SECTION II

EVOLUTION IN THE MEDICAL SERVICE DURING ATTRITION WARFARE[1]

INTRODUCTION

WE have said that by the winter of 1917-18 the need of the armies for maintenance of their waning man-power had forced upon the medical service the rôle of *deus ex machina*.

There are solid grounds for the statement that in the swinging fortunes of the desperate struggle in the first eight months of 1918 this "administrative" service was a material factor in the final issue. For this rôle it was now very fully equipped—it may in fact be said that in the fundamental problems of the prevention of disease, and of rescue, repair, and return to duty of casualties, only refinements of technique were made after the end of 1917.

It is suitable therefore (as it is convenient) at this stage to examine, from an objective service standpoint, the technique of both these methods of conserving man-power, as seen in the activities of the Australian Army Medical Corps. Accordingly in the chapters of this section we shall follow the course of a casualty (as seen in the experience of the A.I.F. on the Western Front) from the regimental aid-post through the various stages and levels of transport and treatment in the field, at the Expeditionary Base, and at Home, to the Command Depots and Overseas Training Brigade. In a final chapter of the section we examine the technique of disease prevention as it evolved in the Great War.

The chapters of the previous section carry the narrative in

[1] The process of "evacuation" as described in the chapters of this section should be interpreted in terms of facts and figures by reference to the diagram given on *p. 440* and to the statistical (nosological) analysis on *pp. 495-6, 501-4*, and in *Vol. III*

point of time to the military *dies non* of the winter 1917-18; and in point of events to the eve of the final act in the war. The next chapter in the series will deal with the first scene of this—which ended in a German break-through. The reason for the check made in the narrative at this stage is not so much to prepare for that dramatic *dénouement* as the simple fact that, from the point of view of technical history, the narrative of the medical events of the war has outrun description of the medical machinery of the warfare. So much, indeed, has the *mise en scène* changed that, to enter with understanding into the action of this momentous year, the stage must be reset and stage directions in some measure revised.

The South African War and the Great War

An earlier chapter of this work[2] described the system in the British Medical Service for carrying out its duties. This (it may be recalled) had been revised during the years 1905-10 to accord with the experiences of the South African War and "Reports of the British officers attached to the Japanese and Russian Forces in the Field" in the Russo-Japanese War.[3] The effect of these two wars, in particular the first, on the British Army and on the organisation and methods of its Medical Service were very great. Defects however remained, in particular in respect to the means of transport for "stretcher cases," the machinery for "return to duty," and the military status of the Service, to which may be traced certain unfortunate not to say tragic happenings in the first year of the war, both in France and in the East. The early months of 1915, which saw the birth of a vast British Continental Army and the issue of *Part VII New Armies*[4] saw also far-reaching changes in the Medical Service, of which an outline was given in *Chapter II.*

As the war progressed this process of evolution moved with increasing momentum. *Pari passu* with a progressive degradation of the human material of warfare, we find a truly amazing

[2] *Chapter* i, *Vol I.*

[3] Lieut.-Col. (later Maj.-Gen. Sir) W. G. Macpherson, A.M.S., was attached to the Japanese forces.

[4] *Id est* the "establishment" or tables on which, with the corresponding "mobilisation store tables," the New Army units created by Lord Kitchener were built. In April 1915 *War Establishments Part VII New Armies* replaced those for an Expeditionary Force published in January 1914. Revised editions of *Part VII* were issued in August 1915 and September 1916. In April 1917 *Part VIIA* was issued for France, and in October 1918 this was revised as *Series I, II and III*

Evolution of Medical Service in the war

advance in the perfection of methods for keeping the apparatus of warfare in good order and repair. In respect to the human component it were indeed not outside debate to propose that the medical features of warfare on the Western Front at the end of the war differed from those of 1914 almost as widely as did the latter from the conditions at the Crimea.

High water mark in elaboration of methods had, in effect, been reached at the end of 1917: during this winter the observations made during three years of the travail and agony of this vast experiment in human vivisection—in methods of field work, in equipment, in research, in technique, in system, in the identification of essential problems—were focussed in a perfect machine admirably equipped not only for alleviating human suffering but for promoting the waging of war. In all the belligerent nations at this time their Frankenstein monster had for the time being taken control of all human affairs: the "world war" was being waged as if "victory" were the one aim and supreme purpose of the human race—as, indeed, during the madness of war, it must be.

