

THE ORGANISATION AND WORK OF THE ROYAL ARMY MEDICAL  
CORPS IN THE FIELD, WITH A SHORT DISCUSSION OF SOME  
OF THE COMMONER DISEASES MET WITH AMONG DIVISIONAL  
TROOPS.

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by

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In this Thesis it is proposed to deal with the organisation and work of the Royal Army Medical Corps in France and Belgium during the Great European War of 1914 - 1918, and particularly with the work done in the Army Areas. In the Stationary and Base Hospitals the work done was of extreme importance, but the methods employed were as a general rule of a more stereotyped nature and approximated fairly closely to those employed in civil hospitals under peace conditions.

In the Field, methods of warfare were revolutionised to such an extent, that, although the fundamental principles of Royal Army Medical Corps training as taught prior to 1914 held good for the most part, new problems presented themselves almost daily, and had to be met and solved as expeditiously as possible. Any criticisms that may be made will, it is hoped, be pardoned, and as far as possible be constructive rather than destructive.

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A short resumé of my Army Career and of the posts I held may be of advantage.

At the outbreak of war I held a Commission as Lieutenant in the Special Reserve of Officers of the Royal Army Medical Corps. I received Mobilisation Orders on 5th August, 1914, and joined No.7 General Hospital at Colchester on 6th August, 1914. This Hospital proceeded to France on 12th August and opened at Amiens on 18th August. Owing to the rapid German advance, Amiens was evacuated on 28th August, and the staff of the hospital moved to Havre and thence to St Nazaire, leaving all its equipment in Amiens owing to lack of transport. The Staff was sent to replace casualties in various units, and I was detailed to proceed to Créil, for duty as Medical Officer on returning empty supply trains. On 28th September I was ordered to report to the Hospital Ship "Asturias" as Second in Command, and served on her in the Channel and Mediterranean, until May 1915, when I was posted to Command the Hospital Ship "Panama", which was then being fitted at Belfast. On the "Panama" I saw service mostly in the Mediterranean at Gallipoli, where we evacuated the last Casualties from Suvla Bay, and at Albania, Malta, and/

and Egypt. On asking to be posted to a Field Ambulance in France, I was sent in May 1916 to No.3 Field Ambulance which was attached to the 3rd Guards Brigade. I was attached to the 1st Battn. Grenadier Guards and 2nd Battn. Scots Guards for short periods as Regimental Medical Officer. In January 1917 I was appointed Deputy Assistant Director of Medical Services of the Guards Division and served in this capacity till May 1918, when I was posted to Command the 51st Field Ambulance attached to the 51st Brigade of the 17th Division, and I was in Command of this unit until May 1919. I had thus ample opportunities of becoming thoroughly acquainted with the work in Divisional Areas both from a practical and administrative point of view.

The lines it is proposed to follow are the work:-

- (1) In Divisional Areas
- (2) In Corps Areas
- (3) In Army Areas.

For the sake of clearness these areas will be treated as distinct, although of course they merged into each other, and the smaller areas were administered by the larger.

DIVISIONAL AREAS.

In the divisional areas the work of the Royal Army Medical Corps was controlled by the Assistant Director of Medical Services of the Division under the Command of the General Officer Commanding the Division. The Assistant Director of Medical Services - usually known as the A.D.M.S. - had his headquarters at Divisional Headquarters and was assisted in his work by a deputy assistant director of Medical Services, known as a D.A.D.M.S. The work of these Officers was largely administrative, but was also executive, and all orders pertaining to purely medical affairs emanated from them. There is no doubt that the standard of Medical efficiency in a division was largely commensurate with the powers of administration and supervision of the A.D.M.S. He had to meet the ever varying exigencies of the Service in a competent and ready manner, and had at the same time to forestall many possible contingencies devised by an enemy who was utterly ruthless and barbarous in his methods. His duties also included (1) the coordination of the work of all the R.A.M.C. personnel of the Division and (2) keeping in close touch with the General and Quarter-Master General Staffs.

The D.A.D.M.S., in addition to deputising for the A.D.M.S. and acting as Medical Officer to the personnel of Divisional Headquarters, had personally to inspect and control the Sanitary arrangements in the Divisional Area and keep in very close touch with all that was happening in the forward area.

#### Field Ambulances.

In each Division there were three Field Ambulances, which for most purposes were "brigaded" although they were really divisional troops. This fact was frequently overlooked, and led at times to confusion, owing to Field Ambulances receiving contradictory orders from General Officers Commanding Brigades and from the A.D.M.S. Practically, the only occasion on which Field Ambulances should receive orders direct from Brigade Headquarters should be when the Brigade is to move, with its affiliated Field Ambulance, independently of the rest of the Division.

