

## THE SANITATION OF A DIVISIONAL CAMP.\*

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THE East Anglian Division was encamped as a Division for the first time on Thetford Warren, July 29th—August 12th, 1911. Had any invasion of the East Coast resulted from the recent international crisis, the Territorials first called on to prove the defensive value of the force would have been those forming this Division.

The experience of such a divisional training is of value to the sanitarian as an experiment in provisional sanitation,—the sanitation of a temporary town of healthy men living in a confined space under conditions of primitive but healthy simplicity.

† STRENGTH IN CAMP.—Roughly 8,000 men and 500 horses.

SITE, SOIL, DISPOSITION AND CONCENTRATION OF CAMP.—On the open Warren, north-west of the borough of Thetford, across and above the Ouse, which divides Norfolk from Suffolk; on either side of nearly two miles of road: the bell-tents covering some 140 acres, or an average of 57 men to the acre; on a soil varying from light loam to gravel, 1-3 ft. thick, overlying chalk. In the original scheme the kitchens were to have been placed along the road-front on the line of the water-pipe (which was laid on the surface along either side of the road), separated by the tents of each unit from the latrines which were disposed to the rear. But in fact the kitchens in many units were also placed in rear, under 50 yards from the latrines and so within the zone of fly-infection and over 100 yards from the water-pipe, necessitating much extra fatigue and diminishing the incentive to cleanliness. The relation of site to the

prevailing wind is of quite minor importance; and by reporting early on the subject I was able to get the kitchens, cutting-up sheds, messing tents and tents of grooms in charge of the horse lines removed to a minimum of 100 yards' distance from the latrines.

SICK-RETURNS.—The need of the sanitary officer to be informed of cases of sickness daily and in detail does not seem hitherto to have been recognised. Final returns from one field-ambulance are, however, typical:—

I. *General*.—Mumps 1; rheumatism 1; catarrh 4; heat stroke and heat exhaustion 6; debility (including 1 disordered action of the heart) 4.

II. *Mouth and Throat*.—Dental caries 6; sore throat 3; inflammation of parotid gland 1.

III. *Alimentary*.—Colic 5; dyspepsia or constipation 8; diarrhoea 9; dysentery (1?) 2.

IV. *Eyes*.—Conjunctivitis 3.

V. *Skin*.—Erysipelas 1; sunburn 4; skin diseases 5; insect stings 5; inflammation, including boils, 13.

VI. *Surgical*.—Sore feet 15; contusions 11; wounds 8; sprains 8; fractures 1.

This, then, represents the objective of the sanitary service, as a peace-machine; but it must be widened to include all the imaginable dangers of war. It is not sufficient for the Territorial Force to be content with the absence of disaster during a fortnight under the healthiest possible conditions. It must, in sanitation as in other respects, be trained for war.

ISOLATION OF INFECTIOUS DISEASE.—One case of mumps occurred and was sent home. Six contacts in the same tent were kept under observation, but on duty. Thetford has no isolation-hospital and any case of "dangerous infectious disease" would have had to be sent home, perhaps two days' journey, by ambulance-waggon.

WATER-SUPPLY.—The town supply, by deep wells from the chalk, was laid on by pipes before occupation. Considering that the supply, intended for a population of 5,000, was thus suddenly called on to provide for nearly 15,000, in an exceptionally dry summer, it is remarkable that the level of the water in the wells sank only 3 in. below its level in the summer of 1910. Dripping water taps caused some wastage and consequent diminution of pressure, which prevented the water reaching the end of the pipes. A cistern had, therefore, to be erected at the upper end of the camp, subsequent to occupation, and the power to

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### † TABLE OF INFANTRY MEASURE.

1,000 men	=	1 battalion.
4 battalions	=	1 brigade.
3 brigades	=	1 division.

