

The medical department in the field, a commentary on Surgeon-General Longmore's Gunshot injuries, their history, features and treatment (1877) and the German army's Kriegs-Sanitäts Ordnung" (1878), printed for private circulation

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Surgeon-Major Jeffery Mureton M.D.
A.M.D.

With
the writer's very kind regards.

THE MEDICAL DEPARTMENT IN THE FIELD.¹

PROFESSOR LONGMORE is well known both in Europe and America as a writer and teacher of military surgery, he has contributed largely to the literature of the subject in the Army medical reports and elsewhere, his "Ophthalmic Manual," is well known by medical Officers as a valuable *aide-memoire*, his treatise on ambulances is perhaps one of the most exhaustive of its kind ever published, and having acted for our Government as a delegate on various occasions at foreign exhibi-

¹ "Gunshot Injuries, their History, Features, and Treatment," by Surgeon-General J. Longmore, C.B., F.R.C.S. London: Longmans, Green, and Co., 1877. Price 31s. 6d. Size 9" x 6" x 2". Pp. 686. Weight 2 lbs. 15 ozs.

"Kriegs-Sanitäts Ordnung," von 10 Januar, 1878. Berlin: Mittler und Sohn. Price 5s. Size 9" x 6" x 1". Pp. 611. Weight $\frac{3}{4}$ lb.

tions, he has had unusual opportunities for examining the equipment and organization of different continental armies. His latest work on gunshot injuries is a goodly sized volume. It must be looked upon as the outcome of more than a quarter of a century's constant study, and the ripe expression of opinions not lightly formed.

There is an idea abroad that there is nothing special in the knowledge that is required for the treatment of gunshot wounds. Professor Longmore is one of those who does not share this view, and he proves conclusively and in accordance with the dicta of such authorities as Baron Dupuytren and John Hunter, that the circumstances under which both surgeon and patient are placed during war are so widely different from what obtains in civil practice, that a careful special study and training in many subjects not required in civil life, is absolutely indispensable for those who are to be entrusted with the care of our soldiers in the field.

The work divides itself naturally into three parts; the first deals more especially with the history and treatment of gunshot wounds, the second with field hospital organization, and the last is statistical. There are eleven sections in the first part. The first two sections treat of gunshot injuries and the causes which influence their nature, character, and ultimate issues, and the means by which they are produced. The various destructive elements employed in warfare are fully described in these sections, and illustrations of the various projectiles help the reader to form a just estimate of their destroying powers, while the density, velocity, and heat in determining their effects on the human body are fully considered. The difference between the injuries caused by round and conoidal bullets is dwelt on, and the superior destructive effects of the latter especially on the bony system is graphically depicted, the true nature and cause of the so called wind contusions are explained, and what may be termed the superstition regarding the poisonous effects of gunshot wounds effectually disposed of.

Section three deals with the characteristics and distinguishing signs of gunshot wounds; it is sometimes important in medico-legal cases to ascertain in a bullet wound which is the wound respectively of inlet and exit, it is not always easy to decide this point, and the circumstances which may determine a difference in the guiding marks are fully detailed.

If there be one thing more important than another in insuring the successful treatment of gunshot injuries, it is a due appreciation of the conditions of the tracks in the different parts of the body, caused by the passage of various missiles; the subject has received the full discussion that it deserves. Under Section four are considered the primary symptoms, and complications of gunshot wounds under which heads come pain, shock, primary hæmorrhage, and the lodgment and concealment of foreign bodies. With regard to primary hæmorrhage there is no doubt but that cases of this nature requiring the application of a tourniquet on the battle-field very seldom come within the observation of the military surgeon. Professor Longmore deals very cautiously with the question, but the foregoing is the general experience of

military surgeons, and does not accord with the popular notion, which is widely spread, especially at the present time when so many persons are taught the means of affording aid to the wounded, the first idea seems to be, when there is hæmorrhage from a wound in the extremities, to immediately restrain the bleeding by a tourniquet improvised or otherwise placed on the main artery of the limb, quite forgetting that pressure exerted with a firm well applied pad on the wound will generally suffice for the control of the comparatively slight hæmorrhage that usually occurs. A misapplied tourniquet, under certain circumstances, may cause the greatest mischief. While alluding to this point it may be observed that in a circular issued from the American War Office in 1865, it is stated that "The dread of primary hæmorrhage on the battle-field is confined to the inexperienced."