Each Field Ambulance was Commanded by a Lieutenant-Colonel R.A.M.C. who was directly responsible to the A.D.M.S. for all personnel, animals and equipment under his charge. He had usually six Medical Officers and a Quartermaster, and about 230 other ranks of whom about 50 were Royal Army Service Corps/

Corps personnel for transport duties. Each Field Ambulance was equipped to accommodate 150 patients. Until 1918, Field Ambulances were composed of three sections, each capable of acting independently of the others, but in the end of 1918 they were re-organised on a two section basis. Each Section was composed of a Bearer subdivision and a Tent subdivision. The Bearer subdivision was composed of Field Ambulance Stretcher bearers whose main duty was to convey sick and wounded from battalions and artillery Brigades to the Advanced Dressing Stations of the Field Ambulance. The Tent Subdivision consisted of nursing orderlies, cooks, storemen, dispensers, clerks, and supernumeraries, whose duty it was to run Advanced and Main Dressing Stations of the Field Ambulance. The transport of the Field Ambulance consisted of horsed Ambulance and General Service Wagons, and of Motor Ambulance Wagons. At the outbreak of War, Motor Ambulance Wagons were non-existent, as the Financial Advisers to the Government had vetoed any expenditure in this direction although the immense advantages to be derived had been repeatedly impressed on the General Staff. During the retreat from Mons, hundreds of sick and wounded fell into the enemy's hands owing to the fact that horsed Ambulance Wagons could not move fast/

fast enough, and even the wounded who were fortunate enough to escape spent hours of torture in these cumbersome vehicles. The War Office then saw the urgent necessity for motor ambulance wagons, and at the battle of the Marne, motors of various description were in use. The incalculable boon these motor ambulances were, and the enormous amount of suffering they saved, can be appreciated fully only by those who served in the original Expeditionary Force prior to their introduction.

#### Regimental Medical Officers.

To each divisional unit, except the Divisional Train and the Divisional Supply Column, there was attached a Regimental Medical Officer. Until 1916, there was a Medical Officer attached to the Divisional Train, but as the various Companies of the Train were usually situated near Field Ambulances it was found possible to economise Medical Officers by making Field Ambulance Commanders responsible for the medical charge of Train Companies. In many divisions the Medical Officer attached to the Royal Engineers was also taken away as the Field Companies of the Royal Engineers were almost always brigaded and could easily be looked after by the nearest Medical Officer.

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The Regimental Medical Officer was in charge of all the Medical affairs of the battalion to which he was attached, and although he was under the immediate command of the Officer Commanding the Battalion he was responsible to the A.D.M.S. Division for the health and sanitation of his battalion. This dual control led at times to confusion and slackness, but as a general rule the authorities did not clash. Under his Command the Regimental Medical Officer had 16 Regimental Stretcher Bearers, and was responsible for their training and work, and also for training a reserve of Stretcher Bearers to replace casualties. He had also 4 R.A.M.C. men attached for water duties and 8 men from the Battalion for sanitary duties. The R.A.M.C. water duty men were withdrawn in 1917 and replaced by regimental orderlies who were trained for their duties by the Regimental Medical Officer. This Officer was responsible for the Sanitation of the trenches held by his battalion, and probably there was no more trying or difficult task than that of endeavouring to keep muddy and water-logged trenches and dug-outs in a sanitary condition. He had also to choose the site for his Regimental Aid Post, and equip it with the material provided, and had to have a thorough knowledge of all the routes by which sick and wounded could be most safely and comfortably evacuated from the front line to the Aid Post.

Sanitary Sections.

Until the end of 1916 each division had attached to it a Sanitary Section which supervised and was responsible for the sanitation of the Divisional Area, but as the Sanitary Section had to move each time the division moved, it was evident that no continuity of work was possible, and so Sanitary Sections were allotted to definite areas and remained there, whatever units were in occupation.

The control of those Sanitary Sections was transferred from Divisions to Armies where there were Specialist Sanitary Officers, and certain Sections were allotted to Army Corps when there was a likelihood of Corps remaining stationary for any considerable period.

With this brief sketch of the R.A.M.C. personnel of the Division, the actual work and problems of the R.A.M.C. in the Division will be dealt with in order, from the front line to the rear of the Divisional Area.

Front Line and Support Trenches: The Position of  
the Regimental Aid Post.

In the front line and support trenches the Regimental Medical Officer was responsible for all Medical affairs. The Headquarters of the Regimental Medical Officer were situated as near battalion Headquarters as possible, usually about 200 - 300 yards from the front line. The importance of having the Regimental Aid Post near battalion Headquarters cannot be over estimated, as in addition to the convenience of the Officer Commanding the Battalion, and of the Regimental Medical Officer, the fact of having the Regimental Aid Post close to battalion Headquarters made it easier to find. Most of the men of the battalion had an idea of where battalion Headquarters was situated, and if they had not, they could easily ascertain by asking their Platoon or Company Commanders. If near the battalion Headquarters the Regimental Aid Post was much more easily found by the Medical Officer in Charge of the Field Ambulance Bearer Division who had to remove sick and wounded from the Regimental Aid Post to the Field Ambulance Advanced Dressing Station. A few Regimental Medical Officers were inclined to site their Aid Posts too near the front line, which no doubt made the work of/

of the Regimental Stretcher Bearers easier, but was extremely foolish in most cases, as these Aid Posts could not usually be cleared of wounded or sick during daylight, and consequently they were apt to get crowded and more uncomfortable than ever. The work of the Field Ambulance bearers was also rendered much more arduous, and the discomfort caused to the wounded was largely increased.

