grouping of Dr. Snell's towns in any conspicuous degree.

It would appear, therefore, as if the major factor in the spread of diphtheria is that which is operative outside the homes. The decline in the disease which occurs during the holiday month of August, when the schools are closed, is suggestive of one source of origin of primary cases in the homes, for disease contracted in the schools would manifest itself in primary cases in the houses where the children reside.

Underlying the whole story of prevalence of infectious disease in a community is undoubtedly the natural behaviour of the disease. At one period the disease manifests an ability to spread which it does not appear to possess at another, and very largely the disease is spread by unrecognized, and perhaps by unrecognizable, cases. In the case of diphtheria, there is a possibility of decreasing the proportion of cases which are operative in this manner by employment of bacteriological methods. In this respect diphtheria stands on a footing different from that of scarlet fever.

In former years there was undoubtedly the hope that by limiting the opportunity of known cases to spread the disease a much larger effect would be produced on total prevalence than actually occurs. Isolation in hospital does, as Dr. McClure's paper shows, diminish the amount of risk to which the inmates of homes are exposed by the occurrence of a case of scarlet fever or diphtheria among them, but, as already indicated, the chances of infection outside the home are still sufficiently abundant for this decrease not to have any very considerable result upon the total prevalence. This, however, is not sufficient argument against hospitals for infectious disease to lead to their abandonment. Who among us, having a case of scarlet fever or diphtheria in our homes, would not desire to have the immediate risk to other members of the family reduced in the proportion which Dr. McClure's figures indicate? The lesson to be learnt from the two papers is the need for extending as far as may be practicable the principle of dealing with potentially infective persons to those who now escape the net of the Notification of Infectious Diseases Act. If Dr. Snell's suggestion be accurate as to the cause which has governed the prevalence of diphtheria in his groups of towns there is possibility—at any rate, so far as this disease is concerned—of material result from such action. At the moment we may urge that he has given reason for more detailed inquiry than it has been possible for him to make as to the value of the methods adopted in his several groups of towns. Precise inquiry into these methods would be instructive, whatever the final result may be.

SANITARY ORGANISATION OF THE TERRITORIAL FORCE.*

By LEWIS T. FRASER BRYETT, M.D., D.P.H.,
Medical Officer of Health, Metropolitan Borough of
Shoreditch; President of the Metropolitan Branch,
Society of Medical Officers of Health; Major,
R.A.M.C., commanding 1st London (City of London)
Sanitary Company, Territorial Force.

IN addressing the Branch upon the subject of the Organisation of the Sanitary Service of the Territorial Force I have to confess to a certain amount of diffidence, more especially in making reference to the relations it may possibly have with respect to the Civil Sanitary Service. These, however, I shall venture briefly to touch on as it is well within the bounds of possibility for them to become matters of no small importance, more particularly in the event of mobilisation taking place, and they ought not, therefore, to be lost sight of. Something of what can be said as to these relations belongs to the region of facts but much must necessarily be conjectural, the circumstances affording practical experience never having arisen. A similar statement is also in the main true as regards our sanitary experience in the Territorial Force. As you are aware, throughout Great Britain there are annually established camps in various parts of the country during the summer months for the training of the Territorial Force. These afford some amount of practical experience under certain conditions in times of peace, and without doubt such experience is of material benefit to the sanitary service. In the event of mobilisation, however, the circumstances prevailing would be somewhat different and more likely adversely to affect the health of the troops. There would be in all probability large concentration camps formed which would remain in the same localities for more or less lengthened periods, large bodies of Territorial troops may have to be quartered in cities and towns, larger or smaller bodies may have to bivouac in the neighbourhood of or may be billeted in towns or villages or may be passing from one part of the country to another, by road, by rail, by sea. Moreover, it is possible that the Territorial Force may be called on to furnish troops for service abroad on friendly soil or otherwise. Of all this we have no experience.