Every military surgeon of experience in the field can call to mind the many cases he must have met with of the curious positions in which bullets have been lodged, and the strange foreign bodies carried with them into the body, and what difficulties they have caused, the patient himself oftentimes unconsciously deceiving the surgeon; the latter will also recollect the multiplicity of wounds made by one missile, and which sometimes is not a little puzzling.

In Section five Professor Longmore dwells on the information that may be derived from a minute examination of the clothing and the bullet. There are sometimes doubtful cases which require for their solution all the skill, experience, and jurisprudence element in the mind of the surgeon, and a typical case is narrated, namely, where the position of a single hair, rightly interpreted, drew the quick-witted surgeon to infer that a bullet was lodged in a certain position in the forehead, the inference was correct. The bullet was extracted, and, still better, the patient recovered, when his case appeared almost hopeless, and he afterwards was able to perform his duties as a cavalry soldier.

In the sixth section all the secondary complications of gunshot injuries are fully treated, such as these fell diseases of war hospitals, hospital gangrene, pyæmia, and tetanus. These are the great enemies of the military surgeon, and too often nullify all his laborious exertions for the wounded. The complication known as secondary hæmorrhage, the invasion of wounds by maggots, erysipelas, and traumatic delirium receive their due share of notice.

The general treatment of gunshot wounds occupies the eighth section. In this, as well as in the seven preceding sections, the student will find full and satisfactory information, consult them on what subjects he will, in connection with the principles of military surgery. Cases are given which bring each point forcibly home to the mind and impresses it on the memory, which is still further aided by many well-executed illustrations. Injuries incidental to special tissues of the body and their treatment are not included, but will, we learn from the preface, form a separate treatise, to be issued on a future occasion.

Any lingering doubt that might yet exist regarding the inapplicability of the regimental system for modern warfare must be dispelled by the

perusal of the second part of Professor Longmore's work, especially when studied in conjunction with the Field Hospital Regulations issued with Army Circulars, 1st January, 1878, in which the duty and responsibility of each one concerned is detailed and full information given regarding the *personnel* and the equipment apportioned to regiments and to the bearer column, and field hospitals of an army corps, and the method of packing the various waggons. It is very satisfactory to hear that the latter with their equipment, surgical and otherwise, are not merely on paper, but that the waggons are actually built, and the contents ready to be packed at a moment's notice. It is well known that all the surgical equipment, with the exception of perishable stores, is kept in readiness in Germany for each army corps at its headquarters. We have been behindhand hitherto in this matter, but now this is all changed, and no past time has seen the Army Medical Department, as regards equipment, better prepared for eventualities than it is at present, from the first dressing which is required for the soldier on the field to the arrangement for the hospital ships that will bear him sick or wounded to his home. It is to be noticed that, although the organization is very similar to the Germans, which proved so successful in the Franco-German War of 1870-71, the German model has not been slavishly followed. The duties of the respective Officers of our bearer companies and field hospitals are arranged on a much simpler plan, and more in consonance with the English service.

On referring to the most recent German regulations regarding the sanitary detachment, the analogue of our bearer company, it appears that the former is still commanded by a combatant Officer; this is a decided mistake; it leads to no end of jealousy, and, in our experience, is a source of inefficiency; to place a combatant Officer in command of a detachment of medical Officers and their subordinates employed in purely surgical work, is to place him in an anomalous position, and is a blot on the otherwise excellent medical organization of the Germans. This will be fully apparent to any one who reads the elaborate regulations concerning the respective responsibilities of the combatant Officer and the chief surgeon in a sanitary detachment. Divided authority means failure. What makes the German system to appear more inconsistent on this point is, that the *Overstabsarzt*, or Surgeon-Major, in charge of a field hospital is the commanding Officer; and how well the field hospitals of the German Army did their work in the war of 1870-71 is a matter of history. In the Austro-Prussian War of 1866 there was a combatant Officer in charge of each field hospital, but the system worked so badly that it was altered after that campaign.

