CAMPS, BILLETS AND BIVOUACS.

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On Active Service, the actual choice of an area for occupation and the distribution of troops therein, is determined by military necessities. When not in proximity to the enemy the health and comfort of the troops are the first consideration. (Field Service Regulations, vol. ii, para. 169.)

The selection of a camping ground is made by a staff officer, accompanied by an officer of the Royal Engineers and an officer of the medical service holding a hygiene appointment. (F.S. Regs., vol. i, sec. 177, and vol. ii, sec. 181, Training and Manoeuvres Regs., sec. 56.)

Hospitals and camps for personnel should invariably be placed away from the railway main lines.

In the case of camps for personnel, provision of railway communication is not an absolute necessity and the further they are away the safer they are. (Manual of Movement (War), sec. 84, paras. 11 and 12.)

It should be a rigid rule that permanent or semi-permanent buildings are not to be erected until full consideration and approval have been given by the approved engineer and medical authorities.

When permanent or semi-permanent camps are necessary the design of the hut depends on the theatre of war. The subject is dealt with in Military Engineering, vol. vii. (Manual of Field Works, sec. 96 (7).)

Having regard to the tactical situation, the primary considerations are the arrangements necessary to safeguard the health of the troops, which include the supply of water, the facilities for obtaining shelter and fuel, and the delivery of stores and supplies.

The general principles to be observed are given in F.S. Regs., vol. ii, sec. 180-188.

Some important notes for camps and bivouacs are given in the Field Service Pocket Book, chap. II, sec. 10, which are followed by diagrams for camp arrangements.

It is recommended that sites of old camping grounds should be avoided. There is always the possibility of the ground and water supply being contaminated.

Camping grounds should be allocated definitely to mounted troops, dismounted troops and convoys respectively. Infantry camping grounds should not be used by mounted troops.

Gently rising ground facilitates drainage of surface water and if covered with grass and sheltered from north and north-east winds is most favourable for camping sites. A subsoil of gravel, sand or chalk is preferable, but
with a chalk subsoil the possibility of contamination of water supplies must be borne in mind.

The site for occupation by the troops should be selected with a view to the possibility of a prolonged occupation and should include sufficient area for expansion and provide a halting place for convoys.

First-class roads are essential approaches to a large encampment, therefore the relation of a good road to the proposed site for a camp should not be overlooked.

The sites considered least suitable for camps are: high hills and steep slopes, because of the difficulty in pitching tents. Narrow valleys, ravines and dry river beds, because of flooding during rains. Rocky ground, in which it will be difficult to dig pits. Large woods with heavy undergrowth. Low-lying meadows, which usually have a high subsoil water. Heavy clay soil, as the ground easily becomes waterlogged and is generally unsuitable for soakage pits.

When in the tropics endeavours are to be made to avoid sandy or desert places which have extremes of temperature, lack shade, and where intestinal diseases are likely to be carried by the mechanical irritation of sand. Low-lying marshy ground, and such places where mosquitoes are known to breed, should be avoided.

Native villages and irrigated surroundings are possible causes of water contamination and the prevalence of flies; they are also subject to outbreaks of contagious disease.

**BILLETs AND BIVOUACS.**

Instruction will be given in the occupation and preparation of billets and bivouacs. Men will be taught the importance of sanitation, and how to prepare food and look after their own comfort in circumstances resembling as closely as possible those of active service. (Infantry Training, vol. i, sec. 137.)

Simple shelters made with branches, hurdles, blankets, waterproof sheets, etc., are described in the Manual of Field Works, sec. 96, and in the F.S. Pocket Book, sec. 10, para. 43.

Types of bivouacs for a cavalry regiment, battery of artillery, and for units with many vehicles are shown on Plates I, II and III, F.S. Pocket Book.

Bivouacs admit of concentration and readiness, but are trying to the health of men in cold and wet weather and should be resorted to only in cases of tactical necessity. (F.S. Regs., vol. ii, sec. 169 (5).)

