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THE SOLDIER'S FRIEND
or
The Means of
PRESERVING THE HEALTH
of
MILITARY MEN

Addressed to the OFFICERS OF THE BRITISH ARMY

-by-

WILLIAM BLAIR, A.M.

Surgeon of the Lock Hospital and Asylum and
of the old Finsbury Dispensary.

PRO REGE ET PATRIA

LONDON

Published by Mr. Longman; Messrs. Verner and Hood;
Messrs. Murray and Highley; and Messrs. Hookham and
Carpenter. Sold also by Messrs. Mudie & Sons,
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.....
The manuscript and press were in which I have been called upon to prepare
this publication, has left room for the exercise of your common
and intelligence. It is, however, upon the whole, I shall have been instrumental
in saving the life, or preserving the active services, of one faithful soldier,
the short intervals of leisure I have been able to devote to this work, amidst
a variety of professional occupations, will be abundantly recompensed.

Wm. Elair, 1798
Great Street, Finsbury, London.
WILLIAM ELAIR

PREPATORY ADDRESS

On the Importance and to the
OFFICERS OF THE BRITISH ARMY

Gentlemen,

The peculiar exigency of the present times, and the unaccustomed hardships to which many thousands of my loyal countrymen may soon be exposed, must give weight and importance to the subject on which I have presumed to address you.

The following pages contain not only the result of my own observation, and that of several experienced friends whom I have consulted; but, likewise, the substance of what has been written by the best authors, on the means of preserving the health of military men. How much it is in your power, Gentlemen, to preserve the health of the British soldiers, and at how comparatively small an expense this may be done, will scarcely be credited by those who have not maturely considered the subject.

The celebrated Sir John Fringle has observed that "although most of the causes of diseases can hardly be avoided in times of actual service; yet as these only dispose men to sickness, and do not necessarily bring it on, it is incumbent on those who have the command, to make such provision as shall enable the soldier to withstand most of the hardships of a military life. It is almost needless to add," says he, "that the preservatives from diseases are not to depend on medicines, nor on anything which a soldier can have in his power to neglect." And Dr. Blane, who has written ably on the diseases of seamen, remarks that, "it could be made evident, in an economical and political point of view, independent of moral considerations, that the lives and health of men might be preserved at a much less expense than what is necessary to repair the ravages of disease."

Although the well known humanity and sympathising regard of British Officers to their fellow-soldiers, afford the strongest ground to believe, that every attempt of this nature will meet with due attention and patronage; the unexpected and pressing manner in which I have been called upon to prepare this publication for the press, has left room for the exercise of your candour and indulgence. If, however, upon the whole, I shall have been instrumental in saving the life, or preserving the active services, of one faithful soldier, the short intervals of leisure I have been able to devote to this work, amidst a variety of professional avocations, will be abundantly recompensed.

I have the honour to be,

Sc. Sc. WILLIAM BLAIR

March the 20th, 1798
Great Russel Street,
Bloomsbury Square,
London.

GENERAL PRINCIPLES

OF

THE DUTY OF THE SOLDIER

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CHAPTER I.

On the importance and practicability of preserving the health of soldiers

Health is the main spring of action, both in public and private affairs: it is that, without which all our notions must languish, and our designs become vain. The health of an army must therefore be of equal importance with its existence; or rather, I should say, an army without health is a burden to the state it was intended to serve.

In modern times the issue of a campaign is as frequently determined by sickness as by battle. In all European armies, more men are sacrificed by disease than by the sword; and the laurel is at least as often withered on the hero's brow by the perpetual blast of contagion, as torn from it by the nervous arm of strength.

That sickness is not the necessary consequence of military life, may be learned by adverting to the accounts remaining of the campaigns of the ancients. Among the circumstantial details of the operations of Julius Caesar's well disciplined army, in a variety of climates and situations, no mention is made by that commander of any enterprise having been defeated by the sickness of his troops; nor does he notice any other sources of disease, than those which were the inevitable result of the casualties of war.

Hence may be deduced the possibility of preserving the health of armies; which, as we are informed by Xenophon's institutions of Cyrus, used to constitute a part of the regular education of every man intended to command.

A long sea voyage was formerly considered as one of the most unhealthy situations to which a man could be exposed; but within a few years Captain Cook has demonstrated, that by the institution and steady enforcement of proper prophylactic regulations, a ship's company may be conducted round the world, exposed to every variety of climate, and all the hardships and dangers of the sea, with a smaller proportional loss of men than would have happened in any other given situation.

By the introduction of his plans, the mortality which has prevailed in the navy of late years, is certainly much diminished; but regulations equally efficacious have not yet been adopted in the army. There is little room to doubt, however, that the power afforded by military discipline of enforcing regularity among the men, makes it possible to render the life of the soldier more healthy than that of persons in general, who are left to the freedom of their own will.

The preference justly given to old troops, arises chiefly from their being always fit for their duty. Experience teaches a veteran soldier a variety of matters relative to the preservation of his health, with which the fresh recruit must necessarily be unacquainted. As it is the business of no particular person to teach the young soldier this useful knowledge, he can only acquire it from experience; and too often he is cut off, before this slow, but necessary, course of education can be completed. It becomes therefore the duty of every officer, who has at heart the real good of the service in which he is engaged, and whose superior opportunities of information have made him acquainted with the conduct which it is proper to pursue, to enforce the practice of regulations which tend to obviate disease, as well as to exemplify a daily attention to them in his own conduct.

At the present period, when the necessary defence of the country calls numbers of men, accustomed to sedentary and domestic employments, as well as to full living and indolent occupations, into the field; where they must submit to the hardships and fatigues of a military life; an attention to the preservation of their health becomes peculiarly requisite; that the effective strength and well being of the nation may be maintained as much as possible.

The accommodation of the troops at large, is provided for by the general staff; and that of the individual sick, by the superintendents of hospitals, and other subsidiary medical arrangements. In no service is the welfare of the sick or wounded soldier more an object of attention than in the British army. With these arrangements it is not at all the purpose of the author's plan to interfere. Its object is merely to furnish the soldier with that practical knowledge, which may prevent his name from appearing on the sick list; and at once preserve his own comfort, as well as the integrity of the army, of which he constitutes a part.

A contrast should be made with a butcher, to supply the man with fresh meat, principally beef, at a regulated price. Then on a warm day, the place of consumption should be indicated to him, as readily as possible. He ought to be there with his knife and fork, and when the meat is served, he should begin to eat, and not wait until the soup is served and the fire lighted, every man should be provided with the due allotment of animal food.

Nothing is so agreeable, and at the same time so wholesome to a soldier, after a fatiguing and perilsous day's march, as a good soup.

* The use of soup or broth is particularly advantageous after great fatigue, because, on those occasions, the digestive organs are weakened and less liable to bear solid food than at other times.

CHAPTER 2.

Of Food

The importance of proper diet to the preservation of health is universally acknowledged. The food of a soldier may be coarse, but it should be wholesome and abundant, such as the labourers of the country are accustomed to use. Such, and even better, the present pay of a British soldier, if properly laid out, can well afford.

The men ought to be divided into messes, and proper stoppages made from their pay to provide food. It should be the business of an officer to see that the meals be regular, sufficient, comfortably cooked, and that the men behave at them with due decorum. Great care ought to be taken to prevent the introduction of corrupted flesh, mouldy or half baked bread, spoiled corn, mixed flour, and other nutritious substances of a bad quality. By the careless or mercenary conduct of purveyors, a foundation has often been laid for the most destructive army diseases.

One meal of animal food is sufficient for a healthy man in twenty-four hours; and it would be a good regulation, were that meal taken some hours later than is at present the custom in camp. Digestion is best performed while the body remains at rest. Military exercises should therefore be avoided as much as possible immediately after eating; and those men whose duty calls on them to watch during the night, would be better supported by a full, than an empty stomach. Besides, it would be accustoming a man at all times to what he must necessarily submit to when on a march: it is then impossible to have a comfortable meal, till the fatigue of the day be over, nor even till some hours after the tents are pitched, and the encampment formed.

A contract should be made with a butcher to supply the men with fresh meat, principally beef, at a regulated price. When on a march, the place of encampment should be indicated to him, as nearly as possible. He ought to be there with his cattle at the same time with the army; and when the tents are pitched, he should begin to kill, and cut up: so that as soon as the camp is formed and the fires lighted, every mess should be provided with its due allotment of animal food.

Nothing is so agreeable, and at the same time so wholesome to a soldier, after a fatiguing and perhaps a wet march, as some warm soup:

* The use of soup or broth is particularly advantageous after great fatigue, because, on these occasions, the digestive organs are weakened and less liable to bear solid food than at other times.

To boil the meat, is therefore the mode of cooking which ought to be most generally used in the army. Every effort should be made to procure vegetables to boil along with the meat. It is not necessary to be very delicate in what are selected for this purpose. Besides the various kinds of cabbage, parsnips, onions and potatoes, which are universally approved of: when these cannot be procured, the wild or water cress, the brook lime, the scurvy grass, the wild sorrel, and lettuce, which are to be found in every field, make wholesome as well as agreeable additions to soup. When in a fixed camp, soldiers should be encouraged to cultivate various kinds of culinary vegetables, and especially potatoes.

It would add much also to the salubrity as well as the nutritious qualities of these soups were every mess to have a certain quantity of barley; or, which affords more substantial nourishment, decorticated oats, cut groats, dried peas, or rice, to add to their broth.

Fresh animal food should always be provided if possible. When circumstances, however, render it necessary to subsist on salted provisions, their injurious consequences may be considerably mitigated by paying proper attention to their goodness, as well as to the mode of dressing them.

If salted beef or pork be not spoiled, it appears, when cut into, of a faint red colour; on attempting to tear the fibres asunder, they resist with a certain degree of coherance; the fat is firm, and without any putrid smell. If, on the contrary the meat appear black or discoloured, when cut into: if the fibres readily break when pulled asunder: or if the fat be flabby, or emit an unpleasant smell, it is no longer wholesome food.

Before salted meat is boiled, it should be carefully washed with repeated affusions of fresh water. The scum which arises to the surface during boiling should be diligently removed, and not permitted to be eaten. As a proof of the utility of attending to these circumstances, Dr. Marshall* cites the example of a new-raised regiment which, on its arrival at Gibraltar, lost a number of men at a time when the garrison was very healthy; which at last was found to be owing to their ignorance of the proper mode of preparing salted provisions.

Officers might always be provided with a quantity of portable soup; after fatigue, they will find it very comfortable and refreshing, as well as easily and quickly prepared.

Ripe fruits, in moderate quantity, are wholesome; and contrary to the vulgar prejudice, tend rather to prevent than to induce bowel complaints. Unripe fruits of all kinds, especially stone fruits, are well known to be injurious, and should never be eaten raw. It was observed, during the late war in America, that the German regiments, who always cooked or stewed with

* Differtatio inauguralis, de tuenda Salute Militum

their meat whatever fruits the country supplied, escaped many diseases, from which other troops engaged in the same service suffered severely. Their sour kraut also preserves them from putrid complaints, and might be introduced with advantage into our armies.

In order to prevent the scurvy running through an army, during a season when fresh meat and vegetables are likely to become scarce, it would be prudent to have a large quantity of potatoes, onions, garlic, mustard seed, leeks, sour kraut, pickled cabbage etc., and sub-acid fruits, laid in store beforehand; these might be sold in moderate quantities, at a low rate, during winter; and all means should at the same time be used to oblige the men to form themselves into messes, and buy a little fresh meat daily: this would encourage the butchers to supply them, and make it worth their while to accommodate the army. Fermented malt-liquor, cyder, and acescent drinks, ate at no time more useful than when the scurvy is beginning to make its appearance. On such occasions, the Russian quass-loaves would be particularly wholesome and convenient for making small beer: these are composed of oat or rye meal mixed with ground malt: and when made into cakes with plain water, are baked and kept for use. They make a pleasant acidulous liquor by being infused twenty-four or thirty hours in boiling water, with a little dried mint or any other aromatic herb.

During the prevalence of bloody fluxes, the men ought to be allowed plenty of farinaceous vegetables, such as groats, barley, rice, potatoes, and dried peas; but they should refrain entirely from pot-herbs and green fruits *. On these occasions, they should also use fat and mucilaginous broths, or sago, and a little astringent wine, if it can be procured good; but meagre wines and fermented liquors would be pernicious to their bowels.