In addition to being close to Battalion Headquarters the Regimental Aid Post should be as near a Main Communication trench as possible, and should always be provided with two "shafts", in case of one being blown in. On several occasions the whole staff of a Regimental Aid Post was wiped out, owing to the only means of exit being blown in by a shell or minenwerfer, and although the making of a double shaft entails a certain amount of extra labour, it should always be done to avoid any such accident. The Aid Post should have sufficient head cover to keep out shell splinters and shrapnel, and if at all possible the cover should be of sufficient thickness to withstand a direct hit with the ordinary field gun shell. There should be a chamber where wounded can be dressed and stored, and a separate chamber for the Medical Officer and his Aid Post Staff. The Aid Post should be kept warm, so that wounded men, /

men, who all suffer from a certain degree of shock, can be "revived". In severe cases of shock, a very simple and efficacious method of inducing warmth is to remove the clothing if it is wet, wrap the patient in hot blankets, and, after raising the stretcher on trestles or tins, to place a lighted stove beneath. The space below the stretcher should if possible be covered in by a blanket or canvas to conserve the heat.

The Aid Post must be gas-proof, and if possible a separate chamber should be provided for gassed cases, as otherwise much harm may be done by the gas given off from the clothing and boots of these cases in the Aid Post.

The shafts of the Aid Post should be gently sloped, and must be of sufficient width to allow of a stretcher being carried through easily. Too often the entrances were narrow and steep, and this was a tremendous disadvantage in clearing casualties quickly during heavy fighting. The Aid Post should be fitted with sufficient dressings and splints to deal with average casualties and the supply kept up by indent on the Advanced Dressing Station. Only one splint will be mentioned as being of paramount importance - Thomas's Knee Splint - which rendered the transport of cases of fractured femur infinitely easier and more comfortable.

Duties of the Regimental Medical Officer during heavy fighting.

During heavy fighting, e.g. an advance, the Regimental Medical Officer should not move his Aid Post until the Battalion Headquarters move forward, and should then choose the site for the new Aid Post as near Headquarters as possible, and move his equipment forward. He should at once inform the Officer Commanding the battalion, and the Officer in charge of Field Ambulance bearers, of the site chosen, and should also inform the latter officer of the number of casualties to be cleared, and state the time at which the message was sent. This last point although it appears trivial is very important, as messages during heavy fighting are very apt to be delayed for long periods, and consequently the message giving the number to be cleared may reach its destination long after the wounded have actually been evacuated, and cause great discomfort and hardship to the Field Ambulance Bearers.

If, during an advance, the Aid Post is moved a considerable distance forward, wounded should be collected at convenient shelters near some main line of communication, and their position marked by some conspicuous object, e.g. a rifle stuck upright in the/  
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the ground, or a small directing flag or piece of bandage on a stick. This simplifies and accelerates the work of clearance by Field Ambulance Bearers who have otherwise to search the whole of the ground over which the battalion has advanced.

Intimate cooperation between Regimental Medical Officers and Officers in charge of Field Ambulance Bearer Divisions is essential, and as far as possible Regimental Medical Officers should be personally acquainted with Field Ambulance Officers. It was an excellent rule in many divisions that no medical officer was posted to a battalion until he had served for at least a month with a Field Ambulance and become thoroughly acquainted with the inspection of troops, inspection of billets, the methods of clearance of sick and wounded from the line to the Field Ambulances, and the writing of reports and messages.

#### Inspections by Regimental Medical Officers.

In quiet times and during periods of rest, the Regimental Medical Officers should hold frequent inspections of all troops in the battalion. One of the best times for inspection is at bathing parades when the men should file past the Medical officer "stripped". It is then easy to detect early cases of/  
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of scabies, impetigo, etc., and the time entailed is very short. He should also deliver short simple lectures to the Officers and men on personal hygiene, and on sanitation. All billets occupied by the battalion should be inspected daily, and particular attention paid to Cookhouses, latrines and stores. Officers' Messes must not be forgotten, as the men in charge of the messes are apt to become very slack, and careless of ordinary sanitary precautions.

#### Sanitation.

By no means the least important of the Regimental Medical Officer's duties is that of sanitation. It is difficult enough to maintain efficient sanitation in "rest billets", but a thousand times more so in the line. Probably the easiest and least risky method of disposing of excreta is to have about six buckets or large tins per Company which can be used by the men during the day, and the contents buried by the Sanitary duty men at night in a convenient hole near the line. The practice of merely throwing the excreta "over the top" must on no account be allowed, as in addition to fouling the ground and rendering the trenches more untenable than ever by the smell, the exposed excreta will attract flies in myriads, and add to the already too numerous risks.