Billeting exercises are carried out when opportunity occurs, the object being to train officers and men in the telling off and the occupation of billets. (Training and Manoeuvre Regs., sec. 45, para. 1 (vi) and para. 2.)

Instructions for billeting parties in regard to the selection and preparation of available accommodation, the water supply, local sanitary system,
the possible existence of infectious disease and for handing over occupied billets, are given in the Army Manual of Sanitation, paras. 155 to 158, and F.S. Regs., vol. ii, sec. 176.

It is considered that in houses having rooms between 15 feet and 25 feet in breadth, the maximum accommodation is two men for each yard of the length, and in rooms more than 25 feet broad three men for each yard of the length.

Data regarding accommodation in billets are given in F.S. Pocket Book, sec. 10.

In billets, particularly in close billets, some overcrowding is often unavoidable and special attention must be paid to ventilation. Doors and windows should be kept open whenever possible. Billets should be left scrupulously clean. (F.S. Regs., vol. ii, sec. 178 (3) (4).)

The closest hygienic supervision is necessary to mitigate the danger consequent on overcrowding, particularly when billets are used by a succession of troops.

Lay-out of a Camp.

The general rules for laying out a camp are given in the F.S. Regs., vol. ii, secs. 186 and 188. The direction of the prevailing wind should be noted before siting the sanitary area and pitching the tents. In all camps and bivouacs provision must be made for the following conservancy arrangements: latrines, urinals, night urinals, strainers and pits for greasy water, drains and pits for disposal of surface water and water from ablution benches, refuse pits or incinerators, manure dumps.

Latrines, urinals, refuse pits, horse-lines, etc., are to be placed at least 100 yards from the field kitchens and from any source of water supply. (F.S. Regs., vol. ii, sec. 183.)

A system of surface drainage should be constructed. The importance of camp drainage and the method of cutting drainage trenches and surface drains is mentioned in F.S. Regs., vol. ii, sec. 186, which states that “half an hour’s work on the first wet day, when the natural run of the water can be seen, will do more to keep the camp healthy than a day’s work in dry weather.”

Surface water must be prevented from running into wells by brick or concrete coping. (Manual of Field Works, sec. 97 (11).)

The conservancy arrangements will be explained to the men of the unit on arrival in camp before they are dismissed. (F.S. Regs., vol. ii, sec. 172.)

A plan showing the general sanitary principles to be followed when laying out a camp, is given in the Army Manual of Sanitation, fig. 21.

Tents.

Troops will not be under canvas in the United Kingdom between October 1 and April 30, without approval of the G.O.C. (King’s Regs., para. 1626.)
The accommodation for all ranks and services and the scale of articles allowed for standing camps, camp hospitals and camp equipment for manœuvres, is shown in Equipment Regulations, sec. 10 and Appendix VII.

The internal diameter of a circular tent is 13 feet 6 inches, the floor space is 143 square feet, and the air space 500'5 cubic feet.

Normally one circular tent is to accommodate: one field officer or two junior officers, or ten N.C.O.'s and men; and on manœuvres the accommodation is: one commanding officer, or three other officers, or twelve other ranks.

Seven and a half yards should be allowed from centre to centre of circular tents. (F.S. Pocket Book, sec. 10, para. 42.)

The pitching spaces for other tents are: store tent, 60 feet by 75 feet; large hospital marquee, 80 feet by 55 feet; small hospital marquee, 45 feet by 40 feet.

In camp the usual interval between units is ten yards; between companies of infantry three yards; between squadrons and batteries the interval may be reduced to one yard. Tent flies are to be looped up the first thing every morning. Tents are to be struck periodically, the ground well swept and left exposed some hours at least, the tents being eventually replaced on their former sites. Tents should never be pitched for occupation in the "intervals." (F.S. Regs., vol. ii, sec. 186.)

Tentage exposed to infection is not to be returned to store until it has been disinfected. (King's Regs., para. 1360. Regs. R.A.O.C., para. 351.)