A Division consists, therefore, of about 12,000 infantry. The accompanying units, necessary for its efficiency, are collectively named "Divisional Troops" as opposed to the Infantry Battalions. They include three batteries of Artillery with Ammunition Column and one squadron of Cavalry, besides Engineers, Army Service Corps (Food Supply and Transport), Ordnance (tents and kit), and three Field Ambulances with six ambulance waggons and one tent-division apiece, the latter representing the once independent field hospital of the South African War.

The medical arrangements, preventive and curative, are all under the direction of the Administrative Medical Officer, a Territorial Colonel, who is directly responsible for them to the General Officer Commanding. The Administrative Medical Officer is advised by his staff officer, a retired or seconded captain or major of the Royal Army Medical Corps, who carries out all the routine duties throughout the year in the name of the Administrative Medical Officer. For sanitation he is advised by a Sanitary Officer, a lieutenant-colonel or major of the Territorial Royal Army Medical Corps. But the medical work of each unit, for which the commanding officer is in each case held responsible, both curative and preventive, is in the hands of the medical officer of that unit, or, in his absence, of the quarter-master. All but the simplest curative work is carried out by the three field ambulances.

draw water had to be limited to certain hours. Such limitations are a bar to cleanliness and health in various ways. It should be the duty of the military police and of men detailed for sanitary duty to be responsible for the water taps and prevent leakage. But, as reported below, the sanitary organisation was wholly inadequate.

As to the quality of the water-supply, reference is made below to the grave danger of pollution from the deep-trench latrines.

FOOD SUPPLIES.—*Meat* was hung in a well ventilated canvas pavilion, transported from the Agricultural Society's Show-ground at Norwich. It was brought in sacks—chilled meat in the morning, British meat usually in the afternoon—hung in muslin and chopped up for distribution early on the following morning. Flies were absent.

*Bread* was of good quality, made from white flour, by Norwich contractors in a bakery erected for the occasion, which turned out 4,500 2-lb. loaves daily from two steam-heated ovens. Normally the bread was stored for one day before use. The tins in which the bread was baked were cleaned with lard, which was not at first kept clean. Complaints were made by some of the troops, who preferred bread made from "Standard" flour, and a recommendation was made in this direction for the future.

Hawkers of *Fruit and Ices* were kept under my direct supervision; and a recommendation was made for the occasional use of fruit in the regimental dietary.

The *Canteens* and the *Marquees* of the *Young Men's Christian Association* were inspected from time to time with regard to quality and condition of dry goods and liquids sold and with regard to cleanliness. Mineral waters and other non-alcoholic drinks were sold more than beer, which was the only alcoholic drink sold in the men's canteens.

The sale of "Liver Pills" and penny packets of aperient salts was discontinued as opposed to the King's Regulations. No other drugs were sold.

DISPOSAL OF REFUSE.—Camp refuse is disposed of under the following heads:—

- (i) *Human* refuse, solid—Buried in latrines.
- (ii) Ditto liquid—Collected in buckets, (1) by day in the latrines, (2) by night under posts in the lines; and emptied into urine-pits behind the lines.
- (iii) *Horse* refuse—Burnt, buried or removed.

(iv) *Kitchen, Mess* and *Canteen* refuse—moist solid (or swill). Buried or removed.

(v) ditto dry-solid—burnt.

(vi) ditto liquids—emptied into kitchen-pits.

(vii) *Ablution Waters*.—Emptied into ablution-pits.

Three sets of soak-away pits are thus required for urine, kitchen waste and ablution waters respectively. The top soil of the camp site at Thetford was suitable for this purpose, especially where gravel prevailed. The chalk beneath, however, did not admit of rapid soakage.

The most serious defect lay in the construction of the *latrines* on the single (4-ft.) deep-trench principle. This was especially dangerous at Thetford, where the latrines cut deep into the chalk and might easily, especially in rainy weather, have polluted the deep wells, less than a mile distant, on which the borough and whole camp depended. According to Lieutenant Colonel Melville's estimate\* there will probably have been 15 typhoid carriers in camp.

