add them to the picture of which I have drawn the principal features.

There is hardly one of you I imagine who does not know the importance of the regulating station (gare régulatrice). It is towards this you know that transport proceeding to, or coming from, refilling points and evacuating stations is directed. Two important services are here brought in touch, the regulating commission, which co-ordinates demands and assures transport, and the commandant of the area, both of these subject to the controller (commissaire régulateur).
At first the latter officer had no technical adviser to exercise strict personal control, from the medical aspect, over the evacuations, so as to lighten his work in this respect. The appointment of a regulating medical officer (médecin régulateur) in the latter part of the campaign got over this difficulty.

Of the enormous resources accumulated at the regulating station, those of the Medical Service are by no means the least important; ambulance trains, reserves of personnel and equipment, repair depot for surgical instruments, and finally, and by no means least important, medical units of various types, these latter forming the hospital centre of the regulating station.

The Controlling Medical Officer is, besides being the technical adviser of the Controller, the chief of the hospital centre and of the casualty clearing station, which is the most important unit of the centre, and deserves special mention. But before dealing with this, I wish to say a few words about the units of the regulating station which I put at the head of the list, and which form the most important means of transport—ambulance trains. I could speak for a long time on this subject; I have followed their development closely and have written thereon—the subject is full of instruction, but the arrangement of my lecture prevents any digression.

The total number of ambulance trains at the regulating station is, if I remember rightly, 300. There was endless criticism of our rail transport, and this did not refer to our improvised ambulance trains at the beginning of the war. I am speaking of our semi-permanent trains of various categories. Certainly, if they are compared with those of the British Army, of which I saw a wonderful type in 1915 during a visit to the British lines (and you can understand that I did not come to this conclusion without a certain amount of regret), the comfort of our ambulance trains is only relative. But for those who, like myself, know the stages of development, the difficulties to be overcome, it is easy to understand the imperfection of our methods of evacuation by rail. I think that the lessons of the past have not been forgotten.

Let us hope—we have the right to—that steps will be taken to ensure that ambulance trains in the future will have the facilities all along demanded by the medical service, viz., whole-length corridor, entrance on either side for lying and sitting cases, heating, lighting, and provision of meals, all done on the train itself, utilizing energy developed on the train; dressing-rooms.

One word more about our permanent ambulance trains. One was not always indulgent to these old servants. Certainly they could not be compared with their younger British and American brothers, but in their badly-lighted and rather dusty carriages our seriously wounded (I have seen it myself) smiled with a feeling of well-being which was contributed to by good beds and the attentive care of which they were the object. And
having seen these servants of difficult times at work, I do not wish to omit, before they are gone (if really condemned), to salute them with gratitude.

I do not know whether ambulance aeroplanes will, like the trains, be attached to the regulating station. Let us suppose they will be, as the analogy well justifies such an arrangement, and let us see in a few words how this arrangement will work out.

It is hardly necessary to say that the use of ambulance aeroplanes is to-day an accomplished fact. Experience has proved their decisive value; on November 15, 1921, that is, ten months after taking into use sixty Breguet aeroplanes fitted with the contrivance designed by Chassaing, nearly seven hundred wounded of the forces in the Near East and Morocco have been evacuated without casualty. Does not this unexpected accomplishment suggest great possibilities of evacuation by air in Continental wars?

If one profits by the lessons given, one must consider the following points in the matter of organization:—

(a) Landing grounds for arrival and departure, the former, which must be considered necessary annexes of the secondary casualty clearing stations, or of the hospital centre of the regulating station, require to be fixed up in time to be ready as soon as the units to which they are allotted begin to function; further, they must be arranged so that by special signs night landings can be effected.

In the armies during the war, numerous formations—primary casualty clearing stations, corps ambulance groups, etc.—were so located that the neighbouring ground lent itself almost without any preparation to the landing of aeroplanes.

(b) Division of the army allotment—either singly or by ambulance squadrons—amongst primary casualty clearing stations or, if need be, corps ambulance groups.

(c) Ear-marking of destination stations, when the time arrives, either secondary casualty clearing stations or hospital centres.

(d) Establishment of liaison between dispatching and receiving units.

Now, having completed this little digression to consider the mobile units of regulating stations, and also those used in evacuation, let us return to the fixed or hospital units. I stated that the casualty clearing station, essentially part of the regulating station, played an important part therein.

It is here that the final sorting-out of convoys passing through or stopping at the regulating station is accomplished—convoys arriving by rail, road, or air, or, as at Creil, by water.