There was in our Service a tradition, now happily passing away, that a good medical Officer was unfit for anything except purely professional work, and the better the surgeon the less fit he was to undertake any other duty. Men of all professions, excepting of course the clergy, and from all ranks possessing the necessary capacity and education, were considered fit to command volunteers. The Commissariat Department could exercise the necessary authority over their men; the Medical Department alone was denied this privilege. The more enlightened system that now obtains is to make the medical

Officer responsible; there is now no go-between him and the hospital servants acting under him; he is at length unfettered in the discharge of his duties in his hospital, with his bearer company, or when he is doing duty with a regiment. A further relief has been afforded: by the new organization the medical Officer is not hampered by the charge of stores; these are drawn and accounted for by the Officers of the Army Hospital Corps, the medical Officer seeing that they are according to regulations, and kept in good order; thus he will be able to attend to his professional duties, and superintend the Army Hospital Corps in theirs, without his time being frittered away in quartermaster's and accountant's work, and with a corresponding gain to the soldier, the public, and himself. To secure the success of this new organization, the Service must have a class of medical Officers of high ability, recruited from good men from our best schools.

What the qualifications of a military surgeon should be are graphically described by Professor Longmore in the following abstract, which must be given *in extenso* :—

"The Army medical Officers require various qualifications to enable them to discharge their functions in a satisfactory manner. The executive medical Officer should be prepared to practise all branches of medicine and surgery. The special divisions of surgical and medical science, and the particular applications to certain subjects, to which practitioners in civil life devote themselves, are altogether inadmissible in military practice. The Army surgeon must comprehend in his range the whole sphere of professional science and practice. He must, in addition, possess a variety of other knowledge peculiar to army practice, in order to be a thoroughly efficient Officer. He ought to be acquainted with the science and application of hygiene as regards bodies of men in all climates, the preparation of various technical returns and reports, and the nature and uses of all the articles comprised under the general terms of field, medical, surgical, and transport equipment. The Army Regulations bearing upon the management of patients in general hospitals and on field service, and those upon his own relations to other Officers and other departments of the military service, should be all familiar to him. Certain physical qualifications are also of essential importance to the Army surgeon. He should have a healthy and robust constitution, in order to resist effectually the exposure and various trying circumstances incidental to military life in general, and especially to campaigning. Moral qualities, to ensure him due respect from those with whom he is associated, and to procure the esteem and confidence of the troops placed in his charge, should also not be wanting. The administrative medical Officers should have passed through the grades of executive Officers, and should have proved their superiority by the possession of special scientific, moral, and physical qualifications while in those grades. In addition, the Officers selected for administrative appointments should have shown themselves prudent, sagacious, capable of dealing with sudden emergencies promptly, and thoroughly imbued with habits of military discipline. It is equally true of medical as of combatant Officers, those who have

“conducted themselves best in subordinate positions will almost always conduct themselves best also when placed in superior positions. Circumspection, the ability and decision of character which will impress the higher military authorities with respect for opinions and advice; the administrative tact, in addition, which will procure willing obedience and excite professional zeal among the executive Officers and departmental functionaries under their administration; these are the qualities which will mark the most successful administrative Officer of the Army medical service.”