It has been observed, that the custom of taking a light and warm breakfast, such as tea or coffee, renders men delicate and susceptible of taking cold. So much were the leaders of the French impressed with the truth of this remark, that I have been informed, by a gentleman who was himself an eye-witness of it in one of their northern armies, that warm breakfasts were strictly prohibited; every man was allowed half a pint of good wine, which he took with his bread; Few of these men were unfit for duty, although the weather was extremely severe. It may be laid down as a maxim, that a soldier will be able to bear fatigue and hardship with vigour

* No objection is to be made, however, against the free use of RIFE fruit.

and alacrity, in proportion as he lives well. In this country, a pint of good porter, or sound ale, might be substituted for wine. A man should not be allowed to purchase this at pleasure; it should be regularly issued and the expense stopped from his pay.

Cheap, excellent, and nourishing puddings may be composed of boiled barley, molasses and ginger.

Bread, emphatically termed the staff of life, is what the soldier chiefly depends on for support. While an army is in motion, it is difficult to furnish it in abundance, and with regularity. Various contrivances of moveable mills and camp ovens to grind corn and prepare bread, are well known. It is settled, but perhaps erroneous custom, to furnish armies with bread fermented and baked into the form of loaves. Biscuits would, on many occasions, be preferable; a loaf becomes mouldy and uneatable in a few days, biscuits will keep in perfection for months; bread baked amid the hurry and confusion of an army in motion, is apt to be improperly prepared, when it is very unwholesome; But the goodness of biscuit made at a distance and with regularity, may always be depended on. The example of sailors, and of the Irish and Scotch, who hardly ever taste fermented bread, are satisfactory proofs of the wholesomeness of biscuit. In my opinion it produces a firmer flesh, supports exertion better, and is at least as digestible as bread; It has also the advantage of being less bulky, and therefore more portable. The hardness of biscuit is removed by soaking it in warm water; and the rawness or doughiness of bread is in some measure corrected by toasting it. To officers, a small provision of what is termed rusk, will often be found agreeable and convenient.

The following observations on cookery are intimately connected with the subject of this chapter.

As man eats scarcely any food that has not undergone some kind of artificial preparation, which generally tends to render it more nourishing and palatable, the art of cookery, as productive of both those effects, certainly merits more attention than is commonly bestowed upon it. Since the celebrated Count Rumford has demonstrated how much the nutritious qualities of food may be augmented by due preparation, and how a very small sum of money, properly applied, is sufficient to support a man in perfect health and strength, it has indeed been an object of more general attention. The Count says that "The Bavarian soldiers, who are the finest, stoutest, and strongest men in the world, and whose countenances shew the most evident marks of ruddy health, and perfect contentment, supports himself on less than twopence

sterling a day; his whole pay, including the allowance of ammunition bread, amounts to no more than twopence three farthings per day, of which he saves at least two-fifths."

Although this gentleman had served in various armies, he alleges that "there is no soldier in Europe whose situation is more comfortable than that of the Bavarian". Such are the effects of economy and skill in cooking, and of wise regulations in laying out money.

It was once my design to have inserted in this chapter several of the plans of preparing food, lately introduced in this country; which tend at once to render it more palatable and more nourishing, as well as greatly to diminish expense; This purpose, however, I have at present laid aside, lest I should exceed the intended limits of my publication, and step a little out of the tract which some persons would prescribe to a medical writer. I shall content myself therefore with laying before my readers a few hints relative to the general principles on which the comfort and economy of the soldier's diet depends, and leave to individuals the task of applying them to their peculiar tastes and circumstances.

"All those who have been conversant in military affairs", says Count Rumford, "must have had frequent opportunities of observing the striking difference there is, even in the appearance of the men, between regiments in which messes are established, and fed is regularly provided under the care and inspection of the officers; and others, in which the soldiers are left individually to shift for themselves. And the difference which may be observed between soldiers who live in messes, and are regularly fed, and others who are not, is not confined merely to their external appearance; the influence of these causes extends much farther; and even the moral character of the men is affected by them".

The subsequent observations of Mr. Somerville are too important to be omitted.

"As soon as a regiment has taken the field, the soldiers composing it should be divided into regular messes, consisting of not more than five or six men each. The usual way of dividing them

* On this interesting subject, the economical soldier will be well repaid for perusing Count Rumford's instructive and masterly essays, *Nihil tetigit quod non ornavit*.

to be made of ten, twelve or even fifteen men each, is liable to many objections. It is seldom, indeed, that a sufficient degree of harmony prevails among so many men to render their mess comfortable; to which may be added, that a large mess is always productive of less comfort, and more dirt, than a small one; when these circumstances are maturely considered, the balance will be found to lean considerably to the side of small messes.

"In all cases, where butchers meat constitutes a bulky or essential part of the food of privates, whether in camp or elsewhere, they should be obliged to boil, and make soup, or barley broth of it; and for that purpose, barley should make a part of the stores in every camp; an article, which at the same time that it is cheap and easily obtained, forms a rich and valuable nourishment."

"Our reason for proposing to boil, and make soup of butcher's meat is, that when dressed in this manner, it is not only more easily digested than that which is roasted, but the soup or broth, made from the boiling, forms a valuable and nourishing article of food; which, under proper management, makes the allowance go much farther than it would otherwise do."

"When fresh fish constitutes the principal part of the food of soldiers, especially the different kinds of white fish, it should always be made into fish and sauce; as, when dressed in that way, it is not only a very agreeable food, but the sauce, or soup, made by the boiling, adds greatly to its value."

"Where either salt fish or salmon is used, however, it should be boiled in sea-water, which not only saves the expense of salt, but also renders the food more agreeable; even very old salt beef is improved, and rendered more palatable, by first steeping and afterwards boiling it in salt water."

"We have been more particular upon the article of boiling, and making soup in camps, not only from a conviction of its forming a better food, than does the ordinary way in which fish and butchers meat are dressed amongst soldiers, but also from a certainty that something considerable is gained by the practice."

"It is surprising to see the aversion which the generality of soldiers have to the boiling of meat, or the conversion of it into broth or soup; when left to themselves they always prefer roasting both their fish and butchers meat, a practice which ought to be discouraged; as roasted meat not only forms a heavier meal than that which is boiled, but is at the same

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CHAPTER 3.

Of Drink.

The limited pay of a private soldier appears a sufficient security against his injuring himself by indulgence in the use of intoxicating liquors; such however is the propensity of mankind to inebriety, and so totally is prudence obliterated by indulgence in this vice, that men will often spend what should have supported them for days, in producing one fit of drunkenness. Intoxication not only renders a man unfit for the duties of a soldier while he is under its influence, but it undermines his constitution, diminishes his strength of body and firmness of mind, and renders him more susceptible of the influence of all the exciting causes of disease.

It would be well, were the promiscuous sale of distilled spirits to soldiers wholly prohibited; in hot weather they are peculiarly injurious. The mortality of our troops in the West Indies, has been attributed, by every medical writer, as much to the intemperate use of spirits, as to the effects of the climate. It is not denied, that in some situations they may be necessary; but that necessity is to be judged of by the physician or commanding officer.

The ancients preserved the health of their troops by the use of vinegar. It was the only liquor that accompanied their armies. And no doubt its use tended much to prevent putrid complaints. The same purpose might surely be answered by it now. And were syrup of vinegar, or cream of tartar and sugar substituted, they would, mixed with water form a very pleasant, as well as a wholesome beverage.

The drink made of Russia quass-loaves has been noticed in the preceding chapter. Nothing more enables a soldier to endure fatigue, and to resist contagion, than the use of good ferment liquor and old port wine. In this country there should be an abundant supply of porter, ale, and spruce beer, in every camp. Considering the increased expense of a soldier in sickness, it might be well worth the attention of government to issue to every man, when in the field, a certain quantity, suppose half a pint, of old port wine, as a preventive of disease. This might be done at a very moderate expense, and compensated by adequate stoppages of pay, during the time it was requisite. It would also tend to wean the military from the pernicious habits of dram-drinking.

In cold damp weather, when a little spirit might be allowable and useful, soldiers would find a tolerable substitute in a draught of hot water with a teaspoonful of fresh-grated ginger in it.

This, in common cases would be of equal utility with spirituous liquors and does not possess the power of intoxicating. It should be remembered, that hot water or tea gives a temporary degree of tone to the stomach; but if it be drunk lukewarm, it relaxes and weakens that organ.

Perhaps it may be useful to soldiers of certain constitutions to know how they can make a cheap sort of drink, suited to their peculiar cases. Persons who are of a hot constitution, and inclined to be costive or feverish, will find advantage from a liquor made of infusing half a pound of bruised raisins in three quarts of boiling water; or, instead of the raisins, a quantity of dried currants, liquorice root, figs, prunes, or ripe apples. Those who are apt to be flatulent, and to have loose bowels, should use an infusion of dried pennyroyal, peppermint, or balm, occasionally; or they may drink freely of hot ginger tea when their complaints are most troublesome. Persons of a weak stomach and bad digestion, beside the last-mentioned article, would find benefit in taking half a pint of strong forge-water two or three times a day.

Water is the basis of all liquors, the only real allayer of thirst, the sole drink intended by nature for the use of animals. To have it pure and in abundance, is of infinite importance to the health of mankind in every situation. Its purity is judged of by its being colourless and void of taste or smell; by its lightness, its boiling vegetables tender, and dissolving soap with facility. Every effort should be made to procure water possessed of these qualities.

There are various methods also of correcting its defects. If hard, the addition of a little pearl-ash, salt of tartar, or salt of wormwood, will give it the properties of soft water; if muddy, the addition of a few grains of alum will cause the impurities to subside; Or it may be filtrated by forcing a piece of sponge or doubled flannel tight into any funnel-shaped vessel, a horn for example, and letting the water percolate through it; or by passing it through a barrel of clean sand*. An ingenious mode of clearing a muddy stream for the use of an army, is suggested in a late French publication. (see the cut at the last page.) - Brackish water, that is, such as has a certain admixture of sea-water, is peculiarly unwholesome, and ought to be avoided if possible. To mention the impropriety of using stagnant or putrid water is almost superfluous; but if this be indispensably necessary on any occasion, a small quantity of quick-lime, or some

* When there are no rivulets near a camp, and the water is supplied by wells, if it should happen to be turbid, it may be made clear by digging deep pits, covering the bottom and sides with large stones, and over these a layer of clean sand, gravel or chalk.

acid being added, will in a great measure, correct its ill tendency. Where there is room to suspect the eggs of insects, or little animalcules in water, it should always be boiled before it be drank; although it is questioned by some, whether this be a good practice in common.

Water is not only injurious as possessing noxious qualities, but also as being imprudently used. Innumerable are the examples of death being the immediate consequence of taking a copious draught of cold water when the body was heated by exercise. To such accidents, no class of men are more liable than the military. After a hot and toilsome march, the mouth parched and full of dust, and the limbs fatigued with exertion, it requires no small effort of steadiness and resolution to withstand the allurements of a refreshing stream; but let it be remembered that the draught, in such a state, endangers life. To this imprudence the greatest conqueror the world ever beheld nearly fell a sacrifice. Alexander, heated and fatigued, could not resist the temptation of plunging into the cool waves of the Cydnus; for the same effects take place whether the over-heated body be plunged into a cold fluid, or the water be taken into the stomach.

The symptoms, the cure, and the prevention of the disorder, produced by drinking cold fluids when over-heated, are so well described by Dr. Rush of Philadelphia, that I cannot do better than quote his own words.

"In a few minutes after the patient has swallowed the water, he is affected with a dimness of sight, he staggers in attempting to walk, and unless supported, falls to the ground; he breathes with difficulty; a rattling is heard in his throat; his nostrils and cheeks expand and contract in every act of respiration; his face appears suffused with blood, and of a livid colour; his extremities become cold, and his pulse imperceptible; and, unless relief is speedily obtained, the disorder terminated in death in four or five minutes."

"Punch, beer or even grog, drank under the same circumstances as cold water, have all been known to produce the same morbid and fatal effects."

"I know of but one certain remedy for the disease, and that is liquid laudanum". The dose of it, as in other cases of spasm, should be proportioned to the violence of the disease. From a teaspoonful

*Liquid laudanum, i.e. tincture of opium, is too powerful a remedy to be entrusted to the common soldier's management; and ought never to be given, but by the hand of a medical man or some discreet person who knows what he administers.

acid being added, will in a great measure, correct its ill tendency. Where there is room to suspect the eggs of insects, or little animalcules in water, it should always be boiled before it be drank; although it is questioned by some, whether this be a good practice in common.