We can, however, turn to the sanitary experiences of our own Regular Army in peace and in war, at home and abroad, as well as to those of foreign armies. These have been recorded

* Read at a meeting of the Metropolitan Branch, January 16th, 1914.

in the various works of eminent military sanitary officers, and it need hardly be stated they have been of the greatest possible value not only to military, but to civil sanitary authorities. They will serve to guide us, and conclusions drawn from them will, of course, be to a considerable extent applicable in the case of the Territorial Force. It is not to be forgotten, however, that the Territorial Force markedly differs from the Regular Army, in consisting of partly-trained troops only, and that to a large extent it lacks that discipline which is such a very essential part of the training of the soldier, and which is characteristic of our Regular troops. In these respects, therefore, it is at a great disadvantage, and this has to be borne in mind in drawing conclusions from the experiences of the Regular Army. It is, perhaps, hardly necessary to point out that the soldiers of the Territorial Force, dwelling, as they do, as ordinary citizens in civil life, so to speak, constantly under the wings of the various sanitary authorities, and only for brief intervals during the year coming under the law relating to the soldier, are, with comparatively few exceptions, uninstructed as to the great importance of due attention being paid to sanitary details, which is nowadays so strongly impressed on the Regular soldier constantly under military discipline. They are lacking in sanitary discipline—and, in fact, have everything to learn in this respect—and to keep such troops effective, therefore, proportionately greater effort is likely to be required on the part of those responsible for their sanitary welfare. Without dwelling unduly upon the grave dangers associated with neglect as regards such effort, it may, nevertheless, be emphasised that its absence would not unlikely be attended with disastrous results. We might, for instance, on mobilisation in this country have severe outbreaks of enteric fever, such as befell the United States Volunteers in 1898 in America at the time of the war with Spain. It may be mentioned that these outbreaks were inquired into by a Board of medical officers of the United States Army, and the results of their investigation were embodied in a report which was published in 1904. Briefly, within a period of six months, from June to November inclusive, of approximately 108,000 officers, non-commissioned officers, and men who were located in large national camps formed in the States of Virginia, Florida, Georgia, Pennsylvania, and Alabama, nearly 21,000 are said to have been infected

with enteric fever, and of these something like 1,500 died. Whereas amongst the trained troops of the Regular United States Army the incidence of the disease was comparatively insignificant. The effectiveness of these Volunteers was most seriously diminished, therefore, before they had even started for the theatre of war. It may be added that the condition of the camps of these Volunteers as contrasted with that of the Regular troops was extremely bad, and indicated a marked absence of sanitary discipline, which, without doubt, most materially assisted in spreading the infection.

Before concluding these preliminary remarks, reference may, I think, be made to an important point bearing upon the training of the Sanitary Service of the Territorial Force which specially attracted my attention in a paper by Lieut.-Col. Melville, of the R.A.M. College, which was read at the Royal Sanitary Institute about two years ago. Shortly, it was to this effect: In the event of it being necessary to mobilise the Territorial Force, the units of that force generally may not unreasonably expect to have, and it is not improbable that they would have, more or less lengthened periods in which to perfect themselves in their training. However this may be, no such breathing space can be hoped for in the case of the Royal Army Medical Corps. Both in respect to its preventive and curative functions, the services the corps has been organised to perform would be required forthwith on mobilisation. I think there can be no question as to this, and that it is plainly the duty of the sanitary service to make itself thoroughly efficient, so that its work may be of real value to the Territorial Force should it ever be needed.