After the lessons of the war, one could never imagine that the hospital centre of the regulating station would be of limited capacity, whose inadequacy would show up on the first occasion of a large evacuation. It is essential, therefore, that it should have medical units of the type used in the army area, and this leads us to the following conclusions:—

(a) The establishment of the hospital centre of the regulating station
must be worked out in time of peace, in the same way as hospital centres in the interior.

(b) The ultimate organization of a secondary casualty clearing station at the regulating station should conform precisely to the conditions demanded for such a unit at a hospital centre. Thus I am brought quite naturally to a short description of this important unit.

I have described elsewhere how the III Army, reduced on March 28, 1918, by the loss of four primary casualty clearing stations to a single casualty clearing station at Estrées-Saint-Denis, and placed for this reason in a critical situation, could only carry on, its collecting centres once filled, by the establishment of trains taking only wounded for operation. I remember the misgivings with which this first attempt was made, but various surgeons who were called to units on the lines of communication and in the interior, to operate on such cases at Troyes, Beauvais, and Cramant, reported favourable results after such delayed operative interference.

The organization of the secondary casualty clearing stations was evolved from this experience, so that we arrive in 1918 at an apparent paradox, that a technical principle considered most dangerous during the greater part of the war—I mean delay in operation of cases for some ten, fifteen or even twenty hours—is now serving as the basis of a new principle of organization, which may be counted as one of the most important lessons of the war.

A normal overflow for the primary casualty clearing stations, the secondary casualty clearing station fulfils the same function for the units in the area behind as the primary casualty clearing station does for it. It is therefore equipped medically and surgically like a primary casualty clearing station. But as it is destined to receive full train-loads of wounded and gassed cases coming from the front, it is necessarily equipped on a larger scale.

To carry out this function satisfactorily, the secondary casualty clearing station must be situated on the main lines of evacuation, easy of access, at a distance of ten to fifteen hours’ journey, and if possible in the vicinity of the regulating station—a condition much more important than to be on a particular site; this permits the unit to serve several armies, and to be available for any of these armies which might become involved in operations.

Established in the proportion of 1 to every 3 or 4 primary casualty clearing stations, they will, on account of being central formations, be very well organized and one should find there the same services, surgical centre with portable theatre and surgical teams, a medical section with ambulance "Z," and other special services as in a primary casualty clearing station.

Finally, as they are destined to form, behind the army zone, along the whole front and right from the commencement of operations a line of important halting centres, their organization (as I had already insisted in my lectures at the "Ecole de Guerre") for the units in a primary hospital
zone, located between the armies and the interior) must be drawn up in time of peace; their war establishment must be arranged and their location determined, as was done in the old organization for the medical units of the hospital zone of the interior by the decree of May 5, 1899. ("Bassières : le service de santé de la III armée pendant la bataille de France," p. 243.)

You will see, gentlemen, why I have laid so much stress on the secondary casualty clearing station, what light it throws on the problems of our new organization and how it opens out their solution.

Nothing is simpler, especially when one considers the possibility of evacuation by air, than to figure out these problems on the chart before you. It is the dream of to-morrow, and there is no need after what you have just heard to be well up in the problems of organization, to follow the striking reality in the army zone shown above.

To look back with or without the aid of the chart, on the corps ambulance groups and on the primary casualty clearing stations, how you picture near them landing grounds, which from the nature of the ground are of easy adaptation (fields, meadows, etc.) even before the units which they are to serve are established; from these points of departure the service routes lead to the destination points—secondary casualty clearing stations (those of the regulating station or even further back) where there are landing grounds which our organization provides for being marked out in time of peace. And these two landing grounds (forward and back area) once laid out—imagine on the day of battle, the incessant coming and going of single machines or groups of aeroplanes. Then picture these aeroplanes whose flight will be directed even at night time by special signals, not equipped for two patients like those of to-day, but capable of taking 6, 8, or 10 wounded or even more. How then, gentlemen, can one fail to be greatly impressed by such great advances in the problem of evacuation? And is it not likely that we shall see evacuation by air, at present a rival of road and rail, dominating these in future wars?

So far I have brought to your notice the medical units or formations of the medical service suitable for the work of the army zone. Add to these the reserves of General Headquarters Reserve which are considerable, embracing every type of unit already mentioned, and you will get a good general idea of our medical organization. I do not say that this view is a complete one. To attain this it would have been necessary to go far beyond the limits of the programme, which your kind attention has already made me exceed, but at least it has been sufficient, I hope, to give you an idea of the strength of the service.