Moreover the deep trench latrines require much attention to keep faeces and paper covered and prevent the paper in dry windy weather from being blown about the camp. There being no sanitary squads in the units of the Territorial Force, as in the regular army, this unpleasant duty fell to defaulters or fatigue-parties and was not well carried out. After all, Territorials in camp are still volunteers and on their holiday.

Multiple, short, parallel, shallow-trench latrines—a foot or so deep, easily dug, renewed and filled in—are recognised to be more correct in every way and more convenient. The user squats across the trench in a natural position, covers his faeces and paper naturally and leaves the bacteria in the surface-soil to do the rest. But the apparatus of wooden seats and partitions for the deep-trench system exists and must be used! And the alternative system of pail closets, to be scavenged by contract, although recommended in this case by the Administrative Medical Officer as the most sanitary, is the most cumbersome and least efficient for military purposes. One system should be taught and practised throughout the Territorial Force, as essential as their uniform and drill, and that is the system of shallow trenches, the system naturally practised already on the march.

\* Journal of the Royal Sanitary Institute, April, 1911 Vol. xxxii p. 241.

Prevention of soil pollution from *wine* in standing camps is improving.

The disposal of *swill and of horse litter and manure* seldom presents any difficulty. But there is little farming round Thetford; few pigs are kept; and such farmers as there are were then busy with harvest. The alternative is the limited method of burial or the equally wasteful but cleaner method of burning—a method that would be most difficult in wet weather.

The *refuse-destroyer* is the cardinal factor of modern camp sanitation. Every unit should make one immediately on entering camp. At present few officers or men have any knowledge of their construction and the result shows an instructive variety, both in style and efficacy. Some were dug out and lined with flint stones, laboriously collected off the ground; some were built up of turf or chalk loam, with a dressing of clay; empty meat tins were used to promote draught; corrugated iron was bent round to make chimneys; and various ingenious devices were introduced. Some were admirable, and, burning or smouldering night and day, devouring every scrap of refuse within the lines, would have struck envy into the souls of many medical officers of health, who are burdened with the problem of refuse-destruction.

*Liquid-refuse* was run off into pits. But the greasy liquids soon choked the pores of the chalk and the pits filled up quickly, unless grease-traps were provided. These had to be improvised from small wooden cases out of the canteen, filled with bracken or hay and let into the side of the pit. This necessary detail requires systematisation.

CLOTHES.—The extreme heat made it desirable to reduce clothing to a minimum; but putties, whose warmth is proverbial, were still worn by some units on the hottest days, shewing the further need for combatant officers of realising the physical conditions of military efficiency.

On the other hand coats were frequently left off for morning parade. In this case sleeves were often rolled up and the shirt left open, a practice which resulted in many cases of tiresome sunburn, mostly of chest and forearm.

It is regrettable that the uniform is not washable. It would be well if a washable drill kit could be introduced, low at the neck, perhaps with a light wool waistcoat for use in the colder hours.

*Boots and socks* were frequently the cause of sore feet; but this was seldom if ever the case with ordnance-boots or with new and clean socks. Regulations should be introduced for the washing of socks at least twice a week; and socks should be repaired when necessary.

*Barbers' Shops* were inspected and appeared on the whole to be properly managed.

SLEEP.—It appeared occasionally to be forgotten that sufficient sleep is essential to health and strength, and that rules on the subject should be strictly observed. Officers should both set an example and enforce it.

To sum up the factors of sanitary efficiency in the Territorial Force, we will first take the Commanding Officers of units. To impress sanitary responsibilities on Commanding Officers of units except on a few rare occasions was impossible; to do so on medical officers was not easy; and unless Commanding Officers realise the need of sanitation, the medical officers cannot be expected to make any great effort to improve it.

Steps should therefore be taken to make the commanding officers, medical officers and quarter-masters realise the importance of their sanitary duties and the way in which they should carry them out.