Now, as to the Sanitary Organisation of the Territorial Force in this country; this is, as in the case of the Regular Army, based on the principle that the officers commanding every unit and formation are responsible for the preservation of the health of all those who are under them, and for seeing that every officer, non-commissioned officer and man properly complies with all sanitary orders, and that all localities under their charge are at all times kept in a proper sanitary condition. To ensure the troops being effective—by that is meant keeping as many men as possible in the ranks physically fit for the duties they may be called upon to perform—is the essential object of military sanitation, and in so far as sanitary measures are favourable to this object they are likely to be made use of by military authorities

as aids to the striking power of the army. I do not think that it is needful to dwell upon the fact that sanitary measures which may be applicable and very necessary in the case of civil communities or an army in times of peace may be useless, impracticable, or likely to be detrimental to an army on active service in the field. In such cases the application of sanitary principles must be dependent upon the exigencies of the situation. From a military point of view, sanitation is to be regarded as but a means to an end, to assist in giving effect to the purpose for which an army is maintained, and that is the disposal of an enemy, and from this point of view, which is the one to be taken by the military sanitary officer, its humanitarian aspect becomes a matter of secondary importance.

To properly appreciate the Sanitary Organisation of the Territorial Force it is necessary to start with a clear idea of that of a field unit. By the term "unit" is meant a body of troops such, for instance, as a regiment of cavalry or a battalion of infantry. The sanitary service of such a unit is organised in accordance with the principle already indicated, that every unit, through its commanding officer, is responsible for its own sanitation and for the sanitary condition of any area it may occupy. Every unit has a medical officer, or the services of a medical officer, who is in the position of sanitary adviser to the commanding officer. In addition to dealing with those who become sick, the medical officer has important responsibilities as regards the preservation of the health of those who are sound, and it is his duty to make such recommendations to the commanding officer, verbally or in writing, as may be necessary for protecting the health of the troops. The sanitary duties laid down for him are given in the Regulations for the Army Medical Service. Briefly, they include the periodical inspection of the camp or quarters occupied by the troops and of the men themselves, the examination of food and drink, the supervision of the water supply, the regulation of cubic space in the quarters occupied as regards ventilation, dealing with any cases of infectious disease that may occur and ascertaining that all proper measures are taken for disinfection. As his subordinates the medical officer should have at his disposal a sanitary squad consisting of men who have received special training in sanitation. They should be obtained from the establishment of the unit concerned and detailed for sanitary duties only.

Their duties should include the supervision of the preparation and also the care of latrines, the supervision of the means for the disposal of refuse, the litter from horse lines, waste water from kitchens and ablution places and the sanitation of places where food is cooked, all of which are matters of the utmost importance, especially when troops are placed under canvas. The members of this squad, in the performance of their duties, would act as sanitary police. There ought also to be attached to the unit, for work under the medical officer, a small detachment of the Royal Army Medical Corps. The duties of this detachment would include the supervision of water, its purification and the charge of apparatus and stores connected therewith, dealing with infectious sick the supervision of the use of disinfectants and the execution of any measures necessary for disinfection. These detachments of the Royal Army Medical Corps should be furnished from men trained with field ambulances of the Territorial Force, on the peace establishments of which, it may be mentioned, they are shown as supernumeraries.

Amongst the most important of the duties of the medical officer and his subordinates, however, is the diffusion of sanitary knowledge throughout the unit, with the object of enabling all ranks to take an intelligent interest in, and to realize the very great importance of, all sanitary orders being scrupulously complied with. As a matter of fact, it is laid down in Regulations that the study of sanitation and the preservation of health is incumbent upon every officer and soldier. This object is most likely to be easiest achieved through classes and demonstrations in sanitation for the education of the officers and non-commissioned officers of the unit so as to enable them to instruct their men. It is only by the dissemination of sanitary knowledge that really intelligent co-operation of all ranks, which is essential to ensure the success of any scheme which may be promulgated for the preservation of the health of the unit, can be obtained. The importance of a high standard of sanitary discipline in a unit cannot be over-estimated, when it is recognised as a fact that the health of an army in the main depends upon the sanitary efficiency of the units forming that army.