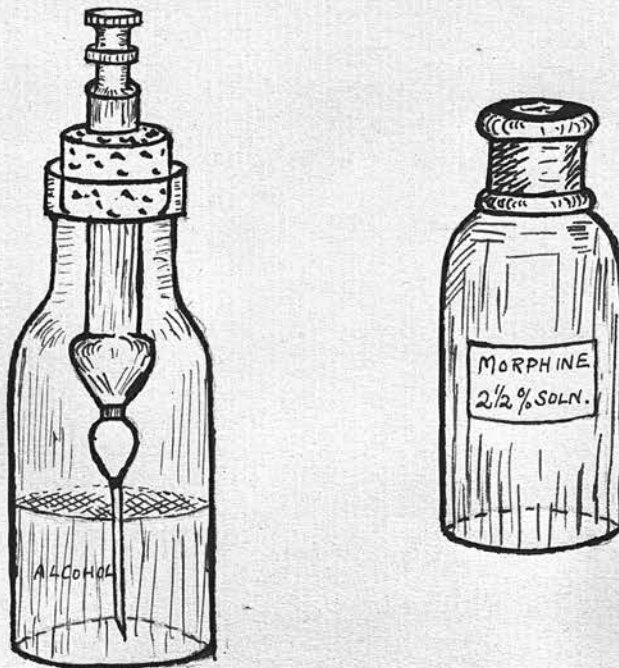
Morphia.

The question is often asked by young Regimental Officers.- "When should I give Morphia"?

The answer is.- "When a wounded man is suffering so much pain that its continuance will aggravate shock." This is a very good working rule, and holds good in the vast majority of cases. The dose naturally varies, but on an average  $\frac{1}{2}$  grain of morphia hypodermically is found to be the minimal efficient dose. It must be remembered that prior to being wounded the man has been subjected to a nerve-racking ordeal, and that after being wounded his fear of being hit again is greatly increased. The effect of morphia is to calm him and render much easier the task of carrying him back.

Some Medical Officers were in the habit of giving morphia by the mouth, but this practice should be condemned, as in addition to the absorption of morphia thus administered to men suffering from severe shock being very problematical, the effects are so slow and uncertain, that a second administration may be given within too short a time and lead to poisoning. The danger of septic infection from hypodermic administration would be very much diminished by Medical Officers carrying their hypodermic syringes in/

in a corked bottle with the needle dipping into alcohol, and their morphia in a  $2\frac{1}{2}\%$  solution, in a rubber-capped bottle, so that one syringeful of the solution contains  $\frac{1}{2}$  grain of morphia. These bottles can easily be carried by the Medical Officer slung round his neck by a piece of twine.



The fact of a man having received morphia should always be noted by a mark, e.g. "M" printed on his forehead or wrist with indelible pencil, and by an entry on his wounded tally, which should show the dose given and the time of administration.

I would like to emphasise the importance of Regimental Medical Officers doing no work during heavy fighting beyond dressing serious wounds, stopping haemorrhage by pressure or tourniquet, splinting/

splinting fractures, and relieving pain. Specialised and particular attention must be sacrificed to the clamant cry of the wounded as a whole for speedy clearance from the danger zone.

#### Field Ambulances.

The Field Ambulance is essentially the Medical Centre of the Brigade. It acts as a training centre for new Regimental Medical Officers, an advanced hospital for sick and wounded, and a communicating link between Battalions and Casualty Clearing Stations. It is really a composite unit fulfilling three distinct functions (1) treatment of sick, (2) treatment of wounded, and (3) transport of sick and wounded. For this purpose it is divided into a Bearer Division and a Tent Division, each of which is subdivided into three sections or subdivisions. The Bearer Division is responsible for the clearance of casualties from Regimental Aid Posts to the Advanced Dressing Station, and the Tent Division for the treatment of casualties at the Advanced Dressing Station and the Main Dressing Station. There is, in my opinion, no work in the field, more trying and arduous than that of the Bearers of Field Ambulances. They have to pass repeatedly through enemy barrages carrying wounded with infinite care/

care over ground ploughed up by shells, and littered with broken wire entanglements and debris of all sorts, and this often in pitch darkness, when it is extremely difficult to pick one's way unencumbered. Yet, on the call for "Bearers", these men rarely shrank or hesitated, but went out with a smile on their faces, ready to undergo terrible hardships for the sake of the wounded. The tenderness and care with which the wounded were lifted and carried were magnificent, and the splendid example of self-sacrifice shown by these brave men was beyond all praise. The deepest regret one had was that the honours and rewards bestowed on these bearers were far too few, and did not reflect fully the magnificent work they accomplished. The Bearer Division was Commanded by a Field Ambulance Officer, whose duty it was to find out the situation of the Regimental Aid Posts, and the numbers of sick and wounded for evacuation, and the easiest routes of clearance. This entailed very heavy work and a comprehensive knowledge of the ground which could only be obtained by personal reconnaissance. During the War these Officers were Medical Officers, but in 1918, the idea of substituting combatant officers was mooted, in view of the acute shortage of Medical Officers. The work of reconnaissance and liaison could easily be done by Combatant Officers, and the number of Medical Officers thus released would be very considerable.

Advanced Dressing Stations.