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to a table-spoonful has been given in some instances, before relief has been obtained. Where the powers of life appear to be suddenly suspended, the same remedies should be used, which have been so successfully employed in recovering persons supposed to be dead from drowning*."

"If neither the voice of reason, nor the fatal examples of those who have perished from this cause, are sufficient to produce restraint in drinking a large quantity of cold liquor when the body is preternaturally heated, take the following precautions:

1. Grasp the vessel out of which you are about to drink for a minute or longer with both your hands; this will abstract a portion of heat from the body, and at the same time impart it to the cold liquor.
2. If you are not furnished with a cup, and are obliged to drink by bringing your mouth in contact with a stream which issues from a pump or a spring, always wash your hands and face previously to your drinking, with a little of the cold water; by receiving the shock of the water first upon those parts of the body, a portion of the heat is conveyed away, and the vital parts are thereby defended from the action of the cold."

The staff bandage that supports the neck and the tight ligatures that compress the extremities of the limbs and of the torso, should if possible be avoided. Respiration is in fact aided by the pressure of the hands pressing upon the chest. It is active compression, and often depends on rigidity of movement and compressibility of matter, but in a certain quality of the strength of each individual is adapted to counteracting the pressure on his system, so as to produce a certain equilibrium. The use of the

* See the chapter on Casualties.

The position of the body when the patient is lying down in their sleeping position, and their position when they are supported by their friends from the pressure of clothes, or the compression of ligatures. These are the means of forcing the patient's limbs into a position to maintain the body as little as possible, and of avoiding the necessity of carrying more weight than is absolutely necessary. Inasmuch, at present, persons are little attended to.

CHAPTER 4

Of Clothing

The military dress is, however, much more than a mere uniform. It is a piece of something more capable of resisting weather than the ordinary costume. The hat might be pointed with a visor, or the coat might have a collar held up on the back. It is possible to make a coat of mail, or of chain mail, or of plate mail, or of a mixture of these. The military dress is, however, much more than a mere uniform.

Clothing ought always be suited to climate and to seasons. In Europe, the general intention of clothes is to guard against cold. In effecting this purpose, care however should be taken that the body be not as much injured by pressure as benefited by warmth. In no part of the conduct of life have mankind more generally sacrificed utility and convenience to vanity and parade. Nor is this observation entirely unfounded, even when applied to the military.

The garb of the ancient Romans was warlike, because it originated at a time when the sole business of the nation was war. To the most vulnerable parts of the body it afforded protection, but gave free scope to the action of all the muscles and articulations on which agility depends.

The present military dress, on the contrary, is a modification of the garments of peace. To this unnatural origin many of its imperfections must, doubtless, be attributed: the same dress which is convenient for the purposes of civil life, can never suit the exertions and exposure that are the necessary concomitants of a state of warfare.

The stiff bandage that surrounds the neck and the tight ligatures that constrain the articulations of the loins and of the knees, should if possible be avoided. Freedom of respiration is no doubt also impeded by the pressure of the belts crossing upon the chest. In an active campaign, much often depends on rapidity of movement and promptitude of exertion, but if a certain quantity of the strength of each individual be exhausted in counteracting the pressure on his muscles, or in sustaining a perhaps unnecessary burden, the sum of the whole which might otherwise be employed in supporting unavoidable fatigue must be considerably diminished.

The prodigious length of axes that the natives of America make in their hunting parties, and their warlike excursions, can only be accounted for by their freedom from the pressure of clothes, or the incumbrance of baggage. Hence we may deduce the propriety of forming the soldiers' habitments so as to constrain the body as little as possible, and of avoiding the necessity of carrying more extra baggage than is absolutely necessary: circumstance, at present perhaps too little attended to.

The substance of which military dress is formed, merits also some attention. It surely might be made of something more capable of resisting moisture than its present spongy texture - the hat might be painted withinside, or varnished on the out: It should also possess a firmer hold on the head. At present it is so prone to absorb moisture that it will acquire an almost incredible increase in weight, during a shower of rain. The soldier does not always possess the means of drying it, and the continued application of a cold and damp substance to the head cannot fail to be productive of disease: similar evils must result from the wet paste with which the soldiers' hair powder is stuck on. I have myself seen it converted into ice. One use of the hair is, no doubt, to preserve a certain equality of temperature around the head: By converting it from a loose and spongy substance into a solid mass, by means of paste and powder, this intention of nature is directly counteracted. Whatever may be the necessity of wearing powder on the parade, might it not be with propriety dispensed with in the field? Its disuse would add to the cleanliness as well as to the comfort of the man. The truth of this suggestion as I have been informed by an eye-witness, was strongly illustrated at the time, when, by order of Prince Potemkin, that article of dress was laid aside in the Russian army.

Blue shirts, such as are worn by sailors, are I think preferable to white. There is something in the indigo, with which they are dyed, that is said to be inimical to vermin. On account of their colour, they would require less frequent washing than those now in use. By seafaring people they are universally considered as tending to preserve their strength, as well as health. But, at any rate, they might with propriety be adopted as nightshirts.

A soldier is frequently much incommoded by his stockings. The part within the shoe is apt to be wet, dirty or full of holes, by which the feet are irritated, and sometimes blistered*, they ought therefore to be washed and dried at every convenient opportunity. It has lately been proposed, by a French writer on the health of soldiers** to lay aside the use of stockings

* During the late hard winters, many benevolent persons have given away great quantities of a peculiarly cheap and warm stocking to the poor in their neighbourhood. Perhaps benevolence could not be better directed than in furnishing the troops with an extra allowance of the same article, if the severity of the season require it. They are knit of Shetland wool and sold at nine-pence a pair by Fisher in Bond Street, under the patronage of Sir John Sinclair.

** See La Sante de Mars, par Dr. Jourdan le Cointe, Paris, 1790

altogether, and to substitute in their place wide pantaloons extending to the shoe, and fastened under it with a strap. But on the propriety of such innovations I shall forbear giving any opinion.

A man accustomed to wear shoes is helpless and totally incapable of action when deprived of them. Every effort should therefore be made to render military shoes as strong and durable as possible.

Several very ingenious modes of fortifying shoes and rendering them waterproof have been suggested by Mr. R. Somerville, surgeon of the Calcutta hospitals. That which he most approves of, "consists in painting the whole of the leather of which they are made, on the wrong side with a coat of thin oil paint. This will enter the pores of the leather and fill them so completely that no moisture will penetrate, and will at the same time make the shoes last much longer."

"To do this effectively, the leather, both for the soles and the uppers, should be painted on the wrong side, and completely dried before it is cut into shapes, and after the shoes are made the seams and outside of the soles should also receive a coat of paint. The advantages derived from japanning and painting every kind of leather-work that is much exposed to the weather is well known, and experience proves that when defended in that way, it not only repels moisture but lasts double the time. The expense of painting the whole of the leather of a pair of shoes in this manner will not exceed a pence a testing. In order to derive the whole benefit from painting the upper part of the shoes, the leather should be as free from grease as possible for that purpose. The skins intended to be used in that way should be carefully painted on the wrong side before any oil is worked into them, after they are completely dry, the oil and blacking may then be applied. A skin so prepared will be found to resist every kind of moisture. Thus caution of painting, while the leather is free from oil, is very essential, for if the oil be applied first, the paint will neither dry nor enter into the pores of the leather."

Military shoes ought to be roomy and to rise high on the ankle, they might also be strengthened at the toe and heel by thin plates of iron, or the soles might be studded with nails, as the English peasants wear them. Were it possible to make them last during a campaign, a man would not be under the necessity of taking a pair at random from a magazine, which, from their not fitting, tend often to cripple him and obstruct the circulation in his feet.

The advantages of easy shoes was strikingly illustrated by some of our regiments who were in Canada during the late American war. Of those men who were obliged to substitute such shoes as are used by the inhabitants, formed of a piece of hide dressed with the hair, and simply tied on the feet by the corners, not one was affected by the

greatest advantage of the wide sole of the shoe is that it prevents the foot from being cramped and the circulation of the blood is not impeded.

Another advantage attending large shoes is that they admit of the introduction of some hay or straw. The utility of doing this may be learned from the practice of the waggons, who make such long journeys on foot. Nothing refreshes the feet more, nor enables them better to bear fatigue. But it ought to be renewed at every convenient opportunity.

Formerly it was the practice of those who were in the habit of using violent exercise, as running footmen &c. to wear round the loins a broad elastic belt, which, by supporting the contents of the abdomen, in some measure prevented ruptures, and certainly tended to favour agility by giving a firmness and point of support to the long muscles of the belly. Something of the same kind might perhaps, with propriety, form part of the soldiers' dress at present. It might be so contrived also, as to relieve the shoulders and chest from part of the weight of the side arms and cartouch-box, and would, on emergencies, be useful for the temporary deligation of wounds. But to adopt such a change would be incompatible with the present taste for military decoration. Any hint, however, that can tend to diminish the necessary quantity of baggage, to facilitate dressing and undressing, by simplifying his attire, or in any way add to the comfort of the soldier, ought not to be withheld.

During a campaign the cavalry are usually more healthy than the infantry. One reason assigned for this has been that they sleep more comfortably, from having their cloaks to cover them. A light blanket, which might be rolled up and carried on the knapsack of the foot-soldier would add considerably to his health, and but little to his baggage. The regiment called the Scotch Fusiliers formerly carried an appendage of this kind, termed a maul. It is proposed by Dr. Le Cointe, author of the *Sante de Mars*, that a light blanket, sufficient to cover two men, should be divided transversely, of which each should carry a half, to be joined together by buttons and loops fastened to the edges when required for use.

Those regiments, part of whose dress it is to wear spatterdashies or gaiters are less liable to sores than those who are without any such defence for the legs. According to Mr. Sommerville, the best substance to form them of is linen varnished and painted.

The wool of which soldiers' clothes are made should be dressed in oil. The expense would be trifling and it would tend to make them throw off moisture instead of absorbing it as they do at present. To interline the sleeves and shoulders of their coats with oil-cloth has been proposed with the same intention.

Dr. Koseley, and other writers on the diseases of troops in tropical climates, have given the most irrefragable proofs, that in these situations nothing tends more to preserve health than wearing woollen garments next to

the skin. In a versatile climate, like that of Great Britain, it has been advised that we rather endeavour, by a cautious and prudent exposure, to ensure the body to those alterations of temperature which we cannot obviate, than to encourage a premature turn of perspiration by artificial warmth, or to enervate the body by the constant irritation of flannel. But if men are obliged to keep the field till an advanced season, woollen clothing will be found the best defence against the cold of autumnal nights, or the bad consequences of encamping in damp situations; and it cannot then be dispensed with. Flannel drawers and under waistcoats are preferable to linings of the same material.

Those to whose long-continued habits of indulgence would render any attempt to recover the vigour requisite to withstand the vicissitudes of weather, a perilous experiment, but whose patriotism may imperiously call them at the present juncture to the defence of their country, will find in the manufacture termed fleecy hosiery, an adequate defence against the most rigorous of the seasons. Its porous texture renders it much warmer and at the same time lighter than flannel, and being highly elastic, it readily yields to every action of the limbs, for the reason it affords a gently tonic support to the whole surface of the body, reason it

Dr. Donald Morris, who is a strenuous advocate for warm garments, says, that a woollen stock or neckcloth, with a flannel waistcoat and worsted gloves, may be purchased for about half a crown per man, and would contribute to preserve the lives of many. Whereas the expense of medicines and recruiting will greatly exceed the price of these articles. Dr. Morris and Captain Goldwell have likewise insisted on the advantage of warm clothing, and have shown an entire want of view. Frudence, humanity and sound policy, therefore, conspire to the necessity of woollen garments for British soldiers, at least during an encampment.

CHAPTER 5

Of Weather

The air of the tropics is very hot day, is often extremely cold. It is, however, very subject to the changing temperature which is produced by being blown from the sea or land. The air is often at least a fathom or more from the surface, and even further from the surface, of a breeze of strong wind.

The employment of a soldier obliges him to be abroad at all seasons. Habit therefore inures him to many changes which to others would be fatal, but there are precautions to be taken against unhealthy seasons, or situations, of which it behoves him not to be ignorant. The effects produced by the weather on living bodies, principally depend on its degree of heat or cold. Experience, however, has shown that health may be preserved even during considerable extremities of heat or cold, provided the weather be dry. The combination of heat or cold with moisture, is the chief source of disease.