It would be foreign to this review to detail a scheme which, if adopted, would hold out sufficient inducements for candidates who would in due course develop into the typical military surgeon just sketched, but it may be mentioned that it is a question, in a great measure, of expense; and the Government will have to authorise the additional necessary expenditure if it be alive to the necessity of procuring the best medical assistance for the soldier in peace and war; it would be unwise to have a large establishment of medical Officers that would clog promotion in peace time, and be a needless expense to the nation. A comparatively small and well paid department, with a reserve, is what is required. The department can no more meet the exigencies of war of its particular branch without a reliable reserve than the Regular Army to which it belongs can do so without the Auxiliary Forces. How is this reserve to be formed? Obviously by medical Officers who have retired from the department; early retirement, with an adequate allowance, allows of a healthy flow of promotion; it kills hope in the best medical Officer that ever served his country if you cannot give him a hope of promotion to the administrative grades after 20 years' service; in fact, every year after 40 years of age passed in the executive rank renders him the less eligible to become an administrative Officer; if it be impossible to promote him, give him a sufficient inducement to retire and pass into the reserve. The Officers composing the latter, in peace time would be eligible to hold certain appointments connected with the Service, and in war time they would take charge of our districts and hospitals at home, thus completely freeing the active list for services abroad. The department would with such a good backbone be easily and satisfactorily supplemented by young surgeons desirous of being temporarily employed in the field before settling down to the practice of their profession, by affiliated Red Cross Societies, by medical Officers of Militia, by volunteer medical Officers, who would undertake the duties of Army medical Officers in station hospitals, and latterly these gentlemen have evinced a most patriotic zeal in qualifying themselves for their military duties.

In an illustration on page 463, Professor Longmore shows the relative position of the sick bearers immediately behind the fighting line, the station of first help, the collecting station for transfer to ambulance waggons, from which the wounded are consigned to the dressing station, and from thence to the field hospital. The sketch saves a world of description, and impresses the system indelibly on the mind. In the first line of assistance there is a noteworthy difference between

the German organization and our own. Every German battalion and regiment of cavalry has what is termed a medicine two-wheeled cart, with two boxes placed *dos-à-dos*, containing a few medicines, bandages, and other surgical appliances; and the regimental orderlies have knapsacks opening behind, containing materials for first dressings; these can be obtained by the surgeon, if necessary, without the orderly taking the pack off. Stretchers jointed in the centre, so as to admit of folding, are carried on the cart which follows immediately in rear of the battalion. With us there are two field-companions for each regiment, and the stretchers, one for each company, are carried on the regimental transport waggon. The Germans lay considerable stress on regimental bandaging-places and the activity of regimental surgeons with bearer companies, while we rather insist on the regimental surgeon not undertaking any work that could possibly prevent their keeping up with their corps. Although the Germans are so amply provided for regimental assistance, on the other hand it has been repeatedly stated by the most competent authorities that the British field-companion is the most perfect equipment of its size for temporary regimental assistance; and the lately-introduced field-case of instruments, with chloroform, &c., weighing only four pounds and a half, amply provides for any operation which cannot be delayed. The case can be easily carried by every medical Officer doing duty with a regiment, either slung from the shoulder, or still better attached by D's from the saddle. Our weak point is that the stretchers have to be taken before an action from the regimental transport waggon, which may be some distance away, but this could not be avoided in the absence of a regimental surgical cart. In our field hospital regulations a provision is made for the supply of medical equipment in case of a brigade or one or two regiments being detached for duty away from the division where there might be a difficulty of a section of the bearer company acting. A distinguished Surgeon-General of the German Army considers our field panniers as the very best equipment ever designed, for such a purpose it would indeed be impossible to devise anything better.

In modern warfare the duties of medical Officers in charge of corps, whether on the line of march or in camp or quarters, are chiefly sanitary; and very important these duties are in keeping the troops in a good hygienic condition. In an action, especially a hotly-contested one, a great deal depends on the activity of the bearer companies; the medical Officers belonging to them should be young, active, and able to withstand any amount of fatigue, and two or three in each company should be expert operators. The prospects of ultimate recovery of wounded depend, in a great measure, on the skilful performance of operations that admit of no delay, the sustenance afforded immediately after an action, and the rapidity of transfer to the field hospitals in the rear; the carrying out of these duties all appertain to the bearer companies. The terrible thirst of the wounded has not been forgotten. Water tins are carried by the bearers; there are two water carts for each company, besides the water tank containing ten gallons below the floor of every ambulance waggon.