The advanced dressing station is situated usually 800 - 1000 yards behind the line, and should be as near a road or light railway as possible. It should be gas-proof, and splinter-proof, and should have at least three compartments, (1) for dressing cases, (2) for storing cases pending evacuation, and (3) for "gassed" cases. It is run by one or two Field Ambulance Medical Officers and a tent subdivision, and is really the first point where wounded can be treated with any degree of Medical efficiency. It should be heated and as comfortable as possible, and in periods of stress should be used only for "stretcher cases". It should be well stocked with dressings and splints, not only for use at the Advanced Dressing Station, but also to meet promptly all demands by Regimental Medical Officers. Only very urgent operations should be done, e.g. removal of badly shattered limbs, and arrest of haemorrhage, both of which measures help greatly to minimise shock, and to tide over the critical period until the wounded can be got to a hospital. Gassed cases should never be allowed to mix with ordinary wounded or sick, but should be treated and accommodated in a separate compartment, or better still in a separate centre. I tried the experiment of running an Advanced Gas Centre/

Centre with a staff of its own in July 1918, and was very pleased with the results, as, although it meant a little extra work fitting up this Centre, this was more than balanced by the fact that efficient treatment could be carried out without blocking the treatment of ordinary wounded at the Advanced Dressing Station. In the Advanced Gas Centre mentioned there were three chambers, (1) for undressing patients, (2) for bathing them, and (3) for dressing them in clean clothing and keeping them for removal to hospital.

#### Walking Wounded.

In periods of stress, all walking wounded should make their way to a Walking Wounded Collecting Post, which should be out of range of Field Guns and Howitzers. This post should be staffed by a complete Field Ambulance Tent Division and should be near a main road to the rear, so that it can be cleared by Motor Lorries. All clerking and dressing of cases should be done and antitetanic serum administered, as these cases may have to travel for many hours before being attended to again. The routes from the line to the Walking Wounded Collecting Post should be clearly marked by directing flags, particular attention being paid to cross roads and trenches. Cases that are too severe to proceed further as  
"Walking/

"Walking Wounded" should be sorted out and sent direct to the Casualty Clearing Station. A part of the Collecting Post should be reserved and fitted specially to deal with lightly gassed cases.

#### Main Dressing Stations.

The next unit in the chain is the Main Dressing Station of the Field Ambulance. In normal quiet periods this should be a divisional unit run by a Field Ambulance Tent Division, but in heavy fighting there should be only one Main Dressing Station for each Army Corps engaged, staffed by a Tent Division of a Field Ambulance from each Division in the Corps and commanded by the Senior Field Ambulance Commander. At the Main Dressing Station only stretcher cases should be admitted, and dressed if necessary, and all statistical returns compiled. Antitetanic serum should be administered here, and not at the Advanced Dressing Station where speedy evacuation is the first essential. Urgent operations should be performed at the Main Dressing Station, and there should always be a room set apart for resuscitating bad cases of shock or collapse by means of warmth and if necessary of transfusion by gum or saline solution. These cases should never be hurried on to Casualty Clearing Stations, as it was only too frequent/

frequent to find that they arrived there totally collapsed, moribund and sometimes even dead. In 1916 an order was issued that no case should be sent on from a Main Dressing Station with a tourniquet applied. This order was hailed with great satisfaction by Field Ambulance Officers who had seen the great suffering and shock caused by tourniquets, but whose hands had been tied by orders that very few, if any, operations were to be done at Main Dressing Stations. When, however, Field Ambulance Officers commenced as a routine practice to ligate torn vessels, a memorandum was issued to the effect that too much operative interference in Main Dressing Stations was not to be encouraged. Only Field Ambulance Commanders with a sense of duty stronger than their fear of the higher authorities continued to insist that all torn vessels must be ligated and badly shattered limbs removed prior to evacuation from Main Dressing Stations. The extra time and work entailed by these - usually minor and simple - operations was surely more than balanced by the saving of lives effected.

A very important point, not always recognised, was the giving of hot food to all men who could take it and whose wounds did not preclude it. It was wonderful to see the way in which men who were literally almost dead from fatigue and shock revived under the influence of a cup of hot tea or soup.

Advanced Operating Centres.

Advanced Operating Centres for the treatment of severe abdominal and head injuries were established in some Armies in 1916. The idea was no doubt excellent, but when one realised the fact that the nearest centre was at least seven miles from the line, one wondered whether the word "advanced" was ironical or not.. These centres were staffed by surgical teams from Casualty Clearing Stations, and if the Authorities sited the centres far back on account of the Nursing Sisters in the teams, as was said, surely the obvious solution was to dispense with the Nursing Sisters and send the teams further forward.

CORPS AND ARMY AREAS.Casualty Clearing Stations.

The wounded were next sent to the Casualty Clearing Station, where they came for the first time into hospitals equipped and staffed more or less according to peace establishments. The Casualty Clearing Stations were administered by Directors of Medical Services of Armies, but a few were allotted to Army Corps. At first Casualty Clearing Stations were far too small and understaffed, being equipped only for 200 cases, but in 1916, their establishment was increased to 500 or more beds, and the extra personnel were taken from Field Ambulances. One hopes that the Authorities have learned the lesson that it is not expedient to take Medical Officers and men from forward units to replenish the Staff of Casualty Clearing Stations, as of course such withdrawal of personnel, often at a critical juncture, means that Field Ambulance Commanders are then often at their wits' end to know how to replace casualties among Medical Officers and men in their Brigade, and at the same time to cope efficiently with largely increased numbers of wounded.

I hope I will be excused if I appear to criticise the administration of Casualty Clearing Stations rather/

rather severely, but as their efficiency reacts very largely on Field Ambulances, with which units I was mainly associated, I should like to suggest some ways in which their efficiency might be improved.