And if now, casting a glance at the picture of the medical organization of the army, in which are included, I repeat, part of the medical formations of the line of communication (these, though not directly under the D.M.S., yet he often has to exercise technical supervision over them) if you think of the responsibility of the director, you will understand the necessity for proper liaison between the D.M.S. and the G.O.C. I do not intend to
return to this subject, but permit me to read these lines extracted from notes which I made on "Le Service de Santé de la III armée pendant la bataille de France" (p. 257):

"The D.M.S. of the army has been placed with the first group since the suppression of the (‘D.E.S.’) director of the line of communication. That should be his permanent location, which is quite natural. But it is essential that he should enjoy full advantage of this location. It is only logical for him to take part in the planning of operations so as to ensure the proper organization and functioning of the medical service. As the immediate collaborator with the General Officer Commanding-in-Chief of the army he should be kept fully informed by him or by his representative as to the nature of projected operations, and his responsibility is limited by the extent to which the General Officer Commanding-in-Chief takes him into his confidence. The army commander has everything to gain by conferring freely and fully with the D.M.S. since without losing anything in the way of authority, he gives to the chief of the service—his delegate—a certain guarantee that his arrangements will be carried out.” And, commenting on the attachment of a representative of the medical service to the 4th Bureau authorized by the order of the Commander-in-Chief on January 4, 1917, for each army headquarters, to deal with supplies, transport and communications, I added, “Liaison of the D.M.S. of the army with the General Officer Commander-in-Chief is assured, apart from his direct personal liaison with him or his chief of staff, by the medical officer at the 4th Bureau. A definite staff officer (order of May 11, 1917), he is at the same time the representative of the D.M.S., and should do nothing without his concurrence. The harmonious working of this group, D.M.S. chief of the 4th Bureau, and medical officer of the 4th Bureau is of the highest importance.”

In the list of those medical officers working directly with the D.M.S. I mention the following:

Group (a).—Two deputies of whom the first is in close touch with his chief, and the second, called the distribution officer, who is occupied with the distribution of sick and wounded amongst the various army units, and is in constant touch with the officer controlling motor ambulance transport, an officer of the motor service permanently detached for duty with the D.M.S.; it is the duty of this officer to control and carry out the transport of patients: a pharmacist; an administrative inspector; whose energies when well maintained and well directed can be of the greatest service; an officer of the civil service; and the heads of the personnel and stores branches.

Group (b).—Two technical advisers: the consulting surgeon and the consulting physician, both carrying out on behalf of the D.M.S. duties of the greatest importance. “It is because this is of far reaching effect that I have described it in the treatise mentioned above. This service will admit of much more than can be allowed in the way of extension. Now these problems of organization require more than the authority of a well-
established scientific body; in a formation like an army, always in action, there must be qualities of initiative and decision which are, so to speak, but the result of serious forethought and consideration given to the question of military organization. In this way only can the scientific adviser become the helpful collaborator of the D.M.S. that he ought to be."

There is not a question concerning the medical organization of the army that the D.M.S. should not go into with his immediate collaborators. Through them the liaison is assured throughout the army, and it is from the details of information collected by them and by his own initiative that the D.M.S. co-ordinates the work, arrives at decisions and carries them out.

The rôle of direct co-operation adopted by medical chiefs towards army commanders is carried out by representatives of the service higher up towards commanders of army groups so as to facilitate the co-ordination of hospital and evacuation services of the armies forming the group, and also with the General Officer Commanding-in-Chief by the (Aide-Major Général du Service de Santé; Directeur de l'ensemble du Service de Santé des armées) Director General Army Medical Services in the field.

If I have discussed for preference the duties of the army D.M.S., it is because the army in practice is the best and most concrete picture of the forces as regards strength or work in action; it is because this large formation gives the best framework on which to build the general features of our medical organization, and by a natural sequence it is where the strenuous work of the army is going on that the D.M.S. appears to best advantage in the multiplicity of his obligations and the nature of his responsibilities.

I have finished, gentlemen, and I apologize once again for having tried your patience so long. I should like, however, in finishing the outline of our general organization to add a word on one of the conditions necessary for the proper balance of the work in hand. I have not dealt with it in the preceding remarks, because it is not laid down in our official instructions. But you know well that if moral force is hidden behind the cold preciseness of official documents, it does not germinate less within ourselves, and is always ready to make good at the appointed hour the plan of which the regulations merely lay down the mechanism.

The medical service has shown what could be done with resources the initial poverty of which had discouraged so many. Our new organization possesses power which has lately been consecrated by the tragedies of real warfare.

What confidence it reposes in the medical corps whose moral was so high during the war! Let us rest assured, gentlemen, if, which God forbid, the powers of destruction are destined to enter into play once more, they will find a medical service capable of rising to the occasion!

1 Bassères loc. cit., p. 258.