Now, to take the case of a formation consisting of a number of units. Generally it may be stated that whether the formation be great or small the medical officer highest in rank includes amongst his other duties that of acting

as sanitary adviser to the officer commanding the formation. In some cases the medical officer has the assistance of a specialist sanitary officer of the Royal Army Medical Corps Territorial Force. As an illustration of the sanitary organisation of a formation or combination of units, let us consider that of a Division. A Division is the basis of the field organisation of the Territorial Force. It may be described as a self-contained formation, comprising all arms and services—that is, it consists in due proportions of Engineers, Artillery, mounted troops, Infantry, Army Service Corps, and Royal Army Medical Corps, together numbering on a war footing, say, from 16,000 to 17,000 officers, non-commissioned officers, and men, with numerous horses and vehicles. It constitutes, in point of fact, a fair-sized community. The head of its medical service is known as the assistant-director of medical services of the Division—shortly, the A.D.M.S. This officer is the adviser on all medical and sanitary matters of the general officer commanding the Division, who is, of course, responsible for the health of the troops under him. To help the assistant-director of medical services in matters relating to sanitation, there is a divisional sanitary officer, who is specially appointed for the purpose, and devotes the whole of his time to the duties of his office. Subject to such other instructions as he may receive, this officer keeps himself informed of, and exercises general supervision over, the sanitary condition of all places occupied by the troops of the Division, whether billets, camps, bivouacs, or posts, and investigates at once the cause of unusual prevalence of disease amongst the troops or the inhabitants in the neighbourhood. He advises on the measures to be taken for protecting the health of the troops; on the selection from a sanitary point of view of camp sites and bivouacs, and on questions relating to the sanitary condition of towns, villages, or buildings which may have to be occupied; also as to the water supply, latrines, urinals, burial of the dead, the disposal of refuse, and other conservancy matters. It is also for him to impress on commanding officers and on medical officers the imperative necessity of attaining the highest possible sanitary standard whether in camp or on the line of march, and it is his duty to notify superior authority when sanitary measures which could be carried out, and ought to be carried out, are neglected. Such,

briefly, are his duties; they are detailed in the regulations of the Army Medical Service. It will be noted that they are analogous to those of a whole-time medical officer of health in civil life. Divisional sanitary officers of the Territorial Service are, I believe, for the most part connected with the public health service in civil life. It is unnecessary to dwell upon the advantages of such being the case. On mobilisation the divisional sanitary officer would go with the Division to which he belonged, and his duties and responsibilities would commence forthwith. In peace, however, his services, apart from lectures and courses of instruction he may give on sanitation, are as a rule hardly likely to be required save at the time of the annual training of the Division. During the fifteen days the troops are up for training various points in sanitation are constantly arising to engage his attention. Usually they are the results of difficulties as regards the disposal of excreta and refuse and the waste water from field-kitchens and ablution places. Sometimes also the question of the water supply may demand attention. When the camps are in localities where there are regular camping-grounds, such as Aldershot, Shorncliffe, or Salisbury Plain, the water supplies and the general arrangements for the disposal of refuse and excreta are as a rule of a satisfactory character. Usually there is a sufficiency of water of good quality laid on in pipes from approved sources, and pail systems for the disposal of excreta and arrangements with contractors for the removal of refuse are in existence. The chief difficulty to be contended with is ensuring that the contractor carries out his contract in a proper manner. On the other hand, when the site of the camp is not one regularly used as a camping-ground some of the points referred to are practically certain to require the attention of the divisional sanitary officer in connection with camp conservancy. Occasionally the water supply is open to doubt. It may be necessary for the sanitary officer to visit and inspect a locality wherein it is the intention to encamp troops before the site for a camp is finally decided on. Any suspicion as to the water supply, the presence of cases of enteric fever or other infectious disease in the neighbourhood of the proposed site, for instance, would undoubtedly render such a visit imperative. In one such instance, occurring within my own knowledge during the past two years, part of a site selected for a camp in the neighbourhood

of a county town was abandoned in consequence of a report from the divisional sanitary officer. There had been some cases of enteric fever in the vicinity and there was reason for believing that part of the water supply was open to contamination. In such cases as these—and, in fact, in every instance in which there are reasonable grounds for suspecting the existence of infectious disease in any locality where it is proposed to establish a camp—with a view to the protection of the troops it is advisable, and may oftentimes be very necessary, for the sanitary officer to get into touch with the county or the local medical officer of health. The advantages associated with such a course being adopted need not be dwelt on, as they will doubtless be very evident to medical officers of health.