Casualty Clearing Stations not far enough advanced.

As a general rule Casualty Clearing Stations were sited too far back from the line. This was mainly due to the fact that their position was largely dependent on the position of railheads, but also at times because the authorities were timorous of sending them forward on account of their size and relative immobility. The fact of Casualty Clearing Stations being 8 or 9 miles from the line meant that the wounded had a long distance to travel, that clearance of Field Ambulances was very much delayed, that in consequence wounded had often to wait for long periods before they could be properly treated, and that far more Motor Ambulance Cars were necessary to evacuate the wounded from Field Ambulances. If Casualty Clearing Stations could not advance in front of railhead, surely detachments or teams could have been sent up equipped to deal with the more urgent and serious cases. It was often advocated that these teams should be sent to Divisional or Corps Main Dressing Stations, and this measure would have been of/

of inestimable value to the seriously wounded. Nursing Sisters should not be sent with these advanced teams, as in addition to some extra risks, there is usually in these Dressing Stations an acute lack of accommodation even for the male staff.

#### Interchange of Medical Officers.

Another great drawback was that there was far too little "rapport" between Casualty Clearing Stations and Field Ambulances. It was generally felt by Field Ambulance Medical Officers that the Officers of Casualty Clearing Stations regarded them as "ignorami" totally unenlightened on the up-to-date methods of treatment as practised in Casualty Clearing Stations, and conversely the Field Ambulance Officers regarded the Officers of Casualty Clearing Stations as "Embusqués". This feeling was very unfortunate, though not always groundless, but could have been avoided to a large extent by ensuring a fairly free interchange of Medical Officers between Field Ambulances and Casualty Clearing Stations. These Officers would then appreciate the difficulties and hardships peculiar to each, and would work into each others hands far more harmoniously in consequence. In some Armies, clinical meetings were held, at which various questions affecting the welfare of the wounded were/

were discussed. These meetings were very valuable, as in addition to inviting free criticism of medical methods without fear of censure, they created an "entente" between the Medical Officers of the different units, and exposed many of the faults on both sides. I remember at one meeting a young surgeon belonging to a Casualty Clearing Station read a paper on the Arrest of Haemorrhage in the Field. He advocated ligation as early as possible, but said this should not be done except in Casualty Clearing Stations on account of the great risk of sepsis. On being asked how he would deal with a wound of the axillary artery, he replied that an orderly should be told off to compress the subclavian artery until the case reached the Main Dressing Station. This reply evoked great cheers of derision from the Regimental and Field Ambulance Officers, who had experienced the difficulty of carrying cases along winding communication trenches, and serves to show how little the Casualty Clearing Station Officer understood the conditions in the line.

#### Surgical Teams.

The introduction of the "Surgical Team" system in 1916, did much to forward the good work done in Casualty Clearing Stations. Teams of Medical Officers, Nursing Sisters and men, accustomed to work together, were sent from Casualty Clearing Stations in quiet areas/

areas to those in the zone of active operations, and worked in relays during the whole of the fighting, thus ensuring that at least all the seriously wounded were operated on as soon as possible.

#### Relays of Casualty Clearing Stations.

It was not till 1917 that the Authorities realised the necessity for relays of Casualty Clearing Stations. The great advantages of this scheme were manifested during the heavy fighting at Ypres in that year, and again in the German advance, and later on in the British advance in 1918. During the British retirement in 1918, many Casualty Clearing Stations were moved back at most critical periods for long distances, thus rendering the evacuation of sick and wounded very difficult. As an instance, for three days and nights in March 1918, the Field Ambulances of the Guards Division which was holding the line just south of Arras and Henin Hill and which did not retire to any extent, had to evacuate wounded in their own Motor Ambulance Cars from the Divisional Main Dressing Station to Casualty Clearing Stations over twenty miles back. This state of things was most deplorable, but fortunately did not last very long, as some Medical Authorities at Corps Headquarters recovered sufficiently from their fright to see that if/

if the Divisional Medical Units could remain and carry on their work, Casualty Clearing Stations and Motor Ambulance Convoys could advance a few miles with comparative safety. It also emphasised the fact that Casualty Clearing Stations had lost their perspective as relatively mobile units, and were really advanced Base Hospitals. Soon afterwards, therefore, a few Casualty Clearing Stations were equipped more in accordance with their most urgent use and were pushed up to within a reasonable distance of Field Ambulances.

#### Divisional and Corps Rest Stations.

These Rest Stations were staffed by Field Ambulances, and were intended for men of divisional units who were suffering from minor ailments or wounds, and who would be fit for duty in a week's time. The most evident objection to them was that in them there was very little rest or comfort for the sick, owing to the fact that the Authorities took very little interest in them. The bathing facilities were usually conspicuous by their absence, and as the average soldier arrived in a very dirty condition after a tour in the trenches, and usually appreciated nothing more than a hot bath, this was a constant source of grumbling and irritation. In trench warfare/

warfare these Rest Stations would serve a most useful purpose, that of conserving fighting men, but they must be fully equipped with baths and different means of recreation for the men.