From the manifold elements of this warfare itself; from services and organisations dragged, in regardless profusion, from the ordered normality of modern life; from the young manhood and womanhood of the world there had been created a new social cosmos; ephemeral, indeed, as must be all "cultures" that make of death and destruction an end in themselves and a fetish for worship;[6] but, for its time and in its place, ordered and sustained by a dynamic energy and singularity of purpose such as, could it be sublimated to the service of a true "league of nations," might yet save the world. Within this cosmos and its own sphere of action the medical service had become a complete and highly developed system of social service—its duties performed by a military department which, in the weight of its authority, the extent of its activities, and (it should be added) its efficiency for the purpose in hand, could not be exceeded

[6] The very important question whether the effect of war and in particular the "Great War" in the progress of the human race was constructive or destructive will be examined in *Vol. III.* In *Vol XI (p. 864)* of the *Australian Official History*, Professor Sir Ernest Scott repudiates on behalf of Australian sentiment "such perverted opinions as that of Moltke that 'war is an essential element of God's scheme of the world' . . ."

and perhaps not equalled by any of the organised medical services of civil life.

The chapters of this section attempt no less a task than to pass in a rapid survey the methods of life and work in this new world. It need hardly be said that such a review can embrace only the broadest features of its vast subject. As such it may with advantage be preceeded by some general observations that will serve to identify the sundry matters of medical concern that call for attention.

The allegiances of the Medical Service

As we follow the course of the casualties, sick and wounded, from the front through the various levels of evacuation to their distribution and final disposal, and examine the system whereby, in the last years of the war, temporary "wastage" from the front and loss of strength through present "unfitness for service" were reduced to their minimum and the morale and health of the force maintained, we find three prime purposes intermingling in the manifold activities of the medical service, each related to a specific responsibility and mandate. To the military command it owed service to promote and conserve man-power for the purpose of war. To the nation at large, it was responsible for promoting by intelligent anticipation the efforts of the civil institutions whose duty it should be to prepare for useful return to civil life the soldiers unfitted for further military service. By Humanity, as represented by the nations who had suscribed to the International Conventions of Geneva and the Hague, it was charged with minimising so far as possible the individual sufferings of the combatants of both sides.[6] These three strands of purpose, inextricably interwoven as they were, in a self-contained and consistent scheme of medical service, nevertheless furnished each an end in itself—all three entering at every stage into the medical problem, and now one, now another, providing its dominating motive.

The military allegiance: maintenance of man-power

Most writers who deal with the part of medicine in the war tacitly accept as a postulate—as it is also a matter of general belief—that the one essential feature of the work of the medical service in the late war was to bring about a greatly diminished incidence of disease. As will be shown, close study of facts and figures makes clear that this attitude must be modified.

The many problems associated with civilian participation in military activities on the one hand, and with the reinstatement as civilians of the wastage from warfare on the other, will be found to open up in the chapters of this section They do so along two lines—positive, in the vast domain of "reparative" treatment, surgical and medical; and negative, in the only less arduous and exacting work of the military boards and the military machinery for implementing the system of "categories." For Australia, on both these counts, the conditions differed from those

[6] It may be pointed out here and is amplified elsewhere (*Vol III*) that if—as seems to have been accepted—in the next war every man, woman, and child will be regarded as a "combatant" the terms of this mandate must be revised.

of all other participants in the war (with the exception perhaps of India and South Africa) by reason of the distance that separated the greater part of her overseas force from its home base. Her problem—also on both counts—is summed up in the "six months' policy," which divided sharply the military from the civil involvements of the sustainment of casualty. On the military side, in the person of "convalescents," the problem was faced overseas, in the great system of "Command Depots."[7] On the civil, in the person of the "invalids," it was transferred *en bloc* to Australia for the "necessary action," whither it will be followed in *Volume III.*

Civil allegiance : Reparative treatment ; and the Military Medical Boards

A good case could be made in support of a thesis that if our civilisation should survive through the 20th century the philosopher of the next, contemplating the War of 1914-18, will select as its most significant result the jettisoning of the international move to "humanise" and ultimately to eradicate war by restricting its worst horrors to the specially-enlisted armed and uniformed forces of the nations at war, by seeking to eliminate its more degrading cruelties, and by ensuring humane treatment for the wounded Of this movement only the Geneva Convention remains.[8] That this survives is probably due to the fact that the decision rested not with those whose business it was to direct the conduct of the war, but with those on whom chiefly it fell to sustain the direct impact of its sufferings and tragedies—the fighting troops and their womenfolk. The position of the Medical Service as the executive of the Geneva Convention, and its relation therein to the various civilian services of humanity and amelioration—Red Cross activities, Y.M.C.A, Comforts Funds, and so forth—are examined in *Volume III.* It is however desirable here to emphasise, and strongly, the fact—too often lost sight of or even unknown—that the continuance of the official Army Medical Service in its modern form, *i e* as a strictly non-combatant and essentially humanitarian service, hangs wholly on the continuance of international adherence to the terms of the Geneva Convention.

The International allegiance : Geneva Convention

Whether in the future the Army Medical Service will be able to sustain this threefold allegiance is the greatest question that faces it to-day—perhaps, in its involvements, the greatest that faces humanity. It is not the purpose of this work to give an answer to this question, but rather to follow the course of development of medical work in the Great War so that in any future war the Medical Service shall not find itself involved in conflicting, as well as in independent, allegiances.