During great degrees of heat, officers should endeavour to get the marches of military manoeuvres over before noon. Were that is impossible men will find considerable protection from the rays of the sun by introducing a folded handkerchief between the hat and head. The same contrivance placed between the shoulders, or upon the breast, produces a great degree of coolness, not only by absorbing the perspiration but by producing a sort of cavity through which the air circulates freely, and it is a much safer practice than throwing open the breast.

When over-heated, it is extremely dangerous to lie down in the shade, and still more to drink largely of cold water, as has been already explained. Those men stand heat the best who drink the least. Thirst may often be allayed by washing the mouth with a little water, especially if it be acidulated, without swallowing any of it. But above all, let every man who values his health avoid drinking ardent spirits when heated, that is adding fuel to the fire, and is apt to produce the most dangerous inflammatory complaints. Sometimes, indeed, if a person passes from extreme heat and fatigue to absolute rest, which ought always to be avoided, a small quantity of spirits taken into the stomach will prevent the bad consequences which might arise from cooling too suddenly.

In this country the heat of the sun is rarely so powerful as to produce what the French term a coup de soleil, or stroke of the sun, which in warmer climates is the frequent effect of great exertion during intense heat. Even in England some degree of drowsiness and headache will occasionally be produced by these causes, especially if the person to them, be in a state of intoxication.

The remedies against these complaints, are bleeding, immersing the feet and legs in warm water, and the application of cloths dipped in cold water to the head.

It is also extremely dangerous to sleep exposed to the noon-day rays of a scorching sun.

The air of the night, after a very hot day, is often agreeably cold. It is, however, very dangerous to yield to the pleasing freshness which is produced by being exposed to it. Those who are obliged to be abroad should use some additional clothing, at least a flannel waistcoat, and even fortify themselves by a small quantity of ardent spirits, or a draught of strong ginger-tea.

In this country the bad effects of cold, especially conjoined with moisture, are more to be dreaded than those of heat. How far they may be counteracted by warm clothing, has been detailed in its proper place. Winter expeditions are not to be dreaded an unhealthy, if men be provided with stout shoes, warm quarters and plenty of provisions. Moderate degrees of cold may be counteracted by exercise. The body should be kept constantly in motion and all inclination to stand still or to sleep, steadfastly resisted. For, in this case sleep would prove the harbinger of death.

Not a more dangerous vulgar error exists than the notion that the habitual use of spirituous liquors prevents the effects of cold, on the contrary, the truth is that those who drink most frequently of them, are soonest affected by severe weather. The daily use of these liquors tends greatly to enervate and waste the strength of the body, and it may with truth be asserted that of those who fall victims to the severity of cold in this country, one half at least have accelerated its effects by the abuse of ardent spirits.

If a man, or any part of his body, be benumbed or frost bitten by extreme cold, it is highly dangerous to expose him suddenly to the heat of a fire, the certain consequences of such indiscretion, is general or partial death. Life is either extinguished by the sudden transition, or some part becomes livid and mortified. The safest way is to rub the part affected with snow, or to immerse it in water so cold as nearly to freeze, till its natural heat and colour be gradually restored, small cups of strong nourishing soup, but not very hot, may be given from time to time internally.* This is the mode used and sanctioned, by long experience, in Russia, where these accidents are so frequent, that it is a common act of politeness to warn a man of his nose, ear, or chin being frost-bitten, of which he himself is insensible, although the change of colour immediately indicates it to a spectator.

* Dr. Lind in his treatise upon diseases of seamen, very properly condemns the use of strong spirituous liquors under these circumstances, as being often fatal in their effects, and that instantaneously.

CHAPTER 6

Of Exercise

"I shall endeavour, in the next place, to point out some of those benefits which may be derived to health, from habits of daily exercise. This is an object of the greatest importance, but unfortunately it is an object very little attended to in the British army. It appears, indeed, to be little regarded in most of the armies of modern Europe. I should incur a charge of presumption, perhaps of ignorance, did I attempt to point out the exercises which are the most proper for the forming of soldiers. Those only which contribute to the preservation of health, belong to this place. I may, however, remark that the essential part of the art of disciplining troops, consists in imparting sentiments of heroism and virtue to the minds of the men, in improving the exertions of their limbs, and in acquiring knowledge of the correspondence of their exertions when called into action. If I durst take so great a liberty, I should be inclined to say that our ordinary exercises are flat and insipid in their nature; that they occasion no exertions and excite no emulation; they neither improve the active powers of the body, nor insure the soldier to bear fatigue and hardship. The Romans, who owed more to the discipline of their armies than any nation on earth, were extremely rigorous and persevering in their exercises. They practised their soldiers in every species of service that might occur, so that nothing at any time happened with which they were unacquainted. Actual war was in reality a time of relaxation and amusement to the soldiers of this warlike people, who appear to have been trained for the service of the field, as horses are for hunting or the course. The Romans were not only sensible of the advantages which those habits of exercise procured them in action, but had also the penetration to discover, that they were eminently serviceable in the preservation of health. The words of Vegetius are remarkable: *Rei militaris periti, plus quotidiana amorum exercitia ad sanitatem militum putaverunt prodere, quam medicos.* I made the same remark during the time that I attended a regiment in America, without knowing that it was supported by so great authority. I observed, when the men were in the field, sometimes even complaining of hardship and fatigue, that few were reported in the list of the sick: when removed to quarters, or encamped for any length of time in one place, the hospital was observed to fill rapidly. This observation was uniformly verified, as often as the experiment was repeated."

"An idea has long been entertained, that the European constitution cannot bear hard labour in the sun, or perform military exercises with safety, in the hot climates of the West Indies. Hence a plan has been suggested, and in some degree I believe adopted, that regiments serving in those countries be furnished with people of colour to do the drudgery

REMARKS

continued 20

of the soldiers. But this appears to be an innovation which ought to be admitted with extreme caution. It will evidently serve to increase both aloth and idleness, and unless the persons of colour can perform the military duty in the field, their services will go but a short way in preserving the health of the troops. A soldier, notwithstanding he may have received the King's pay for twenty years or more, remains in some degree a tyro till his body has been insured to fatigue, and prepared to bear, without danger, the effects of the climate in which he may be destined to serve. This is a part of the military discipline, indeed, no less necessary than a knowledge of the use of arms, and though it is a part of it, difficult to accomplish, there is still room to believe that it may be effected, even in the so much dreaded climate of Jamaica. It is a common opinion, that the fatigues of an active campaign in the West Indies, would be fatal to the health of the troops; but the opinion has been assumed without fair trial. The exertions of a single day have often been hurtful. This was frequently the case in America where the soldiers had remained for some time in a state of rest, but had effects from the greatest exertions, in the hottest weather of summer, were extremely rare in that country, after the campaign had been continued for a few days. But that I may not seem to rest an opinion of so great importance on a bare analogy, I shall beg leave to observe, that young European planters undergo greater fatigues and remain daily exposed for a longer time to the heat of the sun, than would fall to the lot of soldiers in the actual service of the field. I might likewise further confirm the opinion, that an Englishman is capable of sustaining fatigue in the West Indies, equally well with the African, or the native of the Islands, by mentioning a journey which I once performed myself. I lived about four years in Jamaica, during the greatest part of which I believed that death, or dangerous sickness, would be the consequence of walking any distance on foot, but I afterwards learnt that this apprehension was vain. I left Savannah la Mar in the year 1778, with the design of going to America, but having embarked in a hurry, and forgot a material piece of business, I found a necessity of being put ashore, after having been two or three days at sea. I was landed at Port Morant, in St. Thomas's in the East, from which I went to Kingston by water, where learning that there was a vessel at Luces, in the Western extremity of the island, nearly ready to sail for New York, I set out directly, that I might not lose the opportunity of a passage. My finances not being in a condition to furnish further horses, I left Kingston on foot, about twelve o'clock, and accomplished a journey before it was dark of eighteen miles. I did not find I was materially fatigued, and still persisting in my resolution, travelled a hundred miles more in the space of the three following days. It may not be improper to remark, that I carried baggage with me, equal in weight to the common knapsack of a soldier. I do not know that so great a journey was ever performed on foot by an European in any of the islands of the West Indies; not so much, I am convinced by inability, as from the idea that such exertions are dangerous. But as it appears

of the soldiers. But this appears to be an innovation which ought to be admitted with extreme caution. It will evidently serve to increase both aloth and idleness, and unless the persons of colour can perform the military duty in the field, their services will go but a short way in preserving the health of the troops. A soldier, notwithstanding he may have received the King's pay for twenty years or more, remains in some degree a tyro till his body has been insured to fatigue, and prepared to bear, without danger, the effects of the climate in which he may be destined to serve. This is a part of the military discipline, indeed, no less necessary than a knowledge of the use of arms, and though it is a part of it, difficult to accomplish, there is still room to believe that it may be effected, even in the so much dreaded climate of Jamaica. It is a common opinion, that the fatigues of an active campaign in the West Indies, would be fatal to the health of the troops; but the opinion has been assumed without fair trial. The exertions of a single day have often been hurtful. This was frequently the case in America where the soldiers had remained for some time in a state of rest, but had effects from the greatest exertions, in the hottest weather of summer, were extremely rare in that country, after the campaign had been continued for a few days. But that I may not seem to rest an opinion of so great importance on a bare analogy, I shall beg leave to observe, that young European planters undergo greater fatigues and remain daily exposed for a longer time to the heat of the sun, than would fall to the lot of soldiers in the actual service of the field. I might likewise further confirm the opinion, that an Englishman is capable of sustaining fatigue in the West Indies, equally well with the African, or the native of the Islands, by mentioning a journey which I once performed myself. I lived about four years in Jamaica, during the greatest part of which I believed that death, or dangerous sickness, would be the consequence of walking any distance on foot, but I afterwards learnt that this apprehension was vain. I left Savannah la Mar in the year 1778, with the design of going to America, but having embarked in a hurry, and forgot a material piece of business, I found a necessity of being put ashore, after having been two or three days at sea. I was landed at Port Morant, in St. Thomas's in the East, from which I went to Kingston by water, where learning that there was a vessel at Luces, in the Western extremity of the island, nearly ready to sail for New York, I set out directly, that I might not lose the opportunity of a passage. My finances not being in a condition to furnish further horses, I left Kingston on foot, about twelve o'clock, and accomplished a journey before it was dark of eighteen miles. I did not find I was materially fatigued, and still persisting in my resolution, travelled a hundred miles more in the space of the three following days. It may not be improper to remark, that I carried baggage with me, equal in weight to the common knapsack of a soldier. I do not know that so great a journey was ever performed on foot by an European in any of the islands of the West Indies; not so much, I am convinced by inability, as from the idea that such exertions are dangerous. But as it appears

activity of the limbs or increasing the constitution of the body, so that it may better sustain exertions and fatigue. But besides the effects, and the time of accomplishing exertions, or preserving health, it is

of the above fact, that the European constitution is capable of sustaining common military fatigues in the climate of Jamaica; so I may add that it ought to be a principal object of military discipline that soldiers be practised with frequent marching, and the performance of other exercises of exertion, if it is actually meant that they should be useful in times of war. The fate of battles, I might observe, depends of tenor on rapid movements, in which the activity of the limbs is concerned, than on the expert handling of arms, which is acquired by the practice of the manual. I observed formerly that abstemiousness and temperance were among the best means of preserving health, or obviating the danger of the diseases to which troops are liable on their first arrival in hot climates, but the rules of temperance are little regarded by English soldiers at any time, and almost constantly transgressed wherever extraordinary labour is required of them. To such causes of excess, joined with the great heat of the sun, we may perhaps impute many of the bad effects of marching, or of moderate fatigue in the West Indies. In the journey which I have just mentioned, I probably owe my escape from sickness to temperance and spare living. I breakfasted on tea about ten in the morning, and made a meal of bread and salad, after I had taken up my lodging for the night. If I had occasion to drink through the day, water or lemonade was my beverage. In the year 1782 I walked between Edinburgh and London in eleven days and a half, and invariably observed that I performed my journey with greater ease and pleasure where I drank water, and only breakfasted and supped, than when I made three meals a day and drank wine, ale or porter. In the following summer I carried the experiment further. During the months of July and August, I travelled in some of the hottest provinces of France. I generally walked from twenty-five to thirty miles a day, in a degree of heat less supportable than the common heat of Jamaica, without suffering any material inconvenience. I breakfasted about ten o'clock on tea, coffee or syrup of vinegar, made a slender meal of animal food in the evening, with a great proportion of salad and vegetables, but never drank the weakest wines without dilution. The great refreshment which I found from syrup of vinegar and water, convinces me that the Romans had good cause for making vinegar such an essential article among the provisions of their armies. The state of luxury and our depraved appetites, unfortunately do not suffer it to be adopted by the English. I ought perhaps to make an apology to the reader for introducing my own experience on the present occasion, but I must add that I have only done it because it enables me to speak from conviction, that an English soldier may be rendered capable of going through the severest military service in the hottest islands of the West Indies, and that temperance will be one of the best means of enabling him to perform his duty with safety and effect."