Wood bottoms for circular tents will be issued on the authority of the G.O.C. when, owing to the dampness of the ground or to other causes, their use is certified to be necessary by the D.D.M.S. (Equipment Regs. para. 257 and 258.) Applications should be carefully considered by local medical officers and only submitted to headquarters when the issue is essential for the health of troops. Wooden tent bottoms are to be removed and scrubbed weekly.

Marquees or store tents are provided for food preparation tents, dining tents and recreation tents. Food is not to be stored in men's tents and waste food is not to lie about either in or around them.

The scale of blankets and ground sheets issued to troops in standing camps is, two blankets and one ground sheet for each W.O., N.C.O., and man. The manœuvre scale is one blanket and one ground sheet, but a second blanket for each man is stored in ordnance departments in the manœuvres area ready for issue if specially ordered. The G.O.C. may authorize the issue of additional blankets in cold weather. (Equipment Regs., Part I, para. 254 and Appendix VII.)

Bedding is to be placed outside the tents every day for airing.

When palliasses are issued straw is supplied at the rate of twelve pounds for each man. The straw is exchanged every thirty-two days. Without
palliasses or ground sheets seventy-two pounds of straw may be supplied
for every five soldiers. (Allowance Regs., para. 691.)

The used straw is sold by the R.A.S.C. supply officer. The quantity of
old straw should be at least seventy per cent. of the palliass straw issued.
The straw is obtained through the R.A.S.C. officer in charge of barracks by
indent on Army Book 30 and is accounted for in the unit's Fuel and Light
Return, A.F.F. 727.

**WATER SUPPLY, ETC.**

The regulations governing the water supplies for troops and animals,
when arrangements have not been made as a R.E. service, are: (1) The
water supply is selected in conjunction with the responsible medical officer.
(2) Permanent water guards are detailed. (3) Supplies from a stream are
marked with flags; white for drinking water, blue for watering places for
animals, red for washing or bathing places. (F.S. Regs., vol. ii, sec. 182.)

The source of the supply must be carefully investigated, and measures
taken to prevent the pollution of the water between the source and "water
point." Wells must be tested at the earliest opportunity and each well
clearly marked as fit for drinking or for washing purposes only.

Whilst bivouacked in a temperate climate a daily average of one gallon
per man is sufficient for drinking and cooking purposes; the allowance
should be increased to two or three gallons per man in the tropics. In
standing camps an average allowance of five gallons should be given for a
man and ten gallons for a horse. (Manual of Field Works, sec. 97.)

The R.E. Manual on "water" recommends that each unit should
arrange for storage of water.

Tanks and piping for water supply may be issued by the nearest officer

Water supply stores are shown in the Manual of Field Works, Appendix IV, Table 14. (Note: The tanks waterproof 1,500 gallons, closed,
are obsolete.) Water distribution stores are allowed on the following
scale: Cavalry regiment, three sets; R.H.A. and R.F.A. battery, one set;
infantry brigade, two sets. Each set weighs approximately 4 cwt., and
consists of one lift and force pump;¹ one trough, 600 gallons and ten
standards; four lashings (one inch by thirty feet) and one line Hambro;
four picket posts, two feet six inches.

Vessels or tanks in which drinking water is stored are to be carefully
covered, to keep out dust, etc., and they should be raised off the ground and
provided with taps. Drinking direct from water taps should be strictly
prohibited.

Arrangements must be made for cleaning out the tanks by scouring
them with boiling water, or chemicals provided for the purpose, before they
are taken into use and periodically whilst they are in use.

¹ A lift and force pump in good order can supply 600 gallons an hour at a com-
bined lift and force of 60 feet with 4 men at work.
Water tanks and water bottles must be periodically inspected by a medical officer as well as frequently by platoon and other commanders. (F.S. Regs., vol. ii, sec. 173 (4)).

Instructions for T.A. Camps, para. 111 refers to the purification of water for drinking purposes by boiling, filtration, or addition of chemicals, as may be directed.