Next as to the *field ambulances*. These are not sanitary units; their function is essentially curative. But they should set an example to the other units in carrying out their own sanitary duties; their camp should be a pattern for other units to copy. At Thetford it cannot be said they took this place. Good work was done here and there. But neither the rank and file nor, with few exceptions, the officers were sufficiently impressed with their sanitary responsibilities or acquainted with matters of military sanitation.

Then as to the *Medical Officers*. The Territorial Force is in a serious difficulty, as compared with the regular forces, in that its medical officers, being drawn from the most part from medical practitioners in civil life, have little knowledge of sanitary practice; and neither on joining nor afterwards is it sufficiently impressed on them that on their advice to their commanding officers depend the health and so to a large extent both the lives and the morale and efficiency of troops, in their respective units. Their curative work gives them little to do; they are but filters between the troops and the field ambulances; and as a rule they spend most of their time in camp as interested spectators. They should

be required to be present at the early parade, to instruct the sanitary detachment in their duties for the day; to inspect the sanitary arrangements, more especially the refuse destructor, every morning before breakfast and again before night; and after breakfast to accompany the orderly officer or the commanding officer of the unit in his inspection of the camp. On the first day after arrival in camp, and again at intervals of every three or four days, they should meet the A. M. O. and the Div. San. O. to report and discuss questions relating to their sanitary duties. If such duties were expected of them they would be willingly performed; and if due credit were given for their performance, the annual training would probably be regarded as a period of useful experience and service, and would increase the attractiveness of the R.A.M.C. (T.)

In the absence of regimental M.O.'s. the sanitary duties of quartermasters and quartermaster sergeants must be emphasised. For this purpose the small manual of military sanitation is most useful; but a new edition is most urgently required. Copies should be issued freely and should be an obligatory item in the kit of those concerned in camp.

*The sanitary organisation* in the units requires serious attention. Returns should forthwith be required throughout the division as to the strength of R.A.M.C. men "attached for water duties," and the means for recruiting and using them should be made the subject of inquiry. It seems a needless waste of material to confine them to water duties. They should be available for all sanitary duties, since in the Territorial Force, operating only in the United Kingdom, their water duties will as a rule be comparatively light. It seems evident that they should be recruited as R.A.M.C., and should serve in camp as divisional troops; to camp together, but to be posted as units, as directed by the A. M. O., under the supervision of the Div. San. O., and in each unit to supplement and direct the work of the pioneers and fatigues. At present they are aliens both in the regiments and in the field ambulances, and are deprived of the chief social and technical advantages for which the T.F. must depend in all its branches both for its popularity and efficiency. It should also be considered whether a sanitary detachment of one sergeant—rather than a corporal—and one man from each company should not be assigned

to sanitary duties in every unit, as is already the case in the first London division.

Consider now the RELATIONS WITH CIVIL SANITARY ADMINISTRATION. For each annual training it should be made the first duty of the Div. San. O., on behalf of the A. M. O., to establish relations with the county and district medical officers of health of the neighbourhood, to ascertain from them and report the sanitary circumstances of military importance to the proposed camp and to the intended operations, and to invite them in turn to visit the camp and discuss the relations established between civil and military sanitation. Their friendly criticism would be of first value and they would appreciate the rare opportunity of making acquaintance with military sanitation in practice. A similar opportunity might well be extended to all medical officers of health in the area of the division.

Moreover, I would suggest a far more intimate and permanent association between the civil and military sanitary systems in the organisation and operations of the Territorial Sanitary Service. The T.F. differs from the regular army in that it will operate only at home, where reliance up to a considerable point may be placed on civilian administration and its cordial co-operation. It is inadvisable therefore to devise schemes for independent sanitary surveys on behalf of the Territorial Force without first considering the information available from civil sources. Both county and district medical officers of health are resident in or near their respective areas; are usually on the telephone, and hold their offices with rare change. They are bound to be acquainted with the water supply, food supply, drainage, geology, topography of the districts; with the prevalent conditions of health, and the available means of disposal of refuse or isolation of infectious sick. The county medical officer is in touch with all the district medical officers of health in his county and by nature of his work can generally find time, as it is his duty, to consider the influence of any sudden influx of population into his district, whether in the nature of harvesters, hop-pickers, fruit-pickers, gipsies, navvies or military troops.