Again, an outbreak of dangerous infectious disease amongst troops whilst they are encamped will always require the prompt attention of the divisional sanitary officer. On the occurrence of a case of dangerous infectious disease the rule is for the report as to the case to go to the Assistant Director of Medical Services, who passes it on to the sanitary officer for investigation. It is part of the duty of the medical officer of the unit who reports the case to take the necessary measures for segregation and disinfection. The sanitary officer has to enquire into the origin of the outbreak, and where there may be difficulties as regards segregation he may have to make such arrangements as circumstances may require for isolation at a local hospital or otherwise in the event of a military hospital not being available for the purpose. The divisional sanitary officer may also be called on to advise generally as to the spread of infection and the precautions to be adopted to prevent it in the Division, and with a view to this object to draft such regulations as circumstances may render necessary. It is customary to keep the local medical officer of health informed of cases of dangerous infectious disease amongst troops in the locality, and similarly the military authorities should be notified of the occurrence of such cases amongst the civil population in the neighbourhood. It is hardly necessary to pursue this point further; sufficient has, I think, been stated to indicate that in the course of his duties in connection with infectious diseases for the purposes of his investigation the sanitary officer may have to secure the co-operation of the civil health authorities of the locality.

During the training season the infectious

disease which mostly attracts attention amongst Territorial troops is diarrhoea, which is always more or less prevalent, and sometimes markedly so. The period of training—eight to fifteen days—is, however, too short to afford a real experience of what it actually means, as regards sanitation and infectious disease, to place large bodies of young men drawn direct from civil life under the comparatively primitive conditions of camp life. Such is only to be expected, so far as Territorial troops are concerned, in the event of general mobilisation, and I venture to hazard a few remarks as to sanitary organization should this possibility come to pass. It would then doubtless be necessary to place many thousands of men under canvas during the summer months in various parts of the country for more or less lengthened periods of training. During the early part of the period of mobilisation troops would have, to a large extent, to be billeted or quartered in such buildings as may be available in the vicinity of their headquarters. Moreover, in some cases, it is possible that they may have to be so accommodated for considerable lengths of time, perhaps running into months. There may also be some who would go into permanent barracks and quarters which have been vacated by Regular troops, where the water supply is beyond suspicion and the sanitary arrangements are of an approved character and constructed in accordance with modern sanitary principles. With the exception of these, in all other cases more or less attention would have to be directed to the provision of proper and sufficient water supplies and suitable accommodation as regards sanitary conveniences. Nor is it to be overlooked that large numbers of horses would have to be taken into consideration and suitably provided for, with due regard to the health of the various localities.

Properly organised systems for the provision of pure water and food, for the proper disposal of refuse and excreta of man and beast, and for the isolation of infectious sick and disinfection would of necessity have to be inaugurated for all camps. Similarly, the billeting or quartering of troops in houses and other buildings—such as schools, for instance—would call for the provision of additional water supplies and sanitary conveniences, besides additional means for the disposal of waste water. It is unnecessary to go into details, but the character of the additional sanitary accommodation required would naturally depend upon local conditions, whether urban