Causes of Sick Wastage from Divisional Units.

I propose to deal shortly with some of the commoner causes of sick wastage in divisions.

They were:-

- (1) Pediculosis Corporis.
- (2) Scabies.
- (3) Furunculosis and Cellulitis.
- (4) Dental Caries.
- (5) Trench Foot.
- (6) P. U. O.
- (7) Venereal Disease.
- (8) Malingering.

Pediculosis.

In the earlier days of the War the number of men evacuated from the line suffering from boils consequent on lice-irritation was very great, but owing to the valuable research work done by different investigators and notably by Sergeant Peacock, R.A.M.C., steps/

steps were taken to overcome the louse problem, and sick wastage from this cause was very largely reduced. This reduction was effected, not that lice became less common or less irritating, but because the men were bathed frequently and their lice-infested clothing and blankets were fumigated. Delousing plants of various kinds were used, but undoubtedly the best and most practicable were those in which the clothing was exposed to steam under pressure. Probably the most universally adopted delousing plant was the Foden Lorry Thresh Steam Disinfector, of which one was allotted to each division, and was usually found near the Divisional Baths. The main objection raised against this means of disinfection was that it ruined the leather or buckskin strapping on breeches, but as these were worn only by mounted units and by officers, the objection was more apparent than real. Tunics and trousers were usually freed from lice by ironing the seams with hot irons while the men were bathing, and then brushing the seams with hard wire brushes to remove the dead lice and nits. Another very valuable means of disinfection was by means of N.C.I. powder - Naphthalene 96%, Creosote 2%, Iodoform 2% - which acted more as a deterrent to the louse than as an actual killing agent. Unfortunately, although the authorities strongly advocated its use, it/

it was practically unobtainable. Other means of disinfection used were, - Vermijelli, Crude Oil Ointment, and Mercury Ointment.

A great deal to reduce sick wastage from this cause can be done by having regular inspections of all the men at frequent intervals, these inspections being carried out by Company and Platoon Commanders under the supervision of the Regimental Medical Officers. Early boils can thus be promptly treated, and the clothing of lice-infested men sent at once for disinfection.

#### Scabies.

This was one of the most fruitful causes of sick wastage, and unfortunately one rarely saw in Field Ambulances uncomplicated cases, as the men affected did not report sick until there was marked dermatitis due to scratching. The best means of prevention is undoubtedly frequent inspection of all men by Medical Officers, and these inspections can be most easily carried out at bathing parades, and any men with signs of Scabies sent at once to a Field Ambulance for treatment. This consisted usually of hot baths, and the application of Sulphur Ointment or Liquor Calcis Sulphurata, carried out by reliable orderlies./

orderlies. All infected clothing and blankets were fumigated and the men were returned to duty when cured, in favourable cases within four days of admission to the Field Ambulance. Many cases, however, were very obstinate owing to the associated dermatitis, and required long periods of careful and painstaking treatment before they could be returned to duty.

The routine treatment consisted of a bath in hot water and washing soda, in which the men lay for about 20 minutes. They were then scrubbed from neck to foot with a hard nail brush and soft soap, so as to open the burrows, particular attention being paid to the interdigital spaces, the bends of joints, and the anterior axillary folds. All debris was then washed off, and the men thoroughly dried. They were then painted all over with Liquor Calcis Sulphurata or anointed with 1 in 15 Sulphur Ointment (the B.P. 1-10 Sulphur Ointment is liable to cause dermatitis), and dressed in clean hospital clothing. The following day the same procedure was carried out, and on the third day the men had a simple hot bath and were issued with clean, disinfected clothing and blankets, and were ready for discharge to duty.

Furunculosis and Cellulitis.

This was usually known as "I.C.T." (inflammation of Connective Tissue). The infection in most cases was probably due to the prolonged wearing of dirty underclothing, to the lowered vitality of the skin consequent on the comparative inactivity of trench warfare, and to lack of frequent baths. These cases were extremely difficult to deal with, and were often very obstinate. It was impossible to make autogenous vaccines for all cases, and one had usually to be content with the routine practice of hot fomentations, and, where necessary, incision and drainage of abscesses. Prevention largely consists in frequent baths and frequent changes of underclothing, but these of course depend very largely on the military situation of the moment.

Dental Caries.

This was a very fertile cause of wastage from Divisions. Dental arrangements in the British Expeditionary Force were deplorably imperfect, owing chiefly to the lack of sufficient dentists. Men who required dental treatment had to be sent back to those Casualty Clearing Stations and Stationary Hospitals/

Hospitals which had Dentists on their staff, and this arrangement involved great delay and trouble, as these dentists were very much overworked. They had to attend to Corps and Army troops in addition to Divisional troops, and so only a very limited number of men could be sent from Divisions on specific days. The consequence was that only a very small proportion of men received dental treatment, and the country has now to bear the burden of trying in some measure to recompense those whose teeth were allowed to decay because they did not cause acute discomfort.

In 1918 there was a suggestion of having one dentist with each division, but this did not materialise, and the men of the British Army had the mortification of seeing the Colonial and American troops well supplied and equipped in this important direction, and of knowing that there were actually dentists serving in most branches of the service, and not carrying on their professional and probably much more important duties. For the supply of dentures men had to go to one of the Bases, and this entailed being absent from the Division for at least 3 to 4 weeks. It is to be hoped that some arrangement by which dental cases can be properly and promptly attended to will be evolved before the next war.