"I mentioned before, that the military exercise of the English army is ill-calculated to excite a spirit of emulation among the men. It is in fact considered only as a piece of drudgery in which there are few who have any ambition to excel. It has little effect in improving the activity of the limbs or hardening the constitution of the body, so that it may better sustain hardship and fatigue. But feeble as its effects are in the view of exceeding exertion, or preserving health, it is

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generally almost entirely discontinued when troops arrive in hot climates; a practice which has arisen from a superficial and mistaken view of the subject. Cloth and indolence are the bane of the soldier in any climate; exercise and action are the greatest preservatives of discipline and of health. It would be reckoned presumption in me, and it does not belong to this place to point out those exercises which might be proper for the forming of soldiers. But everyone knows that walking, running, wrestling, leaping, fencing and swimming are often called into actual use in the practice of war. These and such exercises likewise as excite emulation and are practiced with pleasure by the individual. They harden the body, increase of the power of the limbs, and by furnishing the officer with a view of the different degrees of activity, may often enable him to place his men in the ranks, according to the uniformity of their exertions; a more useful mode of arrangement in time of action, than uniformity of exterior form. I may add in this place that sea-bathing will be extremely useful in most cases, in increasing the vigour and preserving the health of soldiers serving in warm climates. There no doubt will occur many cases in which it is improper, but in general it may be employed with great benefit. I chiefly impute it to this cause, that I did not experience a single day's indisposition during the four years that I lived in Jamaica."

The above opinion is also supported by the authority of Sir John Fringle who observes, "Although a soldier is occasionally liable to great fatigue, the most frequent errors of people of that rank are on the side of rest." Dr. Monro also remarks that, "Soldiers left to themselves are very subject to diseases when they come into quarters after an active campaign, by leading too indolent a life." And Vegetius relates that "the Romans exercised their men daily in the Campus Martius when it was fair weather, and under cover when it rained or snowed." Lib. 3. c.1 & 2.

If daily exertions in the open air render men hearty and robust, habits of indolence must enervate and enfeeble them. Inactivity is often followed by a long train of diseases, depending on the slow and languid circulation of the blood, and is probably one of the chief causes of the debilitated constitutions of the present race of men: for certainly we cannot vie with our ancestors in hardiness, agility and muscular strength.

* Dr. Jackson on the Fevers of Jamaica

** This subject is admirably illustrated by some cases which Dr. Hamilton has recorded in the first volume of his work on the "Duties of a Regimental Surgeon."

attended with very serious consequences to the soldier's health, unless it be gratified, and has therefore given rise to the well-known adage,
"qui patriam querit, mortem invenit"

While we insist on the necessity of military exercises in order to the preservation of health, officers would do well to proportion the duty and hardships of the men, as much as possible to the suitableness of the weather. The time of being exposed to inclement, tempestuous, or sultry seasons, ought to be shortened, and in cases of actual service, the troops might relieve each other more frequently than on other occasions.

"By arts like these
Laconia nursed of old her hardy sons;
And Rome's unconquer'd legions urg'd their way,
Unhurt, thro' ev'ry toil in ev'ry clime." *

We must not conclude this article without giving a word of caution to those who may be greatly fatigued and heated by long-continued exertion. In this state the body is debilitated and ought to cool as gradually as possible. A sudden transition, from heat and exercise to a cold air and absolute inaction, would be highly dangerous. During brisk exercise and a state of perspiration the blood circulates freely to the surface of the body and its extreme parts, but when by a sudden exposure to cold and rest it has been repelled to the internal organs, the most serious inflammatory disorders, such as pleurisy or frenzy, or even a speedy death, may be the consequence.

*Dr. Armstrong's Art of preserving health, book the third.

As complaint grows more troublesome in such, as is more difficult to eradicate, than the first, it spreads so easily in contact with the diseased person or his clothes, that one fact was seen to infect the other. It is only to be prevented, by excluding the patient entirely from all association with others till he is well, and by carefully washing with soap and disinfecting with sulphur, every part of his apparel before he removes his linen or other clothes.

These excellent hints on this and other subjects have been lately put together by Dr. Barker, the Surgeon-General of the Emperor's army, which I have thought proper to append to this publication, in their original form, believing that the State of the army medical board will be thereby in some measure benefited.

CHAPTER 7

Of Personal Cleanliness

It is not an exaggeration to say that the most common cause of disease in the army is neglect of personal cleanliness. The first and most important rule is to keep the body clean. The second is to keep the clothes clean. The third is to keep the quarters clean. The fourth is to keep the food clean. The fifth is to keep the water clean. The sixth is to keep the air clean. The seventh is to keep the ground clean. The eighth is to keep the animals clean. The ninth is to keep the plants clean. The tenth is to keep the insects clean. The eleventh is to keep the birds clean. The twelfth is to keep the fish clean. The thirteenth is to keep the reptiles clean. The fourteenth is to keep the amphibians clean. The fifteenth is to keep the mammals clean. The sixteenth is to keep the birds clean. The seventeenth is to keep the fish clean. The eighteenth is to keep the reptiles clean. The nineteenth is to keep the amphibians clean. The twentieth is to keep the mammals clean.

Attention to cleanliness is of the utmost importance. It is observed both in the navy and army, that those men who are most negligent of their persons, are the first who are infected by diseases. By negligence in this article, infectious disorders are often spread amongst a whole army and frequently prove more fatal than the sword.*

The clothes of soldiers by being usually kept crumpled together in a knapsack, are apt to acquire a musty unpleasant smell, unquestionably injurious to health; to obviate which soldiers should be obliged to expose the whole of their clothes daily to the influence of the sun and air.

The copious perspirations occasioned by military exercises, and the dust that often accompanies the movements of an army, must tend to accumulate filth and sores upon the skin. These should be removed at every convenient opportunity. After a long march men should never neglect to wash their face, hands and feet, and indeed the whole of their body as clean as possible. The comfort and health resulting from this practice would soon be found an adequate reward for their trouble.

With this view, whenever the neighbourhood of a river, or especially of the sea, permits them, the men should be encouraged to bathe frequently. Swimming was formerly an essential part of military education, and besides the healthiness of the practice, many occasions occur where a soldier might find it a very useful acquirement. Bathing should be practised in the morning, previously to taking a full meal, or using strong exercise. A non-commissioned officer might always be present to see that no accident or improper behaviour takes place on those occasions.

No complaint proves more troublesome in camp, or is more difficult to eradicate, than the itch; it spreads so easily by contact with the diseased person or his clothes, that one foul man soon infects his comrades. It is only to be prevented, by secluding the patient entirely from all association with others till he is well, and by carefully washing with soap and fumigating with sulphur, every part of his apparel before he resumes his former station.

*Some excellent hints on this and other subjects have been lately put into my hands by Mr. Keate, the Surgeon-general of His Majesty's forces, which I have thought proper to subjoin to this publication, in their original form; believing that the design of the army medical board would be thereby, in some measure, promoted.

CHAPTER 8

Of Camps.

The healthiness of an encampment depends much on the choice of ground. A camp ought, if possible to be situated on a gentle declivity, with a dry bottom, in the vicinity of good water and free from the unwholesome influence of air blowing over woods or marshes. A camp should not be formed on ground recently occupied, nor in the neighbourhood of an hospital, nor where an engagement has taken place lately. The slaughter horses should also be at a distance. No situation, upon the whole, seems preferable to the elevated bank of a rapid river. If the river be muddy, its water may be cleaned by the means indicated in the Appendix.

Bell tents, in which the men lie in a radiated manner, with their feet towards the centre, are at present most approved of. Their figure is that which contains the largest space within a given line, and their appearance is pleasing. The only objection that can be made to them, is the bad consequences that must naturally arise from the confined exhalations of so many men, to which, indeed, every other form is equally liable. These effluvia are a most pregnant source of disease, and every effort should be made to counteract their influence. The men should not be allowed to remain longer in the tents than is absolutely necessary for their repose. The canvas should be drawn up every day, the straw well shaken and perfumed by the wind, no dampness of weather short of absolute rain, should prevent the execution of this duty. The blankets should also, as frequently as possible, be exposed to the sun and air on the neighbouring bushes. Could any mode of producing a circulation of air through the tent be suggested, without admitting moisture, it would be a material improvement in their construction. The men should be furnished with plenty of straw to sleep upon, which should be renewed as often as possible. Heath, or dry moss, are its best substitutes, and as it is advantageous to sleep with the head higher than the body, the men should form part of their bedding into pillows.

We have said before that soldiers should, as often as possible, undress when they go to sleep, but where this is impracticable, they ought always to loosen the ligatures or tight parts of their clothes*, and especially their shirt collars. Trenches should be dug around each tent, communicating with the

* The woodmen in America who pass whole summers in the open air, find it very important to loosen all their ligatures at night; some young men, who from hardness despised this precaution at first, were soon under a necessity of adopting it.

other more extensive drains, to carry off the moisture. The ground within the tents should in general not be broken, as the dampness of the earth might in that case exhale. It would conduce greatly to the healthiness of an army, where the bottom of every tent covered with thick painted canvas or tarpauling. And, no officer should ever neglect to have a piece of oiled cloth under his bed, unless it be raised from the ground.

In damp weather, an officer may improve the air in his tent by burning some spirits, tobacco, or wetted gunpowder, and the danger from marsh effluvia may be corrected by plunging pieces of heated iron into vinegar, or still more effectually by the fumes of nitrous acid.

In a wet season, or when the wind blows from an unhealthy quarter, it is useful to light fires to windward of the encampment. Habitual smoking tobacco within tents ought to be prohibited, for to many individuals it is intolerably inconvenient and noxious. It has also been remarked that men who smoked very soonest affected with catarrhs, as well as some other diseases. The notion that once prevailed of tobacco preventing contagion is now ascertained to be false. But if it were otherwise, it would be equally effectual burned in chafers, as when drawn into the lungs. The health of an encampment is much connected with its cleanliness, to preserve which, no effort should be omitted. The carcasses of dead horses, dogs, with every kind of offal, should be removed to a distance and buried.* The privies should be dug deep in the rear of the camp, and every individual should be punished who eased himself elsewhere. Some institution like what the Jewish Legislator recommended to his countrymen, might with propriety be enforced. "Thou shalt have a place within the camp, whither thou shalt go forth abroad; and thou shalt have a paddle upon thy weapon, and it shall be when thou wilt ease thyself abroad, thou shalt dig therewith, and shalt turn back and cover that which cometh from thee." Deut. Cxiii. V. 12. 13. In many camps it is the daily practice to send a party out for the express purpose of throwing earth into the privies.

Notwithstanding every precaution however, a fixed camp will in time become unwholesome, and this is only to be remedied by changing ground, and leaving the noxious causes of disease. It has been almost universally allowed that troops who move and shift their ground frequently, are more healthy than those who remain stationary a long time.*

* Fortius, Ramasini, and Meyerey relate instances of the ill effects of neglect in this point of cleanliness.
* See Vegetius De Re Militari Lib. 3. Cap. 2. and Quintus Curtius Lib. v. Para. 32.

The ground of these pages being by no means so extensive with the effects of the various operations of the army, which is the subject of some late publications, to which I have not had access, I have not been able to do more than to give a general view of the subject, and to point out the most important principles which should be attended to, in order to prevent the most frequent causes of contagion, to which every army is exposed, and to which every officer should be particularly attentive.

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CHAPTER 9

Of the prevention of diseases

The diseases that prevail in an army vary according to the seasons of the year. They have been divided into those of the summer and of the winter, or of the camp and garrison.

The diseases of winter are usually of that kind termed inflammatory; as coughs, pleurisy, rheumatism etc.