Paragraph 112: (a) Men who have had enteric or paratyphoid fever or dysentery; (b) men who are suffering from syphilis; (c) men who are employed in connexion with latrines, urinals or disposal of refuse, are not to be employed in: (i) The handling or purification of water for drinking or cooking purposes; (ii) the preparation or serving of food; or (iii) the cleansing of utensils used for the preparation of food.

Paragraph 113: The advice of the medical officer should invariably be obtained as to the source from which water for drinking purposes is to be obtained, and the necessity or otherwise for special purification. The strictest supervision is necessary to prevent contamination particularly in camps where water is not laid on by pipes.


Instructions for the collection of samples of water for chemical examination are given in Appendix 7, Regulations for the Medical Services of the Army.

COOKING ARRANGEMENTS.

It must be clearly understood that efficient arrangements for the preparation, cooking and serving of food play an important part in maintaining efficiency and resistance to disease. Every effort should, therefore, be made to maintain as high a standard of cooking as is possible under the difficult conditions of service in the field. (F.S. Regs., vol. ii., sec. 173 (2).)

All tins containing food will be carefully examined and none will be accepted which bear traces of rust round the joints, or which are badly dented. Blown tins will always be rejected. (Manual of Military Cooking and Dietary, 1924, as amended by Army Order 326 of 1925.)

Certain articles of food (e.g., vegetables and fruit) and drink are frequent sources of disease. Milk (other than sterilized or condensed) should be boiled before use. (F.S. Regs., vol. ii, sec. 173 (5).)

Arrangements for cooking in the open are described in the Manual of Field Works, sec. 98, and types of ovens and cookers are shown in plates 132, 133, 134 and 135; also in plates X to XIV, Field Service Pocket Book. The area allotted for kitchens should be placed to windward of the camp as far away as possible from the sanitary area.

Cooking apparatus: camp kettles, oval, twelve quarts, one for eight N.C.O.'s and men; ovens, Aldershot pattern, two per battalion; Soyer's stoves four per battalion, to be issued only when coal is used, as the use of
wood fuel in Soyer stoves is prohibited; butcher's implements, one set in a case for each unit.

Cooking utensils, including ovens and stoves, are frequently issued by R.A.O.C. with a coating of spirit lacquering, varnish or mineral jelly to preserve the iron work, and care must be taken to ensure that this preservative is burnt or wiped off before the articles are taken into use. (Equipment Regs., Part 1, para. 250.)

Weather-proof cover should be provided for cooks to enable them to prepare food properly and to provide for the storage of rations. A simple timber framework with end, sides and roof of corrugated iron will suffice. The roof should have a good fall. (Manual of Field Works, sec. 98.) A collapsible meat safe is described on plate 136.

A cooking shelter is shown in R.E. Services for Territorial Army Camps, fig. 8.

Overhead screens to protect the cooks from the heat of the sun are not included in Appendix VII (Equipment Regs.), but it is interesting to note that they are mentioned in the priced Vocabulary of Stores, sec. 2. The dishes which were issued with the Aldershot oven are intended for baking bread. They are unsuitable for cooking meat and they have been replaced by baking dishes 15 inches × 12 inches × 4½ inches with drop handles. Each dish is capable of baking meat and potatoes sufficient for thirty-two men and nine dishes can be accommodated in an oven at one time. (List of Changes in War Material. No. A 1693, dated June 30, 1926.)

Fuel for cooking, three pounds of wood per day are allowed for each person. (Allowance Regs., para. 184.) Before camp kettles are returned to store they are to be cleaned with caustic soda and greased with mineral jelly.

Two eight-gallon washing tubs are allowed for each dining marquee.

Special precautions should be taken to prevent ground in the neighbourhood of kitchens becoming fouled. (F.S. Regs., vol. ii, sec. 188(4).)

Travelling kitchens are not to be used in standing camps or where it is possible to construct field kitchens. Their use is restricted to brigade training, divisional training and manoeuvres. (Equipment Regs., Part I, para. 144.)