Trench Foot.

During the winter months this was one of the greatest "bêtes noires" of Divisional troops. The pathology of this condition is not yet altogether clear, as although most authorities are agreed that it was due to a vasomotor spasm of the vessels of the feet and legs consequent on inactivity in extreme cold and wet, this does not explain all the signs and symptoms. In 1916, a French observer reported that he had found a pathognomonic fungus in trench foot, and that this fungus was easily destroyed by the use of powdered camphor. He also claimed that, if treatment was commenced as soon as the first symptoms of trench foot appeared, amputation for gangrene was never necessary. Unfortunately these findings were not corroborated by British observers, but there is no doubt that the treatment suggested did a great deal to prevent trench foot, as men going into the line had their feet bathed in warm water and powdered with camphor and talcum, and were supplied with a pair of dry, clean socks. Various other preventive measures were adopted - foot drill in the line, the provision of at least one hot meal per diem while in the line, the wearing of gum boots, the provision of an extra pair of socks, - but undoubtedly one of the most/

most efficacious preventatives was that forbidding the wearing of putties or tightly laced boots while in the line. This order did away with the grave danger of gangrene due to pressure on feet that were beginning to swell and become devitalised. It should also be ordered that men who feel any numbness or tingling of their feet should at once report to the Regimental Medical Officer at the Aid Post, and should have their feet thoroughly rubbed and dried and have clean socks. The use of whale-oil was very general but was detested by the men on account of its disagreeable smell. There is no doubt that the fetish of "sick wastage" militated largely against the proper treatment of trench foot, as Officers Commanding Battalions often browbeat their Medical Officers into keeping cases of trench foot at the Waggon Lines of the Battalions, where they were treated (sic) by a regimental orderly, and lived in the most acute misery and discomfort until discovered by the A.D.M.S. or D.A.D.M.S. of the Division, and sent to hospital.

P. U. O.

This disease was known under various titles of which perhaps the best known is Trench Fever. It was a very convenient diagnosis, as if a Medical Officer could not account for a case with any pyrexia, he dubbed it P. U. O., which really means Pyrexia of Uncertain Origin. This of course led to great confusion, and orders were issued in 1917 that no cases were to be diagnosed as P. U. O. unless they presented all the principal symptoms of Trench Fever. The cause of the disease was wrapped in obscurity until some members of the American force volunteered as subjects for experiment. Some British observers had previously claimed that the disease was essentially connected with lice, but they could not prove it conclusively as the Authorities would not allow any British soldiers to be experimented on. The American observers found that the disease was undoubtedly lice-borne, and that the virus was usually communicated to the troops through the faeces of infected lice being scratched into the skin. The term "Trench Fever" is a misnomer, as the disease was not by any means confined to men in the trenches. The most diagnostic feature of the disease in addition to the pyrexia is the/

the acute pain in the shins, which men describe as of a bursting character and usually worst at night. This pain is not relieved by quinine or salicylate of soda, and is often so severe as to require the administration of morphia. Another important symptom of the disease is its relative periodicity and tendency to recur, and this has led to a suggestion that the causal agent is a spirillum similar to that of relapsing fever.

#### Venereal Diseases.

These diseases, of which gonorrhoea was the commonest, were contracted usually either while on leave to the United Kingdom or while the Divisions were out resting behind the lines. They call for no special comment beyond the fact that when prophylaxis was adopted by the men, the sick wastage from venereal diseases dropped. The moral ethics of prophylaxis are beyond the scope of this thesis, but it should be remembered that all means of conserving fighting men must be kept in mind, especially when every fighting man is urgently needed.

Malingering.

This was, I am proud to say, a very uncommon cause of sick wastage in the Divisions with which I was associated. Some of the means adopted by malingerers to produce alarming symptoms were amusing, e.g. the eating of soap, cordite or gun cotton, but those who were degenerate enough to employ them usually overacted the part. Some men attempted to mimic cases of "shell-shock" and "shell-concussion" but these cases could as a rule be fairly easily "spotted" by a keen observer.

This list of Diseases is of course very short, and the remarks on each cursory, but it will serve to point out the general lines of preventive medicine for Regimental and Field Ambulance Medical Officers.

The Royal Army Medical Corps has done yeoman service in the Great European War, and one feels that one cannot do the Corps full justice in a short Thesis. I hope, however, that the short account I have given of the organisation and work of the more advanced units will be of some service in showing that all ranks of the R.A.M.C. were imbued with/

with the will to do all in their power to help on the great cause of liberty for which the Country was fighting. If I have criticised some units severely it is because I feel sure that more could be done for the sick and wounded if there were more "rapport" between the different units of the R.A.M.C., and also that most of the friction that did exist was due to lack of knowledge of the peculiar difficulties under which the different units worked. The suggestions I have made may not all be sound, but they are the outcome of my experience of nearly five years of active service, and I hope they may be useful to others who have not had the honour and privilege of serving their Country for so long a period and under such varied conditions.

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