It remains to accommodate our vision and relate the per-

[7] Of 92,116 men returned to Australia up to 31 Dec 1918 for all reasons, only 4,234 re-embarked, and of these it is probable that an inconsiderable proportion served again in the line. A small uncertain number re-enlisted in Australia.

[8] "One by one in the course of the war the Regulations [of the Hague Convention] were broken until not one was left" (*Brit Off Medical History, Surgery, Vol. I, p 4*)

spective of this introductory analysis to the specific problems that are the concern of these chapters. And here it will be profitable to make a preliminary survey of the route and to identify the main objectives.

The Medical Service: technique and equipment

Function and Structure in the Medical Service. Advances in medical and surgical technique, devised to meet novel medical problems and a new environment, bring a demand for better equipment and improved opportunities—for new establishments and organisation, for improved housing and transport, for inflated "equipment store tables," and for greater consideration in the matter of sites. These, in their turn bring further needs, opportunities and calls to action. In no sphere of medical work in the Great War were the developments greater and the changes in method more striking than in the complex of problems of the "evacuation of sick and wounded"; but in no other do the constants and immutables emerge more clear and illuminating.

(1) *Treatment Constants.* From our tarsoid ancestors we have inherited a hold on life and natural powers of recovery from physiological damage beyond that of most animals with whom we compete. But the limits of reaction against trauma, physical, mental, moral, impose a series of constants which, in conjunction with the conditions of battle and with military exigencies, determined the location and equipment of treatment centres on the evacuation route, for the various theatres of war and conditions of warfare. Speaking broadly *wound surgery is dominated by the time-factor* Both in first aid and in the "urgent," "immediate" and "secondary" surgery of wounds, physiological and pathological time-constants determine the course of events. Haemorrhage —immediate, reactionary, secondary; wound shock; the influence of morphia; the safety limit of the tourniquet; the onset of peritonitis; the development of gangrene, of ischemic paralysis, of deformities: and, in particular, the course of the various forms of wound infection—all of these follow an inexorable time-table, which determines, often within narrow limits, the time within which the surgeon must intervene if he is to assist or direct to advantage the *vis medicatrix naturae*. At the same time, the military situation decides the extent to which such intervention may be expedient or even possible. Military medical units, from the regimental medical officer back to the base hospital, were organised and equipped for a dual purpose: first, to provide appropriate surgical treatment for each phase in the clinical and pathological course of battle wounds; and, second, to promote to the utmost the clearance of the wounded from the sphere of operations

(2) *Transport Constants.* These depend on a wide variety of factors—in the Great War chiefly on the internal combustion engine. The adaptation of available means of transport to the requirements of treatment is the major problem of evacuation.

(3) *The Objective.* In the preceding narrative chapters dealing with the attrition phase of the war, the trend of clinical developments in war surgery—in particular, of the method of "excision" as applied to war wounds—has been indicated sufficiently to identify the casualty clearing station as the new *point d'appui* of treatment; already, with the formation of the motor ambulance convoy, it had become the fulcrum for

evacuation In the chapters of this section, we shall follow the remarkable series of researches, clinical and experimental, that led to this clinical triumph and shall examine its influence on medical organisation and methods, on the immediate outlook for the wounded, and on the development of reparative surgery. In the chapters of *Section III* (which complete the narrative of the fighting in France) the move to extend to the field ambulance some of the refinements of surgical technique is seen as the natural outcome of new ideals and a new outlook.

Outlook and intention

The outlook of this series of chapters, dealing with the technique of the Medical Service in the war of 1914-18, is objective and impersonal—independent even of the particular experience of the A.I.F. It is, however, in no sense "textbook"; that is unnecessary, in as much as all significant war experience, except where outmoded by post-war developments, has been embodied in military establishments and manuals.[9] Nor is it intended to form a reservoir of relevant and useful facts—a proper service which, however, conditions of space forbid. The object rather is to suggest principles, indicate lines of thought, and identify those factors that are independent of scientific advances and are thus applicable to any type of warfare.

The Australian Line of Communication Units

One of the purposes of this work though of necessity a secondary one, is to provide an individual record of the service in the Great War of the various medical units which served in the A.I.F. As this section is concerned to so great an extent with the line of communications and base, some space in each chapter is devoted to an account—of necessity little more than a summary—of the movements and special experiences of the Australian organisations chiefly concerned—the casualty clearing stations and general hospitals, and the medical attachments at the depots in England. In the final chapter, which deals with the prevention of disease in the B.E.F. and the general developments in military hygiene, the work of the Australian Sanitary Sections, and their special function, as accepted in the Australian Imperial Force, are critically examined.

[9] For example, *R.A.M.C. Training*; *Army Manual of Hygiene and Sanitation*. *Organisation, Strategy and Tactics of the Army Medical Services in war* by T. B. Nicholls (London: Baillière, Tindall and Cox 1937).