or rural. To secure promptness and efficiency in respect to these necessary measures, it may be emphasised that cordial co-operation between the military and civil sanitary authorities would be most essential. In our own country or on friendly soil there ought to be, and probably would be, no difficulty in securing such co-operation, as it doubtless would be recognised generally as being needed not only for the protection of the health of the troops, but of that of the public as a whole. Nevertheless, I believe that useful services in this and other directions could be rendered by a committee affiliated with or as a branch of, or, at all events, formed on similar lines, and having duties akin to those which would be carried out by the Sanitary Inspection Committee, to be constituted on mobilisation of the Regular Army for the supervision and assistance where necessary of the sanitary service on lines of communication and at the base. About this committee and its important functions a word or two are necessary. It may, perhaps, first be explained that the terms "lines of communication" and base are used in connection with an expeditionary force, the former to signify the roadways, railways, waterways, and other means of communication extending from a base to an army in the field, together with so much of the country in the vicinity as may be required; the latter means the locality where the lines of communication originate from and where the principal reserves of all that is required by the troops are accumulated. On the lines of communication of an army it need hardly be stated that troops, animals, provisions, stores and necessaries of every description would be more or less constantly passing up to the front, and there would likewise be convoys going down to the base consisting mainly of sick and wounded with those in charge of them and more or less prisoners of war. There would also be troops stationed at various points on or in the neighbourhood of the lines of communication, and possibly troops on the move in the vicinity as well. Extensive and very likely populous geographical areas, including cities, towns, and villages, may have to be administered, and the civil population would, therefore, have to be taken into consideration, as well as the military. Sufficient has, I think, been stated to indicate that a suitably appointed public health service specially organised and adapted to cope with the conditions associated with sanitation on lines of communication would be a very great

advantage from a health point of view to the troops, and this has been recognised by the military authorities of this country. Any existing civil health services would be made use of, and a public health service under military control would, so far as circumstances admit, be organised on lines in accordance with a scheme, the general features of which have been promulgated in army orders.

They may be briefly stated as follows:—

Firstly, the formation of the Sanitary Inspection Committee, already mentioned, which would work under the general officer commanding-in-chief. This committee would consist of a combatant officer as president, an engineer officer, and a specialist sanitary officer of the R.A.M.C., and would assist in co-ordinating the work of the civil and military authorities, initiate important schemes of general sanitation, serve as a Board of reference for the solution of sanitary problems, inspect stations occupied by troops, advise civil sanitary authorities in respect to sanitary measures as may be found necessary, ascertain that all sanitary appliances and materials are duly supplied for the use of the army, and report to headquarters as to any arrangements necessary which cannot be adjusted locally.

Secondly, we have the location of the personnel of the Royal Army Medical Corps, who have been specially trained in sanitation. They would be posted as sections or squads on the lines of communication at points where they may be specially required for such duties as the charge of water supplies, the supervision of fatigue parties or civilian labour hired for conservancy purposes, and for the performance of sanitary police duties. Their work would be performed under the supervision of specialist sanitary officers of the Royal Army Medical Corps, upon whose shoulders would fall the responsibility for safeguarding water and food supplies from contamination, for the proper disposal of refuse and excreta, and for other duties usually coming within the scope of those of a civil medical officer of health. For purposes of administration the lines of communication would doubtless be divided into a number of areas, each constituting a military sanitary district, and where necessary under a sanitary officer for public health purposes. The base would form a sanitary district, where there would be the principal laboratories for bacteriological and chemical work, and the headquarters of the Sanitary Inspection Committee

charged with the responsibility of correlating the work of the various districts.

The foregoing scheme would, of course, become operative as regards the Territorial Force in the event of it forming part of an expeditionary army abroad; but so far as service in Great Britain is concerned, although perhaps it may not be absolutely outside the limits of possibility, there is but very little likelihood of the question of sanitation on lines of communication engaging the attention of a Sanitary Inspection Committee should such be formed for service at home on mobilisation of the Territorial Force. Nevertheless, I think that sufficient has been stated to indicate that there would most likely be a large amount of work of a somewhat similar character in other directions for the committee to do, and I believe also it would be able to render very valuable service in co-ordinating where necessary the work of the military with that of the civil sanitary organisations of the various localities in which troops may have to be quartered. It is in connection with such work of co-ordination and organisation that the assistance of the *à la suite* branch of the Sanitary Service of the Territorial Force, which, it is perhaps hardly necessary to remind you, includes many eminent health officers of wide sanitary experience, would, I believe, be most especially useful.