SANITARY AREA.

A definite area to leeward of the camp, as far as possible from the water supply, should be set aside as a "sanitary area," and in this area the latrines, urinals, incinerators, ablution benches, soakage pits, etc., should be placed. Filtration from the area must not reach the water supply.

Where bodies of troops are encamped or bivouac together, the horse lines, cooking places and sanitary area will be arranged by the O.C. troops in consultation with the A.D.M.S. (F.S. Regs., vol. ii, sec. 181 (4).)

Whenever possible the medical officer attached for regimental duty and at least two of the sanitary personnel should proceed with the advance party to make preliminary arrangements; when the camp is vacated a proportion
of the sanitary personnel should remain behind to assist in cleaning up the site and ensure that the ground is left in a sanitary condition.

On vacating a camp a certificate will be prepared in duplicate certifying that the camp site is in all respects left clean. (Instructions for Territorial Army Camps, para. 41.)

Latrines and urinals must be commenced immediately after arrival in camp or bivouac, even if these be only of a temporary nature, to prevent casual fouling of the area. A printed notice (A.F.W. 3322) was issued during the war which reads, “After using the latrine throw some loose earth into the trench.”

The normal percentage of latrines is 5 per cent up to 500 men, and 3 per cent for a larger number.

Separate latrine and urinal accommodation is required for officers, warrant officers, N.C.O.’s and men, and for natives. (F.S. Regs., vol. ii, sec. 183 (4).)

Latrine screens are allowed on the following scale: one for officers, one for N.C.O.’s and two for a company of infantry. An additional screen may be issued for a bathing place if considered desirable.

Latrine paper, twenty reams are allowed for 100 persons, per annum. (Allowance Regs., para. 651.)

In all types of latrine covered boxes will be provided for latrine paper. (F.S. Pocket Book, sec. 41, para. 27.)

Deep trench latrines should not be dug in chalk soil. They cannot be used where the level of the subsoil water is high. (F.S. Pocket Book, sec. 41, para. 24.)

Field urinals are made by allowing eight foot run of trough for every 100 men, the soakage pits should not be less than three feet deep. (Fig. 9, R.E. Services for Territorial Army Camps.)

Night urinals are placed at each side of the ground for men’s tents and one in the vicinity of the canteen.

These should be clearly marked “For night use only” and a lamp should be placed over each. The scale of camp equipment includes hurricane lamps for this purpose.

In standing camps, notice boards should be erected showing the position of latrines, urinals, refuse pits, etc. (F.S. Regs., vol. ii, sec. 188 (5).) Aldershot Command Standing Orders require the sites for the night urinals to be marked with a pole. This arrangement is to direct attention to the urinals and strict orders should be issued and enforced to prevent fouling of the camp site.

Urine pits are generally prepared, but when urine buckets are necessary they are to be emptied twice daily. Night urine buckets are to be removed at reveille. All surfaces exposed to urine will be painted daily with a thin coating of pan oil, and one tablespoonful of pure cresol placed in each urine bucket when empty.

The R.E. Services for camps allow six per cent seats for the strength of
the rank and file, which includes separate seats for the N.C.O.'s. One seat
is allowed for every ten officers.

The bucket system is only allowed when the owner of the camping
ground objects to trenches or the medical officer recommends the use of
buckets. (Equipment Regs., Part III, para. 138; Instructions for Terri-
torial Army Camps, para. 70.)

At encampments where local conditions or circumstances render it
impossible, or, in the opinion of the G.O.C. undesirable to dig trenches for
latrine purposes and the pail latrine system has to be resorted to, latrine
buckets¹ and urinals (and scoops) may be issued in the following propor-
tions to the contractor engaged to remove the soil: latrine buckets (a) twenty
per cent for officers, ten per cent for other ranks (Equipment Regs., Part I,
para. 259). (b) Tubs, urine, eight per battalion and in proportion for
smaller units.