The diseases of summer and autumn are of a different nature, being generally such as are denominated low, nervous, or putrid, and are very often infectious.

If at this season any stoppage happens to perspiration by exposure to cold, or night air, or any other of the excretions be suddenly checked, a fever takes place, which according to the circumstances, may appear as a remittent or intermittent, or, if the bowels be affected, may occasion a cholera, or a dysentery.

These last-mentioned complaints are what have been commonly termed bilious. It is well known that, in all hot countries, and in camps where men are much exposed to the heat of the sun, the gall is secreted in greater abundance, and is more liable to morbid alteration than usual, and this circumstance, Sir John Pringle observes, though not probably the first cause of fever, yet seems to be an attendant of it, as well as of most of the summer and autumnal diseases, and concurs to make them worse. It may be proper to add, that the intemperate use of spirituous or fermented liquors, during the heat of summer, tends greatly to increase the secretion and acrimony of the bile.

Notwithstanding this general division of diseases according to the seasons of the year, it is necessary to be aware, that the inflammatory complaints of the winter may also happen in spring, especially if the troops take the field early. Coughs, colds and peripneumonies, are then common. As the weather, however, becomes milder, the sickness diminishes, and this is, of all the seasons of the year, the most healthy to an army. If the summer be dry, this general state of health continues till about the middle of August, when the warm days, followed by cool and perhaps dewy nights, bring on fluxes, and other complaints of the bowels. As the autumn advances, remitting fevers appear and the approach of winter revives the inflammatory complaints arising from cold.

The purpose of these pages being by no means to interfere with the officers of the medical department of the army, which by the adoption of some late regulations, is now conducted in the most liberal and judicious manner, the cure of diseases can form no part of the present plan. All that shall be attempted, is by pointing out the most frequent exciting causes of complaints, to enable those who are necessarily exposed to their

influence, in some measure to counteract them.

Dr. Rush informs us that the American army "was always more sickly when the men lay in tents, than when they lay in the open air." Hence we may learn that men will, under certain circumstances, bear a very sudden transition from their usual habits of living in close houses and lying in warm beds, to the exposure, and what are usually termed the hardships, of a military life. But as it has been observed that young men are most liable to camp diseases and especially to those inflammatory complaints which are prevalent at the beginning of a campaign, they should take some degree of care to avoid unnecessary exposure to great alterations of temperature; and every man ought to be aware that, by a plentiful bleeding, or some proper evacuation, colds and coughs may often be removed at their commencement, which, if they be permitted to make much progress, may render a man long unfit to do his duty, or, perhaps even terminate in a rheumatism or fatal pleurisy, or lay the foundation for a consumption of the lungs. No improper ideas of hardiness, which are most apt to prevail in the mind of the young and inexperienced, but brave soldier, should make him backward to complain, or prevent him from applying for proper medical assistance on the first attack of these complaints.

Men may also do something to relieve themselves, at the commencement of what is usually termed a cold. Some attempt to cure a cold by getting drunk. This, to say no worse of it, is a very hazardous experiment. No doubt it may sometimes succeed by suddenly restoring the perspiration, but if there be much tendency to inflammation, which in the young and robust is usually the case, strong liquors, instead of removing the malady, will increase it. By this means a common cold may be converted into an inflammatory fever.

It is a much safer and wiser practice to abstain from solid or heating food. If possible to remain in bed, and to drink plentifully of water gruel sweetened with honey, or of infusion of linseed sharpened with the juice of orange or lemon, or barley water with tamarinds, or any other cool, diluting acidulous liquor. This practice will often cure a cold in one day, which, if neglected, might have continued for months, or even endangered life.

As the season advances, inflammatory diseases diminish, and what are termed bilious complaints, increase in frequency. The bilious, or camp fever, begins with chilliness, lassitude, pains of the head and bones, and disorder of the stomach. Towards evening all these symptoms are increased. These men are first seized with this disease who are most exposed, from want of clothing and accommodation, to the combined effects of cold and moisture. A bout of intoxication, the use of improper food, getting wet, or lying on the damp ground, will excite this disease in individuals, who by more prudent conduct, might perhaps have escaped.

The exciting causes of these diseases appear in general to be some check of perspiration, whence may be deduced the great utility of keeping up this discharge by wearing flannel next the skin.

Dr. Rush observes that "those officers who wore flannel shirts, or waistcoats, next their skins, in general escaped fevers and diseases of all kinds."

At the commencement of fever, oppression at the stomach, or unusual costiveness, frequently indicate the propriety of evacuations. Were these suggestions of nature duly attended to, and promoted, the progress of a fever might often be cut short. An emetic, or purgative, judiciously administered, will frequently nip these diseases in the bud.

The lassitude and weariness usually complained of at the beginning of a fever, evidently show the propriety of keeping easy and quiet, and if possible in bed. This, and bathing the feet in tepid water, will often prevent the disease from going further and is all that any man should venture to do of his own accord.

Morbid situations give rise to intermittent fevers or agues.

Strangers, on coming into such situations, are more prone to them than the inhabitants. It is their duty, therefore, to use proper precautions to prevent infection. They should live more generously than usual. Men who drink wine are seldom liable to agues, and for that reason officers are less liable to them than the common men. It is improper, in such situations, to venture abroad fasting. Before going out, the stomach should be fortified by a bit of bread and a cup of infusion of some bitter herb, as tansy or chamomile, or, which is better, by a small glass of spirits, in which something of the same kind has been infused. It has been observed that of troops encamped in aguish grounds, those who fed on staled provisions often escaped, while the rest were seized with the disease.

In such situations, every man who can afford it, should supply himself with a quantity of good tincture of Peruvian bark, of which he should take a teaspoonful or two twice a day, in a glass of water or of wine, at stated times; for much depends on doing it regularly. Those who have a decided aversion against bark, will find the following answer the same purpose. Take an ounce of gentian root and chamomile flowers, orange peel, and coriander seed, half an ounce each, bruise the whole in a mortar; these ingredients may be infused in water, in wine, or in spirits, and a cupful taken regularly two or three times a day. Good effects would also be produced by the habitual use of ginger or tansy tea for breakfast.

The dysentery or bloody flux is another disease to which soldiers in camp are peculiarly liable. It is most prevalent towards the end of summer, especially if the season has been hot and close, and is frequently excited by lying wet after a march in warm weather. The commencement of this disease is so similar to that of the bilious fever already mentioned, that it has been said to be the same complaint fallen upon the bowels. This is farther confirmed by finding that nearly the same method of treatment is useful at the commencement of both complaints. Plentiful dilution with linseed tea, barley water, or chicken water, is here peculiarly salutary.

Gelatinous broths answer both the purpose of food and medicine. A kind of food very salutary in dysentery, is made by boiling a few handfuls of fine flour, tied in a cloth, for six or seven hours, till it becomes as hard as starch; two or three tablespoonfuls of this may be grated down, and boiled in such a quantity of new milk and water as to be of the thickness of pap; this sweetened, may be used as the patient's ordinary food. Every kind of seasoned or heating food must be carefully avoided. Sir J. Pringle says, that the disease was sometimes wholly removed by plentiful dilution with simple warm beer, when nothing else would remain on the stomach. Such is all that the patient can venture to do for himself when attacked by this disease; the rest he must leave to the skill and judgment of his medical attendant.

The best preventative against this complaint, is what has been often already mentioned, to wear flannel or fleecy hosiery next the skin, if one is not already so dressed; it must not be left off. Such an act of imprudence is often the cause of complaints of the bowels in all situations. This disease is contagious; when it appears, therefore, the infected should, as soon as possible, be separated from the healthy. The excreta of the diseased, besides their being regularly removed, should be taken care to be disposed of. Those who are well, should therefore be strictly enjoined from frequenting the privies used by the diseased.

Experience has demonstrated, that good ripe fruit, is one of the best medicines both for the prevention and cure of dysentery, though vulgar prejudice accounts it the cause of the disease. Good fruit is in every respect, calculated to counteract that tendency to putrefaction, from whence the most dangerous kind of dysentery proceeds. Apples, grapes, gooseberries, currants, strawberries, raw or boiled, with or without milk, should be allowed the patient in as great abundance as he chooses. (sic)

The celebrated Dr. Tissot, was the first who exerted himself to overthrow the common prejudice against the use of food in dysentery. Among a variety of other facts he tells us, "That this disease had nearly destroyed a Swiss village in the South of France: the captain purchased a British acre of several acres of vineyard, where they carried the sick soldiers, and gathered the grapes for such as could not bear being carried into the vineyard; those who were well eat nothing else; after this not one died, nor were any more ever attacked by the dysentery."

There is another species of fever to which armies are liable, which is peculiarly infectious; it is generated by men crowded together in any situation; and from the places which most commonly render such crowds

* Avis au peuple, Chap XXIV

necessary, it has been termed the hospital or jail fever. This disorder is indeed incident to every place that is ill-ventilated and kept dirty, or that is replete with the exhalations of foul and diseased bodies. A single instance of a mortified wound in the ward of an hospital, will occasionally give rise to it, or even confining a sick man too closely to his tent.

It is of the utmost importance to prevent this disease, which from its highly contagious nature, will soon destroy the effective strength of an army, nor does the mischief stop there; it generally extends its ravages through the neighbouring country. Its first attack is marked by a peculiar and great deficiency of strength.

The nature of contagion is by no means yet well understood. Some facts relative to it are, however, well established. It is always generated by crowding men together, and more quickly if any of these men be diseased. Crowding other animals together, produces similar effects. During the American war, attempts were made to supply the British army with fresh provisions by carrying out live sheep and hogs. Before arriving at the place of their destination, a contagious disease generally broke out, which destroyed most or all of them.

With a view of preventing this dreadful malady, wherever men are under the necessity of being congregated together, every effort should be made to promote free ventilation, by all possible means. By attending to this, and other preventative operations, the frequency of this disease aboard of ships, a situation peculiarly favourable to its existence, has been much diminished; an attention to the same means would, no doubt, prove more efficacious in obviating its existence in military hospitals or camps.

As soon as the contagion appears, endeavours should be made to destroy it. This is more easily done at an early period than after it has gathered strength. The world is indebted to Dr. Carmichael Smith for a mode of checking this contagion, no less simple than efficacious, and which may be practiced with equal facility in the tent of an individual, as in a general hospital. This is the nitrous acid in a state of vapour - the easiest mode of producing this useful preventative, is by mixing half an ounce of vitriolic acid with half an ounce of nitre, and placing the cup containing the mixture in a vessel of boiling water or of heated sand. The nitrous acid in a state of vapour immediately diffuses itself through the air, and is the best corrective of contagious effluvia, hitherto discovered.

Healthy men are frequently infected by the duty of conveying the sick to the hospital; those, therefore, whose lot it is to be employed in this necessary duty, should be particularly vigilant in employing the preventative means above recommended.

Among the diseases common in armies, and by no means the least troublesome, may be reckoned the itch. To prevent it from spreading, the infected should as soon as possible be separated from their comrades and no communication be permitted between the healthy and the diseased. As this complaint is at first not very troublesome, it is frequently concealed, and of course the infection gains ground; some pains should therefore be taken to detect it. The regimental surgeon ought, with this view, carefully to inspect the men who are returned from the hospital, a place that is seldom free from this complaint.

In the course of this chapter, I have experienced considerable difficulty in drawing a correct line between the prevention and the cure of diseases. My observations are intended solely to apply to the former. To interfere with the latter would be intruding on the official duties of the medical department. Delicacy in this point may sometimes have restrained my pen; but if on any occasion I have overstepped my intended limits, I trust the mistake will be attributed to its real motive - a wish to impart all the knowledge that can be useful and proper for soldiers.

The late ingenious publication of Dr. Currie, on the effects of water in the cure of fevers, well merits the attention of every man interested in preserving the health of soldiers. From the effects of the affusion of water in checking fever at an early period, it is not fair to suppose that cold bathing regularly practiced, might be efficacious in preventing the rise of contagious diseases in an army.

In one of the publications of Dr. Rush of Philadelphia, he throws the result of the observations he had made on the health of soldiers, during his attendance on the army, into the form of a series of general aphorisms. Some of them contain so much good sense, and are so applicable to the present state of part of the army in Great Britain, that I shall lay them before the reader in the doctor's own words.

"The army when it lay in tents was always more sickly than when it lay in the open air. It was likewise more healthy when it was kept in motion than when it lay in an encampment."

"Young men under twenty years of age were subject to the greatest number of camp diseases."