Reference has been made to sections and squads of the Regular R.A.M.C. consisting of men specially trained for sanitary duties. These do not exist as such in peace times, they would be formed on mobilisation. In the Territorial Force, however, there are two definite units of the R.A.M.C. which are designated the 1st and 2nd London Sanitary Companies. They consist of men who have received a special training in sanitation, and I will now say a few words about them and the work they may possibly be called on to perform. They are army troops; that is, they would not in time of war be included in a field organisation like a Division. Their services would be made use of in connection with the army wherever the general officer commanding-in-chief might consider them necessary. During peace, for administrative purposes, they are attached to the 1st and 2nd London Divisions of the Territorial Force respectively. Each of these companies has an establishment of 5 officers and 100 other ranks, including 4 sergeants and 5 corporals. Taking the existing personnel, the officers and many of the non-commissioned officers and men have

more or less practical experience of sanitation in civil life, being either health officers or following occupations which more or less require sanitary knowledge. I need hardly dwell upon the importance of this. The point is one which should be borne in mind in recruiting for these units, and only men should be accepted who are likely to take a keen personal interest in their work. As to the manner in which these sanitary companies are to be made use of, I am not aware that there has been anything definitely laid down, but, in the event of them ever being required for active service abroad, they would in all probability be utilized in the way already referred to in respect to the Regular troops of the R.A.M.C. trained in sanitation—that is, they would be detailed as sanitary sections and squads for duties at the base and at important stations and posts on lines of communication. In this country, however, it is most likely that they would on mobilisation be distributed for duty in localities where important camps may be established, where large bodies of troops are quartered, at places through which troops are likely to be constantly passing—in fact, at any places where special sanitary supervision may be necessary for the protection of the troops as regards water supplies, sanitary accommodation and general conservancy. Their duties would be similar to those already referred to in the case of the sanitary sections and squads of the Regular R.A.M.C. The non-commissioned officers and men would act as sanitary police and discharge duties in many respects similar to those of sanitary inspectors in civil life. Upon the officers of these companies would lie the responsibility for making proper arrangements for detaching the parties of men as may be required and for generally supervising the work carried out by them. The officers might also be called upon for the performance of special sanitary duties and investigations. It is to be mentioned that officers of sanitary companies need not necessarily be medical men, but it is essential that they possess special knowledge in some branch of sanitary science, *i.e.*, public health, chemistry, bacteriology and engineering.

So far, reference has been made to the duties which are incumbent on every officer and soldier in respect to sanitation, to those of the medical officers of the Royal Army Medical Corps attached to units, and to the duties of divisional sanitary officers as regards formations of units. The advantages to be expected

from the institution of a Special Sanitary Inspection Committee, to be formed on mobilisation, and the work of the sanitary company have also been touched on. To complete this brief sketch a word or two are necessary as to the functions of the higher authorities. Just as the assistant director of medical services of the Division is the adviser on sanitary matters of the divisional commander, in like manner the medical officer senior in rank advises the officer who commands an army of two or more Divisions. The head of the medical department of the army is the Director of Medical Services or Director-General. He, with the assistance of such sanitary experts as may be necessary, advises on all matters which generally affect the army from a sanitary point of view, and through him are promulgated all sanitary regulations and schemes for the improvement or protection of the health of the military forces of the Crown. In conclusion, it may be stated that administration in respect to the sanitary service forms part of the duties of the Adjutant-General's branch of the general staff of the army under the Army Council, which, under the Crown, is supreme and responsible for the organisation, training and equipment of the army for war, and is therefore to be mentioned in connection with the Organisation of the Sanitary Service of the Territorial Force.

CAMP SANITATION.

THE following instructions have been issued in connection with the East Anglian Division of the Territorial Forces:—

INSTRUCTIONS FOR OFFICERS OF THE EAST ANGLIAN DIVISION ON CAMP SANITATION.

HEALTH OF TROOPS IN CAMP.

1.—The object of the Annual Training is to prepare for war. Physical health is the basis of physical efficiency; and the efficiency of troops in war varies with physical health.