The qualifications of the Surgeon-Major in command of a bearer company are thus summed up by Professor Longmore:—"The Surgeon-Major in charge of a bearer company must be a disciplinarian, active and strong, and a fearless rider. He should be gifted with tact, discretion, and knowledge of character, that he may judiciously guide and control the varied *personnel* concerned with his charge. He should have a quick perception of the leading features of ground, and some acquaintance with military exigencies, in order to dispose of his bearers, and to establish the dressing stations with the best advantage."

With regard to equitation, every medical Officer—no matter what his rank or position may be—should be a good horseman; medical Officers now undergo a course of instruction in horse-riding; in this, as indeed in all other matters appertaining to their new duties, medical Officers are extremely anxious to qualify themselves, by attendance at the course now so successfully carried out at Aldershot.

The Germans even in their new medical regulations direct that the first field dressing should be carried, according to the corps, in the breast pocket, the trousers, or the back pocket of the tunic; why not always secure it to the inside of the tunic on left side of the chest? Charpie has not yet been discarded by the Germans as one of the constituents of the dressing; when it is considered from what and how charpie is prepared, it must be considered as most objectionable. Professor Esmarch, in his proposed first dressing, has substituted cotton wool.

On page 505 of Professor Longmore's book, there is a drawing of an orderly with pouches containing a few medicines, and a bag of dressing materials, attached to the waist-belt in front. This arrangement has been found inconvenient when an orderly is employed in carrying wounded, and in the new regulations it will be seen that a waterproof haversack, with the necessary surgical equipment, has been substituted; it is suspended by means of a broad woven belt from the right shoulder.

The Germans have introduced a novelty regarding the cards to be attached to the wounded (corresponding with our diagnosis tickets); white tickets are used for those who require immediate treatment in the field hospitals, and red for those who, from the nature of their wounds, are capable of bearing, without injury, further transport to the rear; it is also to be noted that the regimental bearers no longer wear the Geneva badge, but are distinguished by a red band encircling the left upper arm, as in future, during an engagement, the British Army Medical Department would be at once recognised by the Geneva badge on the left arm, there will no longer exist any necessity for medical Officers to be marked by funereal trappings in order that they may be distinguished from other officers.

German medical Officers wear the *pickel-haube*, the usual head-dress of the Army; for instance, the Surgeon-General of an army wears precisely the same helmet as a General Officer, and indeed may rank as a Lieutenant-General—a rank not as yet accorded to medical Officers in our service.

A very necessary step will be for medical Officers, the Army Hospital Corps, and sick bearers, to be clothed in the same uniform; the absurdity of having a department, when appearing on parade, clad in two if not three different kinds of dress, has been very apparent, and has given rise to much comment; further, as the department is now a consolidated body, it should bear a name that will include all its component parts.

A great boon given to medical Officers in the field is, that they are all to be mounted; it is absolutely necessary that a horse and saddlery should be provided. An unmounted medical Officer will soon break down in a campaign.

With regard to the conveyance of wounded by bearer companies, we have the mule litters and cacolets, so suitable for the mountainous warfare that England is so often engaged in. The ten ambulance waggons of the first line, with each of the bearer companies, will always be of service pattern, so indeed should the twenty-three of the second line be, and for very obvious reasons; the latest made ambulance waggons are very elaborate and of beautiful workmanship, but their weight appears to be very great, 18 cwt. against 13 cwt. of the old pattern; the latter waggons were equirota, the fore wheels in the new ambulance waggon turn underneath the waggon, and it is a decided advantage their doing so; but they are considered by some to be too small, and therefore apt to stick in mud; there is one point very certain, that two horses will never be able to drag the waggon any considerable distance when filled with wounded on heavy roads.

All English field stretchers are now made with rollers of gun-metal attached to the feet. This provision will obviate the necessity of transferring the wounded at the collecting station from one stretcher to another. The principle is a sound one, but the stretcher requires a better plan for securing the stability of the legs when under the rough usage it must necessarily meet with in the field. The traverses are cumbersome and unnecessarily heavy.