"Men above thirty, and five and thirty years of age, were the hardiest soldiers in the army."

"Those officers who wore flannel shirts or waistcoats next to their skins, in general escaped fevers and diseases of all kinds."

"Although I have had occasion elsewhere to recommend warm clothing; I may perhaps be preventing misapprehension, by adding, that where flannel is advised, it is always intended to be worn next to the skin."

"In all those cases, where the contagion was received, cold seldom failed to render it active. Whenever an hospital was removed in winter, one half of the patients generally sickened on the way, or soon after their arrival at the place to which they were sent."

"Drunken soldiers and convalescents were most subject to fever."

"An emetic seldom failed of checking fever if exhibited while it was in a foaming state, and before the patient was confined to his bed."

"Many causes concurred to produce, and increase fever; such as the want of cleanliness, excessive fatigue, the ignorance or negligence of officers in providing suitable diet and accommodations for their men, the general use of linen instead of woollen clothes in the summer months, and the crowding too many patients together in one hospital, with such other inconveniences and abuses as usually follow the union of the purveying and directing departments of hospitals in the same persons. But there is one more cause of this fever which remains to be mentioned, and that is, the sudden assembling of a great number of persons together of different habits and manners, such as the soldiers of the American army were in the years 1776 and 1777. Dr. Blane informs us, in his observations upon the diseases of seamen, "that it sometimes happens that a ship with a long established crew shall be very healthy, yet if strangers are introduced among them, who are also healthy, sickness will be mutually produced." The history of diseases furnishes many proofs of the truth of this assertion. It is very remarkable, that while the American army at Cambridge in the year 1775 consisted only of New-England-men (whose habits and manners were the same) there was scarcely any sickness among them. It was not till the troops of the eastern, middle and southern states met at New York and Ticonderoga in the year 1776, that the typhus became universal, and spread with such peculiar mortality in the armies of the United States."

"I saw several instances of fevers occasioned by the use of the common ointment made of the flour of sulphur and hogs lard for the cure of the itch. The fevers were probably brought on by the exposure of the body to cold air, in the usual method in which the ointment is applied. I have since learned, that the itch may be cured as speedily by rubbing the parts affected, two or three times with the dry flour of sulphur, and that no inconvenience and scarcely any smell, follow this mode of using it."

"There was one instance of a soldier who lost his hearing, and another of a soldier who had been deaf who recovered his hearing, by the noise of artillery in a battle."

"Those soldiers who were billeted in private houses, generally escaped the contagion of the hospital fever, and recovered soonest from all their diseases."

38.

CHAPTER 10.

Of Casualties.

The mode of counteracting the incidental effects of extreme heat and cold have already been pointed out. The other casualties, to which a military life is peculiarly exposed, are accidental drowning, wounds, fractures and dislocations. As each of these may occur at a time when no medical assistance is near, I shall point out what may be done with propriety, till further help can be procured.

When a person has remained more than a quarter of an hour under water, there can be but small hopes of his recovery; yet, as some peculiar circumstances may have happened to continue life after a much longer space of time, the unfortunate object should never be resigned to his fate, nor any method be left untried for his recovery.

As soon as the body is taken out of the water, it should be conveyed with all convenient speed to some proper place for applying the means necessary for its recovery. In doing this, care should be taken not to bruise or injure the body by rolling it over a cask or on the ground, as often has been done, or by carrying it in any unnatural posture with the head hanging downwards; it ought to be carried on men's shoulders, or in a cart, and kept in as natural and easy a position as possible. The principal intention to be pursued, is to restore the natural warmth and excite the circulation of blood.

After removing the wet clothes, the body should be strongly rubbed for a considerable time, with coarse flannel or woollen cloths dipped in warm brandy; it should then be laid on hot blankets, between two healthy persons, who should also be covered with the bed-clothes; At the same time, large bladders filled with hot bran and water, or bricks heated and wrapped in flannel, may be applied to the feet and stomach; while volatile salts or spirits are rubbed on the temples, mouth and nose.

Life has been restored by covering the body with warm embers, grains, or dung; but the above mode of restoring the heat is much more simple and natural, as well as more easy to be effected. In my opinion it is also preferable to the use of a warm bath, which requires some judgment and caution in using.

Respiration has been frequently restored by blowing strongly into the mouth, at the same time stopping the nose; and when the chest is by this means expanded, pressing the air out again by the hand; This is best done by a pair of proper bellows, but if such are not at hand, a man should not hesitate to use his mouth.

Clysters of tobacco smoke, or warm salt and water, are also useful; but the above means will occupy the attention sufficiently till a medical assistant can be sent for. The utility of bleeding is not yet

determined; I think, on the whole, it would be better omitted; and the time wasted in fruitless efforts to draw blood, may be employed in much more efficacious means to promote recovery. This plan should be persisted in for at least an hour. Many have recovered, who have not given any signs of returning life, even for a longer period. Similar methods may be used when persons have been suffocated by damp or noxious air in mines or deep pits, etc.

It is of great importance to permit no persons to be in the room or tent, but the necessary assistants, as foul or contaminated air tends much to prevent recovery.

But the accidents in which the military are more immediately concerned, are wounds, fractures and dislocations. Were it possible to dress the wounded in all bad cases, immediately on the field of battle, every military surgeon knows how many lives might be saved. Exposure to inclement weather, loss of blood, or being jolted in a waggon, often renders wounds dangerous, which perhaps in themselves were of little importance. Dr. W. Blizard, surgeon of the London hospital, in a little tract published a few years ago relative to the health of seamen, after remarking that many men stationed in the tops and elsewhere, distant from surgical assistance, lost their lives in consequence of loss of blood, from wounds by no means in themselves mortal, proposed that a certain number of men should be instructed in the mode of stopping a sudden discharge of blood by the use of the tourniquet. This humane suggestion has been adopted; men informed of the use of these instruments, and having several of them about them, have been stationed in the tops, or wherever their presence was considered as necessary, and have been the means of saving many valuable sailors.

May it not be deemed expedient to adopt a similar regulation in the army? Were one or two non-commissioned officers in each Company taught the use of the tourniquet, they might preserve some lives. It may be urged that a man employed in this way, would be neglecting his duty as a soldier - This neglect would be only temporary; and surely there is as much merit in saving the life of a fellow-soldier, as in annoying the enemy.

These instruments are, however, only applicable to wounds of the limbs.

To facilitate the attainment of this kind of knowledge, (the utility of which I suggest with deference), it was my intention to have added the outlines of the limbs, with the course of the arteries and the place at which the tourniquet should be applied; but the engraver found it impossible to accomplish my purpose at the period when this performance was promised by the publisher. A little practice on any of his companions, will teach a man how to use this instrument with facility. That it had produced the intended effect may be known by the pulse ceasing to beat at the wrist or ankle. A regimental

the patient's condition is such that it is not possible to transport him to the hospital, the surgeon should be prepared to perform the necessary operations in the field. The patient should be kept as comfortable as possible, and the surgeon should be prepared to perform the necessary operations in the field.

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surgeon or his mate might be worse employed than in teaching all the corporals of his regiment this piece of practical knowledge - On the day of battle each of them might have two or three in his pocket, to be applied when wanted. A trifling sum would supply the whole quantity required; as they may be had at half a crown a piece, and perhaps for less when purchased in a large quantity.

On such occasions officers might find it worth their while to provide a sort of simple litter, which are easily formed with a few hoops and boughs of trees, in the rear of the army, on which they might be conveyed in safety, if wounded, to the station of the surgeons.

Dr. Le Cointe, whose work has been already repeatedly quoted, has proposed an improved waggon for conveying the wounded from the field of battle. The upper part is constructed with seats, on which the more slightly wounded may support themselves by the assistance of posts which project at convenient distances. Under this a platform is suspended by chains, in such a manner as to prevent jolting. This is to be covered with straw or mattresses, for the reception of the more severely wounded. The invention certainly merits imitation.

Much misery as well as mischief is produced by conveying the wounded to distant depots before they are dressed. Surgeons should be stationed as near the field as is consistent with safety, and at different distances on the road towards the nearest hospital, that the wounded may receive every accommodation their situations may require.

The propriety of such regulations is farther supported, by observing that men bear every necessary operation with much more fortitude, soon after a battle than at a more distant period. Not to mention the removal of pain that is the necessary consequence of surgical treatment, after the parts have begun to inflame.

Most of the observations I have made with regard to wounds, will apply to fractures and dislocations; which under certain circumstances are likely to happen often among the troops in an active army.

The same precaution and tenderness are required in conveying patients with broken limbs from place to place, as are necessary in cases of wounds. Many instances of simple fractures have, by rude treatment, been converted into compound fractures, and thereby life has been endangered, or the cure greatly protracted.

When a joint has been displaced or a bone broken, the limb should be laid in as easy and natural a posture as possible. Nothing ought to be bound tightly over the injured part, nor should any attempt be made to reduce it, unless under the direction of a surgeon. Above all, care should be taken in removing a person in this condition, to keep the limb perfectly steady in its proper position.

CHAPTER 11

Of Hospitals

With regard to the domestic regulations of hospitals, I shall not presume to advance any opinion. They are under the conduct of Gentlemen unquestionably (sic) qualified to discharge their duty with propriety, but on the general policy of their establishment I may be permitted to offer some hints.

It seems to be agreed upon by those who have had most experience concerning the treatment of army diseases, that frequently the establishment of general hospitals is injurious to the service, and that they ought as far as possible to be avoided.

Dr. Jackson observed, "that the general hospital has ever been a heavy article in the expences of war; and that the establishment is in great measure superfluous. I have no doubt in obtaining the suffrages of people of experience that general hospitals are ruinous to military discipline, that they promote sloth and indolence, diseases to which a soldier is peculiarly liable, and that they extinguish, very speedily, all ardour for the service of the field. There is, in fact, no exaggeration in the assertion that the man who has spent two or three months in the general hospital, is less a soldier than when he was first recruited. Besides, it is likewise certain that cures are often protracted to some months continuance in a hospital which might have been accomplished in a few days, if circumstances would have permitted the men to remain with their regiments. Regimental surgeons have many inducements to exert themselves in restoring their men speedily to health, which act only with feeble power on those who have the management of general hospitals. The former likewise possess some advantages of which the latter are destitute. They know the habits and disposition of the patient, they see the disease in its first beginnings, and are enabled to seize the most favourable moments for acting with decision. I may add, that such is the nature of military diseases, that there does not perhaps occur one case in twenty, which might not be treated properly by the surgeon of the regiment, if attention and a very little expence were bestowed in providing necessary accommodation. I say further observe, that together with the indolence naturally attached to military hospitals, and uniformly harmful to military discipline, there is often actual danger to life, by removing men in critical circumstances, or by the necessary intermission of medical assistance where continual and vigorous exertions are required."

Notwithstanding these objections, which are corroborated by the respectable authority of Dr. Rush, who terms them, "The sinks of human life in an army," and says, "they robbed the United States of more citizens than the sword"; since hospitals are found to be indispensable, some practical observations on this subject may be acceptable.

If there be a choice of ground, an hospital, whether regimental or general, should be placed upon that which is dry or elevated; a circumstance however evidently useful, not always attended to, and sometimes sacrificed even to a consideration so trivial as uniformity of appearance. It should be in an air, dry, and free from the effluvia of marshes, but if possible not far removed from a running stream.

They should be separated into wards according to the nature of the diseases, nor ought the wounded be mingled with the sick. The exhalations from a single mortifying stump are sufficient to change the usual camp fever to a putrid type. The mingled exhalations of many diseased human beings congregated into one place engenders a poison peculiarly fatal. How often do we see acres rapidly deteriorating in an hospital, which almost immediately get well on sending the sufferer to the country, where he can breathe pure air. This evil is to be in some measure prevented by frequently ventilating our hospitals. In these situations every attention should be paid to renewing the air as often as possible. This regulation requires constant enforcement. The lower classes of mankind, especially when sick, have a prejudice against the admission of free air, which it is very difficult to counteract.

The air is also ameliorated by burning aromatic vegetables, by the fumes of vinegar, or of the nitrous acid, according to the mode already specified.

Beds composed of hay or straw are infinitely more wholesome than those made of wool, which in fact serve only to imbibe, retain, and perpetuate contagion. Every regiment ought to be provided with a number of canvas cases, which may occasionally be filled with hay, straw, plantain leaves, or moss, as beds for the sick. As soon as one patient has ceased to use them, their contents should be emptied, and they ought to be fumigated and washed before they are given to another. Their cheapness would render this an object merely of trouble, which would be well repaid by its salutary effects. If the straw is supposed to be too hard, it may be rendered softer by being threshed with a flail, or trod on by cattle before it is put into the cases.