When the bucket system is in use, the removal of night soil is arranged
for by the R.A.S.C. as directed in A.C.I. 253 of 1922.

Arrangements are to be made to ensure that the service is performed
efficiently: the contractor's bill is certified accordingly by the O.C. before
being passed for payment.

After being emptied and cleaned the buckets are smeared inside with
pan oil.

One gallon of water containing three tablespoonfuls of saponified cresol
will be placed in every clean bucket in the latrine.

ABLUTION PLACES.

The site for the ablution places depends on the water supply. Washing
should only be allowed at some distance from the water supply. (F.S.
Regs. vol. ii, sec. 182 (5).)

Where ablutions are of necessity performed on the banks of a stream
care must be taken to dispose of waste water at such a distance from the
stream that it undergoes soil filtration before it gains access to the stream.
(Army Manual of Sanitation, fig. 8.)

The ground surrounding the ablution place should be covered with
coarse gravel to keep it dry.

The Army Manual of Sanitation, fig. 20 and the R.E. Services for
Territorial Army Camps, figs. 4 and 6, show the forms of benching and
soakage pits used.

Two washing-tubs, 3½ gallons, are provided for every tent occupied by
N.C.O.'s and men. (Equipment Regs., Appendix VII.)

Channels should be made to carry the waste water to a trap to strain off

¹ Only one pattern and size of bucket should be issued for latrine purpose. They are
described on p. 324 of the priced Vocabulary of Stores as "Latrines, dry earth, buckets
soil." (a) Cleaned by the contractor under the special conditions defined in the contractors'
tender whether for "Closet Service," "Closet and Scavenging Services," or "Removal of
privy soil." (b) Cleaned by the unit.
the scum, before the water enters a soakage pit or a herring-bone system disposal. (F.S. Regs., vol. ii, sec. 183 (2) v.)

Waste water from ablution benches, kitchens, etc., must be freed from grease before being discharged into soakage pits. (Manual of Field Works, sec. 97 (11).) Several forms of grease trap are shown on plate 139.

Bathing arrangements are necessary; the F.S. Regs., vol. ii, sec. 173 (9), states that arrangements for baths for the troops are of the utmost importance. Bathing piquets of expert swimmers are to attend the bathing places. Instructions for resuscitating the apparently drowned are to be posted up at the bathing places. (King's Regs., para. 761.) Territorial Army Regulations, para. 154 amplifies King's Regulations by stating that, if the bathing takes place in deep water, there shall be provided a boat afloat with a boatman and a good swimmer. The bathing picquet should be provided with life-buoys and life-lines.

If bathing places are not available, a swimming bath can be improvised with a water-tank, 2,300 gallons, described in the Priced Vocabulary of Stores, p. 30.

When the situation permits units should make local arrangements for hot baths. A sharp watch must be kept for the appearance of lice, scabies and other skin affections which are easily and conveniently detected by careful inspection at bathing parades. (F.S. Pocket Book, sec. 41 (3).)

A description of a portable shower-bath suitable for use in camps is given in the Army Manual of Sanitation, fig. 36.

Disinfectants.

The usual disinfectants, lime, cresol, pan oil, etc., are supplied by the R.A.S.C. officer in charge of barracks on the certificate of the medical officer.

Clarifying powder and water sterilizing powder are obtained from the R.A.S.C. officer in charge of supplies.

For general use cresol solution in the proportion of 1½ ounces to one gallon of water is the most suitable disinfectant. (F.S. Pocket Book, sec. 41, para. 14.)

Disposal of Refuse and Rubbish.

The keynote of camp sanitation is conservancy.

Camp refuse must be collected and burned, the residue being buried. In camps and bivouacs numerous small receptacles (sandbags, small baskets, etc.), must be provided for paper, cigarette tins and other rubbish, (Manual of Field Works, sec. 100.)

Temporary incinerators of turf, etc. (or refuse pits) are required not later than the first day of arrival of troops in camp.