In South Africa we had 7,000 deaths from wounds, but 14,000 from disease; and for disease we had 404,000 admissions to hospital and 73,000 men invalided home. Disease affects vitally not only the number and physical value but also the morale of the troops. Half the casualties from disease could be prevented and the effective strength thereby increased. In camp, men used only to civil sanitary conditions have to be trained to take care of their health in time of war.

RESPONSIBILITY.

2.—“The study of sanitation and the preservation of health is incumbent on every officer and soldier. The importance of sanitary measures whereby health is preserved cannot be over-estimated.

“The commander of every unit and formation is responsible for the sanitary condition of the quarters or localities

occupied by his command and for taking all measures necessary for the preservation of the health of those under him. He is responsible for seeing that each officer and soldier observes all sanitary orders and for the good order and cleanliness of that portion of a quarter or locality under his charge, irrespective of the period for which the latter may be occupied.” (Field Service Regulations, Part II.)

3.—The M.O. of every unit advises the C.O. on matters affecting the health of the personnel. He is responsible to the C.O. for the efficient execution of sanitary duties by the regimental sanitary detachment. Each unit is responsible for its own sanitation and that of any area it may occupy.

4.—Health is athletic fitness. It requires severe self-discipline, avoiding excess of every kind, keeping a true balance in every part of life. Attention may best be concentrated on the athletic ideal.

5.—The attention of all officers, whether medical or not, whether in command or otherwise, is directed to the following points, for which they will be held responsible.

FOOD AND DRINK.

6.—In feeding and drinking, care must be taken as to quantity and quality; as to proportion of ingredients; as to occasion and means of consumption. Insufficiency and excess are alike to be avoided, in meat, in jams and sweets, in puddings and fruits, as well as in alcohol and tobacco, in lemonade or in cold water.

Extra food, such as coffee and biscuits before early parade and fruits and fresh vegetables, conduce to health and efficiency.

7.—Food and drink may be contaminated in storage in preparation, in distribution or in consumption.

8.—Attention is necessary, therefore, in each unit to the kitchens, especially to the cleanliness of utensils and of hands and finger-nails; to the mess-tents, stores and bell-tents; to the canteens, Y.M.C.A. tents and hawkers within the lines and to places of refreshment outside. Refuse and empty tins, boxes, packing, etc., must be disposed of. Men's water-bottles and mess-tins must be cleaned daily. All edible substances must be protected from flies.

WATER SUPPLY.

9.—Water is one of the most precious and vital requisites of military efficiency. In camp, leaking taps must be stopped. On the march, water-bottles must be filled whenever possible, and used sparingly. Men must be taught the danger of refilling or drinking from tainted or doubtful sources. Most public supplies (taps) in this country are to be trusted. Filters of all kinds, except under medical supervision, are to be distrusted.

REFUSE-DISPOSAL.

10.—Latrines must be kept clean and free from flies. Each man must cover his deposit and paper before leaving. Dry earth and trowels must be kept handy to each seat. The orders of the sanitary squad are to enforce, not to carry out, these duties.

11.—Shallow-trench Latrines,* 3 ft. by 1 ft. by 1 ft. — 2½ ft. apart—with the turf and earth heaped in front of each, ready for replacement, and without seats, are the healthiest; they have to be used on the march; all men should learn to make and use them properly.

12.—The ground must never be soiled. Even amongst healthy troops a few men are typhoid carriers and may give rise to a most serious outbreak. In camp urine-tubs should be properly disposed, universally used and regularly emptied. Observance of these rules must be considered a vital part of military discipline.

13.—Horse-litter and refuse must be systematically collected on spots assigned and regularly removed or burnt in a destructor. Horse-lines must be kept scrupulously clean.

14.—Solid kitchen refuse must be burnt or stored in covered tubs till removed. It must not be allowed to litter the ground. It should be inspected by orderly officers to

* See official “Manual of Elementary Military Hygiene,” 1912, 97 PP., figs. 19. Price 6d.