The Germans have considerably improved their ambulance waggons. Since the war of 1871-72 the huge leathern coupé has been discarded, the front and hind wheels are nearer to one another, thus improving the draught. It would be interesting to ascertain what the weight is, and compare it with that of the English waggon. It is drawn by two horses.

The two-wheeled stretcher, shown on page 539 of Professor Longmore's work, is a capital hand vehicle for police and railway stations for conveyance in cases of accident. Although carried on the roofs of many ambulance waggons by the Prussians, we do not remember a single instance in which they were used through the Franco-German War. The only place that the wheeled stretcher can possibly be of any use in the field is at a base hospital, and that only seldom. Unlike the Germans we have no special surgery waggon with compartments for the bearer companies; with us the necessary surgical appliances are contained in light panniers of special make—wicker-work covered with hide—which have rollers of gun-metal underneath,

and are carried with an operating table and tent in a very light four-wheeled spring waggon—two-horsed. There is also in the panniers, besides surgical material, a few cooking utensils, and means of affording temporary sustenance to the wounded after an action. In less than two minutes all the panniers can be taken from the waggon, and arranged in proper form at the dressing station. The contents of the waggon weigh about 14 cwt.

Taking into consideration the great difficulty that exists of affording sufficient sustenance to the wounded after a battle, there is one improvement in the equipment of a bearer company which suggests itself, namely, that it would be well if the space occupied by cooking utensils was given up to additional medical comforts, other means of cooking being provided; and nothing appears so adapted for this purpose as the Swedish two-wheeled cooking cart, which was used in the Roumanian field hospitals at the siege of Plevna, by means of which food was prepared for many thousand sick and wounded Turks after the surrender of that town; the extreme facility of cooking extemporaneously by means of this cart is well known, and though objections will be raised as regards the multiplying of carriages with the necessary drivers and horses, still the end in view is so important that it should counterbalance other considerations.

The proper method of carrying wounded has been detailed with the greatest minuteness by Professor Longmore; our sick bearers being obtained from the Reserve, and, therefore, being already drilled soldiers, from four to five weeks is only required to make them perfect in their bearer company duties.

Leaving the bearer companies we come to the second line of assistance—the twelve field hospitals moving with an army corps, two attached to each division, two to corps troops, and the remainder in reserve. Both the Germans and ourselves have special pharmacy waggons for field hospitals. The English pattern (two for each hospital) is admirably and ingeniously fitted; if it has a fault it is that it is almost too elaborate for the second line of assistance. The waggon has also been considered to be rather heavy, but a field hospital is not moved every day, and this fact meets the difficulty. The utensils in the four field hospital store waggons, belonging to each hospital, could scarcely be reduced in number without sacrificing efficiency, and the equipment has been exceedingly well chosen.

The tentage accommodation for patients in each field hospital consist of fifty circular tents with higher walls than the ordinary bell tents, each tent accommodating four men. These tents have, no doubt, been chosen, not because they are the most suitable shelter for the sick and wounded, but because they are the best available pattern for movable field hospitals; they possess a decided advantage in the ease with which they can be pitched and struck, besides the tentage accommodation can be readily measured according to the requirements of the wounded, and segregation easily obtained for infectious cases.

The thirteen stationary field hospitals along the lines of communication and at the base of operation, constituting the third line of assistance, have no special waggons; but the equipment would be

essentially of the same kind as for movable hospitals, except that hospital clothing and other articles could be supplied in much larger quantities, as there would be no restriction on account of construction or number of waggons.

In these stationary hospitals it is directed that hospital marquees are to be used when buildings and huts are not available. The English hospital marquee is noted for its comfort, and the great protection it affords against the weather. The drawbacks are its great bulk and weight. By far the best hospital tent, combining stability with comfort, lightness, and cheapness, appears to be the Austrian marquee, which proved of the greatest value during the inclement weather in the East in the Russo-Turkish War.