These are replaced, as required, by more permanent incinerators. Several types are described in Army Manual of Sanitation, figs. 28 to 32.
Pits are to be filled in on leaving the camp and the sites marked. (F.S. Regs., vol. ii, sec. 183 (5).)

Camp refuse, wet or dry, should be placed in suitably covered receptacles. The receptacles should be distinguished by having words "wet refuse" and "dry refuse" painted on them respectively. They should be thoroughly cleaned with hot water when emptied.

Swill should be removed by a contractor once daily or oftener if necessary.1

If a contract for the removal of swill cannot be made it should be buried in deep pits.

Refuse must never be left in open pits. If pits have to be used the contents should be covered daily with a thick layer of earth. (F.S. Pocket Book, sec. 41, para. 20.)

**Drying Sheds.**

The necessity for the provision of a place in which the men may dry their wet clothing has been recognized. Braziers and fuel are issued on the certificate of the medical officer that these are a necessity. Aldershot Command Order, 1162, dated August 25, 1924.

The Territorial Army Instructions for Annual Camps, paras. 67 (v) and 120 refer to this service. Sixty pounds of wood or thirty pounds of coal are allowed per diem, for each stove or brazier used in authorized drying sheds when the medical officer renders a certificate that the issue is a necessity.

A simple framework of wood and cord, or wire, for drying clothes is described in fig. 37, Army Manual of Sanitation.

**Horse Lines.**

Horse lines should be so situated that the horses do not have to cross traffic routes to go to water. (F.S. Regs., vol. ii, sec. 169, para. 12 (vii).)

The Field Service Pocket Book, Chapter 2, gives further particulars for choosing a site for horse lines. Plate 6 shows the site at the rear of a camp and in the vicinity of the sanitary area.

A horse when picketed requires 3 to 5 yards between picket line and heel pegs; 5 feet between head ropes. (F.S. Pocket Book, sec. 10, para. 46.)

Horse and cattle lines should be cleaned regularly and the dung removed. Special orders must be issued regarding the disposal of manure. (F.S. Regs., vol. ii, sec. 173 (8); sec. 188 (4).)

The Instructions for Territorial Army Camps, para. 38, provide for the

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1 The special conditions in the tender for "Closet and Scavenging Services" under the sub-head Scavenging provide for the provision of receptacles with properly fitting covers and for emptying, cleansing and deodorizing the receptacles for ashes, dry refuse, greasy water and swill.
disposal of manure and the necessary arrangements are usually made by the R.A.S.C.

If such arrangements cannot be made, manure may be dumped and close-packed on a selected site not less than one mile from camp. Types of incinerators are shown in figs. 45, 46 and 47 of the Army Manual of Sanitation and the method of close-packing manure is described in para. 191 and illustrated in fig. 48. An excellent method for storing manure and trapping all fly larvae attempting to leave the heap has been evolved by Captain E. Baber, South African Medical Corps. It is described in the Journal of the Royal Army Medical Corps, vol. xlv, No. 6, December, 1925, pp. 443-452.

Precautions against Flies.

"Flies are a source of disease and care is necessary to prevent them from breeding in horse-dung, dirt and refuse and from coming in contact with food." (F.S. Regs., vol. ii, sec. 188 (4).) Measures for the destruction of adult flies must not be neglected, but they can only be regarded as secondary to those which aim at prevention of breeding.

In all camps and bivouacs the utmost care will be taken to prevent the ground being fouled with excreta and refuse.

All foodstuffs must be protected from flies and dust. Meat safes should be provided in all units for the protection of food from flies. Latrine pails and trenches should be fly-proof. Horse-dung, stable litter and other refuse, which form natural breeding places for these insects, must be carefully disposed of. Spraying should be done in the evening or early morning when the flies have settled on the roofs and walls. After spraying the flies should be swept up and buried as many may not be killed outright. (F.S. Pocket Book, sec. 41, para. 21.)

A few handfuls of chloride of lime thrown inside deep trench latrines, morning and evening, act as a deterrent to flies that may try to gain entry when the latrines are being used.