In time of war this would be an invaluable asset. It would be the greatest possible mistake, even if feasible, to take the district medical officers of health from their posts, in which they could indirectly afford invaluable help to the troops by maintaining a network of sound military conditions throughout the

country. But the county medical officers of health could give their whole time and services, if needs be, for a time to the assistance of the Territorial Force.

In time of peace the same considerations hold good and should therefore be adopted. The Divisional Sanitary Officers should be county medical officers of health within the areas from which their Divisions are drawn. It should be their first duty to establish relations with other county medical officers of health in the area; and it is these officers, and these only, with the addition of any gentlemen who may have had previous experience of public health work, if they are available for service in case of need and are not indispensable by reason of borough or district employment, who should be given *à la suite* commissions in the Sanitary Service of the Territorial Force.

Each division would thus possess a staff covering in their civilian capacities the whole area comprised in that of the division, and the Div. San. O. would thus have a complete machinery with which to prepare the sanitary surveys that should now be prepared without further delay. This would involve no demands on the civil administration beyond those for which the civil law already provides; whereas the survey at present being undertaken on behalf of the Territorial Force in certain parts of the county are partial in the extreme, and have given rise to considerable complaint from the civil officials called on, merely as an act of courtesy, to comply with the requests of the Divisional Sanitary Officer.

Such co-operation involves, it is true, the goodwill and some expenditure of time and trouble on the part of district medical officers of health, whenever they may be asked to contribute their share of local knowledge, or to assist in the preparations for a summer's camp. But the basis of national defence by a citizen army must ever be that each should contribute according to his ability; and civilian officials may well be content to play their share in this way without asking for rank and uniform, which would involve them in serious expenses and duties in peace, and in war would make them liable to be shot by the enemy, if found in civil garb. Such appears to be the solitary privilege at present of that anachronism the *à la suite* officer.

A MEDICAL CENTENARIAN.—Dr. Edgar Jones, of Great Banstead, Essex, recently entered upon his 103rd year.

## THE TENURE OF OFFICE OF MEDICAL OFFICERS OF HEALTH.

UNDER a General Order of the Local Government Board, a Poor Law medical officer who resides within his own district can only be removed from office by the authority who elected him provided the Board sanctions such removal. It was quite evidently the intention of the legislature that medical officers of health should enjoy the same freedom from capricious dismissal, for sec. 10 of the Public Health Act, 1872, which afterwards became sec. 191 of the Public Health Act, 1875, gave to the Local Government Board the same powers with regard to the tenure of office of a medical officer of health any portion of whose salary is paid out of Imperial funds, as the Board already possessed in the case of a Poor Law medical officer. For some reason or other the Board has never exercised its powers in this respect to the full, for the General Orders dated November 11th, 1872, and March 23rd, 1891, instead of following the precedent of the Order under which Poor Law officers are appointed, permitted and indeed required that a medical officer of health should be appointed for a limited period. Year after year instances were made public by the Society of Medical Officers of Health, by the medical press and through reports of the medical inspectors of the Local Government Board, of grave injustice to individual officers and of serious injury to the public interests in consequence of this insecurity of tenure of an official who, more than any other public officer, was likely, by a conscientious discharge of his duty, to come into conflict with the members of the authority upon whom his periodical re-election depended. As long ago as 1886, Dr. R. Bruce Low, before he was associated with the Local Government Board, in a discussion at the Sanitary Institute, said that if a medical officer of health were too active, the members of the electing authority made it their aim to get rid of him and replace him by someone who would be less obnoxious, because less active.

The Board's General Order of December 13th, 1910, marks an important step in advance. By this document the custom of periodical re-election was prohibited and certain encouragement was given to electing authorities to appoint their medical officers of health without reference to time, in which case these officers could only be got rid of with the sanction of the Local