The German hospital tent, in their new regulations, is of the same pattern as in the old; with its iron rods, curtains, and other complications, it must be exceedingly heavy, difficult to pitch, and, if any of the ironwork be broken, the tent must be rendered useless. In the Franco-German War, it was never used in the active operations in the front.

A suitable bedstead for the sick and wounded in the field is evidently a problem not easily solved. The Germans gave directions for making simple bedsteads from planking and lengths of wood, and constructed according to the plans given; they were of great service in 1873-74, in Orleans, Meung, Le Mans, Chartres, and other towns where stationary hospitals were established, and, being inexpensive, medical Officers had no compunction in converting them into firewood, after being occupied by infectious cases.

A capital bed for field hospitals consists of canvas sacking stretched between two poles and stuffed with straw or hay, the ends of the poles pass through holes in a wooden crossbar, supported on two stout legs, eighteen inches high; the crossbar and legs are all in one piece. All these stretchers being similar in construction, if a component part be lost, there is no difficulty in supplying the deficiency.

These bedsteads were used for weeks together in the field, in cases of severe diseases and serious operations during the Eastern War, and most comfortable accommodation they afforded for the sick and wounded. It is to be noted that, by a simple arrangement in the sacking, an excellent pillow could be formed.

Hospital railway waggons bear the same relation to a continental Army as hospital ships do to our Service, and in the German regulations the fitting equipment, *personnel*, and conduct of these sanitary trains, as they are called, are fully entered into, and plans of the waggons for cooking and conveyance of the sick are given; with us, the transport by rail would be amply provided for by extemporised means, as in the well-known Zavodovsky system in the East. During the war, ordinary trains were easily fitted up with what was required, and they answered exceedingly well on short journeys, a provision for which would only be required by an English force landing on the Continent. As to our hospital ships, one of which is appointed for each division, with a store ship attached, nothing need be said further than that a reference to the Army Medical Reports will show how excellent, of

late years, all arrangements under this head have been, and as Professor Longmore has justly remarked, the well-known "Victor Emanuel" will in future be the type of our hospital ships.

Seventy-five pages of the new German regulations are devoted to sanitary service in the field—food, water, clothing, care of the troops on the march, in cantonments, quarters in hospital, on railways, and on the field of battle—are treated, while guiding directions are given with regard to the prevention and spread of Army diseases, including the mode of disinfecting, the erection and appropriation of tents and huts for the sick and wounded, as well as ready methods for the analysis of water in the field; all these subjects are very carefully worked out. They are familiar to everyone who has gone through the course at Netley, and any information not detailed in our sanitary regulations will be found in that literary mine of sanitary science—the work of the great apostle of modern military hygiene—the late and revered Professor Parkes. The tenth section of Professor Longmore's book deals with the classification of gunshot wounds, and the eleventh or last is statistical. Statistics on gunshot wounds are like statistics on many other subjects, they are interesting on many points to the student, but are not of much assistance as forming the basis of a system. Every campaign, nay, every engagement, has its own peculiar features, which modify the number of killed and wounded, the nature of the wounds, and the part of the body which will suffer most; for instance, no two tables given will, when compared, show the relative destructive effects of the round and conoidal bullet, although we are aware, of course, that the latter is the more destructive missile of the two.

Imperfect as the foregoing review may be, it must end here, as the limits assigned have already been transgressed, but it is hoped that enough has been written to show that we are keeping pace with the increased requirements of the sick and wounded in modern warfare, and in some respects, indeed, are in advance of continental nations. What adds immensely to the difficulty in making suitable provision in our case is that England must be prepared for war in any quarter of the globe, where her world-wide interests require it.

Day by day, step by step, for the last four years, improvements have been made, and are still progressing under the present Army medical administration; there has been no swerving from the object ever kept in view, namely, the efficiency of the department, and it is a heartfelt wish that the day is not far off when the medical Officer, ever present with the soldier in health, in disease, on the field of battle, and in all climates, will belong to a united, contented, and much sought-after service, which, with its reserve, will be linked with militia and volunteer medical Officers, thus constituting a medical force that will be equal to any contingency, should England unhappily be engaged in a great war.