Anti-fly measures to be taken by troops are described in A.C.I. 360 of 1922. Castor-oil and rosin is issued from ordnance stores for the preparation of "tangle-foot." The Manual of Military Hygiene contains instructions for dealing with the adult fly. The use of fly traps, fly papers and wires, fly poison, fly flappers, spraying with cresol or sodium arsenite mixtures are described in section 80 and Appendix VI of the Manual and in paras. 197 to 203 of the Army Manual of Sanitation.

Personnel.

Medical officers are charged with advising general and other officers commanding who will be held responsible if such advice is neglected without adequate reason. (King's Regs., para. 84.)

The officer in medical charge of a unit is responsible to its commander.
for the efficient performance of the work of the regimental sanitary detachment.

The commander is responsible that all ranks render a loyal and intelligent assistance to the medical officer in the performance of his sanitary duties, and that the efficiency of the unit is not impaired through neglect of or non-compliance with sanitary rules. (F.S. Regs., vol. i, sec. 178.)

The Territorial Army Instructions for Camps (para. 111) require the medical officer to give systematic instruction to the sanitary and water duty personnel and also to the regimental pioneers, their duties being intimately connected with sanitation.

The officer commanding is to provide the medical officer with a nominal roll of the N.C.O.'s and men trained in sanitary and water duties, and these men are to be paraded separately when the unit is being inspected by the D.D.M.S. (T.A. Instructions for Camps, para. 93.)

Officers will pay particular attention to the health of troops in camp. The responsibility for the efficient supervision and for the remedy of sanitary defects rests on the commanding officers. (Territorial Army Regs., para. 34.)

Under all circumstances strict attention to the sanitary conditions of men's accommodation has a direct bearing on the efficiency of a Force. (Manual of Field Works, sec. 96.)

Amongst the pioneer staff are men who can perform the work of a carpenter, bricklayer, mason, painter and decorator, gasfitter and plumber. (King's Regs., para. 1495, and Peace Establishment, 1926, 1927.)

The arrangements for field sanitation depend largely on the skill of the pioneers who have to improvise the necessary articles from any available material. The pioneer staff carry out skilled construction work; other men of the unit are trained in the work of sanitation for troops, both in barracks and in the field.

The establishment of sanitary and water duty personnel of an infantry battalion is given in the War Establishments as follows:—

"Headquarter Wing": (1) One corporal and three men for water duties and two men for sanitary duties. "Each Company": Two men for sanitary duties.

The Territorial Army Instructions for Camps (para. 111) shows sanitary personnel as follows: Two men for units under 250 strength; one N.C.O. and three men for units over 250 strength; and one N.C.O. and eight men for units over 400. Water duty personnel: Units with one water cart two men; units with two water carts one N.C.O. and three men. (See also Territorial Army Regulations, paras. 399, 400, and 452.)

DUTIES.

The duties of the sanitary personnel are: To act as sanitary police in order to prevent soil pollution and to supervise:—
Camps, Billets and Bivouacs

(1) The preparation and care of latrines and urinals, including the filling in of the same and marking of old sites;

(2) The systematic collection, removal, and disposal of refuse (by burning or otherwise);

(3) The construction of ablution places and the disposal of waste water;

(4) The sanitation of transport lines and cooking places in the area occupied by the unit.

See also Territorial Army Regulations (paras. 400 and 455, and Territorial Army Instructions for Camps, para. 111).

The pioneers are to assist if necessary in cleaning the lines.

The personnel engaged on water duties will not be employed on sanitary duties. Their duties are: (1) The daily supervision of water supply and its purification; (2) to take charge of all the apparatus and stores connected with the water supply of the unit. (F.S. Regs., vol. i, sec. 178 (3 and 4).)

Where special means of purification are adopted requiring personnel in excess of the normal allotment for water duties, two men per company or corresponding unit may be specially detailed for working the apparatus and providing pure water. (F.S. Regs., vol. ii, sec. 173 (4).)