Bedsteads of iron are much preferable to those of wood, as being less apt to retain contagion. There ought to be some contrivance, to produce a temporary seclusion of any particular bedstead from the observations of others in the same wards. This attention is often due to decency, and is particularly required, that the surrounding sick may not be shocked by the dying agonies of their unfortunate comrades.

Cleanliness is peculiarly requisite in an hospital. It is a virtue at all times, here it becomes a sacred duty. The sick should have frequent changes of linen, stockings, drawers etc. They ought to be regularly combed, washed and cleaned; the convalescents should be obliged to assist those who are unable in making their beds, as well as in removing every thing noxious or offensive, as soon as possible. Every thing in short that can tend to promote personal cleanliness, should be strictly attended to, and rigidly enforced.

It is the usual custom in the army to appoint an officer, daily to visit and inspect the treatment of the sick. This regulation is doubtless well meant and might be attended with the most salutary consequences. Its beneficial effects are however in some measure counteracted by its being daily repeated at the same hour. It is easy to assume the appearance of decorum, cleanliness, and regularity, during a short period occurring regularly once in the twenty-four hours. If these visits are really intended to do good, they should take place at irregular and therefore unforeseen times. The officer occasionally should drop in, while the men are at their meals, nor should he disdain to taste their victuals, their beer or their wine. And if the quality seems to be indifferent, carry a specimen to the commander in chief. No virtuous or humane man will find himself degraded by the performance of such duties; on the contrary, they will secure him the approbation of his own conscience, and the affection and sincere good wishes of the men under his command. The kind and sympathising conduct of an officer towards his men, of which, as well as the reverse, they are highly sensible, has often saved his life in the day of danger. It is not in the day of battle but in the military hospital chiefly, that the miseries of war are exemplified, and every effort should be made to diminish their magnitude.

With this humane intention the Army Medical Board have published the subsequent regulations, which as coinciding with their intentions, that they should be diffused as extensively as possible, I shall here insert at full length.

Instructions for the better management of
the sick in Regimental Hospitals *

"His Majesty having been graciously pleased to order that every regular corps shall be provided with an airy, roomy and healthily situated regimental hospital, where good water may be easily procured; if the regiment is not in barracks, where a part of the barracks or other convenient place, is allotted by the barrack-master-general for the reception of the sick, such hospital must be provided by the regimental surgeon or (in his absence) by the assistant surgeon; in which case, immediate reports of the situation, size, rent, &c. are to be made to the inspector of regimental hospitals; and unless on very pressing emergencies, no engagement is to be entered into without the permission of that officer.

* Although there are several particulars contained in these instructions which do not relate to the conduct of the soldiers themselves, but only to that of their medical attendants; I have thought it better to preserve this extract entire, than to mutilate what was originally intended to form a complete code of directions. The manifest utility of some parts of these instructions, will be a sufficient apology for my inserting the whole. And if any of the regimental surgeons, or their assistants, should condescend to peruse this little work, it is hoped that no part of the following observations will have been misplaced.

of which, however, a large amount of work will be done at the hospital, but not in lieu of one, and great attention should be paid to the choice of the ground where the tent is to be pitched, which if possible should be near the regimental hospital, and not in the rear of the lines; a trench is to be dug round it for carrying off the water, and, for the inside, straw worked up in thick mats should be placed upon dry sand, or gravel, under every pallias, where mats cannot be made, some fresh straw should be placed under each pallias, and confined by boards or wicker-work, twelve or fourteen inches high, placed round the side of the bed, the straw to be changed once a fortnight at furthest.

The windows of the hospital to be opened and the walls of the tent to be lowered every day to admit fresh air; and during this interval, the beds of the convalescents, and of others who can sit up, to be made. And no man who is able to sit up, to be allowed to sit or lie upon his bed during the day; occasionally, in fine weather, the rugs, blankets &c. to be hung out on bushes, or laid upon the ground, and often turned.

The sides and floors of the wards, if of wood, to be washed occasionally with soap and water, and sprinkled with vinegar; the walls, if plastered, to be frequently white-washed, and if a contagious disease prevails, the nitrous acid (formed by mixing half an ounce of vitriolic acid with half an ounce of nitre, and placing them in a sand heat) should be evaporated in each ward, every day, and in such case, upon the death of a patient, the whole of his bedding to be well steeped in running water, or in a tub, then dried and baked in an oven and afterwards washed with soap and water, before it is either used again, or put into regimental stores; and when the disease is subdued, the like to be done with the bedding of the whole ward.

The straw about the bed of a man who dies, to be taken out and burnt and the place, or bed where he lay, to be sprinkled with vinegar.

No knapsacks or accoutrements to be permitted to hang up, or lie in the wards; the non-commissioned officer attending the hospital is, on the admission of the patients, to take charge of the knapsacks and accoutrements, and to be responsible for them.

The hospital is never to be crowded, every man to have at least the space of five feet allotted to his bed, and every man a bed to himself.

Every regimental hospital will be provided with a steady sergeant; with an orderly man, or more, according to the exigency of the service, and one woman nurse, and for every ten men confined to bed by fever, an additional nurse, or orderly man, and all the patients who are able, every morning and evening to assist in cleaning and airing the hospital, carrying away dirt, &c. and by every means to assist the helpless.

Every patient to be provided with a clean shirt, and a clean pair of stockings, if he can sit up, twice a week, or oftener if necessary, and with clean palliasses cases and clean sheets once a fortnight, or as often as there is occasion; the patients heads should be combed, and their faces and hands washed every morning, and their feet once a week in warm water. They should be shaved twice, or three times a week.

At his admission into the hospital every patient is to be made extremely clean with warm water and soap, and have a clean shirt.

All men with infectious diseases, putrid fevers, fluxes, small-pox or measles, to be removed immediately from camp, or barracks, to a separate room in the hospital, or if the hospital is full, to a separate house, or in certain cases of exigency, to an hospital tent; such men, when become convalescent, ought not to be reported too soon for duty.

Punished men should also be placed in a separate ward, and the linen and beds frequently changed.

Men with the itch should be cured in a spare tent in summer, or in a separate room of the hospital; such men should have each a clean shirt and clean pair of sheets; and four frictions, or smearing the body all over four times, at six hours distance (lying in bed the whole time) with the army laboratory ointment, will, in most instances, eradicate the complaint; they must then be well washed in warm water, and put on all clean linen and clothes, their clothes must previously be well scoured with soap and water.

Whenever this complaint prevails in a regiment, there should be a weekly inspection of all the men by the Surgeon or Assistant Surgeon.

All men with venereal disorders should be confined to the hospital.

The commanding officer should be applied to for a guard of one or two sentries to every regimental hospital, and the same to every hospital tent.

The regimental surgeon, or the assistant surgeon, should visit the hospital at least twice every day, and the quarters of one of them should be very near to the hospital; when in camp, one of them should sleep there.

A book is to be kept at every regimental hospital, for the admission and discharge, and for the cases of patients; in which the name, age, disease and treatment, should be fully inserted; a report to be made by the 20th of every month to the army medical board, a copy of which is to be sent to the inspector, according to the usual form, together with any observations upon particular cases, and especially if a contagious fever or epidemic prevails, it is required that the surgeon, or assistant, shall give his opinion fully of the probable cause, and whether such cause is removable, and also an account of the treatment.

They are to be particularly attentive to the examination of recruits, when such are brought before them, not to suffer any man to pass, who has not had his examination, stripped of all his clothes, to see that he has no rupture, to ascertain as far as possible that he has the perfect use of his eyes and ears, and the free motion of every joint and limb; that he has no tumours nor diseased enlargements of bones or joints, no sore legs, nor marks of an old sore; that his appearance is healthy, that he is neither consumptive nor subject to fits; with any of these defects, the man is to be rejected as unfit for service.

Inoculation of recruits at convenient times and places is to be recommended by the surgeon and assistant surgeon to the commanding officer.

An army dispensary being established it is expected that medical officers of all descriptions will, as nearly as possible, adhere to the list there given.

Each regimental surgeon when provided with a chest of medicines is required once every year to make a return to the inspector of regimental hospitals, under cover to the secretary at war, of the medicines used by him during the preceding twelve months, and of what remains; and this return to be accompanied by an affidavit taken before a magistrate, that none of the medicines have, to his knowledge, been converted to private purposes, or applied to any use but that of the regiment, or to some other military hospital, for which he must produce the special orders of the commanding officer, or one of the army medical board.

Should a regiment be placed in an unhealthy situation, or from any prevailing disease should the surgeon's stock of any particular medicine be exhausted before the next yearly supply becomes due, he is to apply to the inspector of regimental hospitals, under cover to the secretary at war, for a fresh supply; the existence of such cause for the extraordinary consumption of the medicines to be certified by the commanding officer. If a medical officer desires to use a medicine not in the dispensary, he must procure it at his own expense.

When wine is indispensably necessary, it should be given as long as the case absolutely requires, but no longer, and it must be given by the surgeon, or assistant surgeon, himself, unless previously mixed by them with medicine or food, and porter, or good beer, should, whenever the case will admit of it, be given in lieu of wine; wherever (sic) wine is necessary, a return of the consumption thereof is to be made weekly to the inspector general.

Each regimental surgeon will be furnished with four sets of hospital bedding for every hundred men on home service, and with six sets, on foreign service; and other hospital necessaries in proportion; a return is to be made once a year of the number worn out, and the unserviceable stores to be inspected by a proper person appointed for that purpose, before they are exchanged for new ones.

Each regimental surgeon is expected to have one complete set of capital and one of pocket instruments and the assistant surgeon one complete set of pocket instruments; the whole to be provided by themselves, and kept in order at their own expense, in readiness for inspection, whenever called upon; and the list of them is regularly to be inserted in the yearly return.

Every regimental and assistant surgeon is expected to take care of the sick of any other regiment, detachment, or recruiting party, men on furlough &c. in the place where their own regiment lies, or within ten miles distant, provided no hospital rate of a district is nearer than themselves, for which journey the necessary travelling expenses will be allowed; if applied to from a greater distance, they are to make the best terms in their power with a resident practitioner for the care of the men in question, making a report thereof to the inspector of hospitals as above.

The medical and hospital expenses of the regiments, and of their respective detachments and parties, are to be inserted in the annual public accounts of the respective corps."

Signed L. PEPYS
J. GUNNING
S. KEATE

The following judicious observations and cautions, copied from Mr. Sommerville's memoir, which has been already so often quoted, may be of use to the young and less experienced medical attendants.

"Such care and circumspection will be necessary on the part of the medical attendants, as to the patients that ought or ought not to be admitted to the hospital; for, in many instances, laziness is the greatest part of the disease; and in others, the malady may be such as to endanger not only the other patients, but even the safety and comfort of the whole camp.

When troops are exposed to hard duty during bad weather, the lax part of them see no other way of avoiding it but by pretending sickness, and being sent to the hospital, by which the duty of the good soldier is rendered heavier, the hospital crowded with people who have no right to be there, and the medical attendants subjected to much unnecessary trouble and fatigue.

The same thing very frequently happens in new regiments, where the camp discipline is hard and the weather uncomfortable; many of the young recruits who are in perfect health, pretend sickness, and wish to be admitted into the hospital from a double motive - first, that they may avoid their duty, and second, that they may be saved the trouble of keeping themselves clean.

Accordingly a great many young men are met with about every military hospital, who have no ailment but laziness and aversion to their duty, and who resemble hospital patients in nothing but their dirty squalid appearance; and it is by no means uncommon for ten or a dozen of these men, after finishing

a hearty meal, to set down to cards, or even to drinking, in company with the nurses and hospital attendants. We have observed numberless instances of this kind, where the regimental surgeon has been completely duped by listening to feigned complaints, and many of the stoutest men in the regiment excused from duty, and laid up in the hospital, where their appearance exhibited nothing but dirt, idleness and dissipation.

The complaints generally feigned by such men, are rheumatism, headaches, and the like. These, while they afford a plausible pretext for excusing them from duty, at the same time exhibit no symptoms by which they can be detected. All military surgeons ought therefore to be particularly upon their guard against complaints of this description, and should give orders that the persons so complaining should be strictly watched.

And as it ought to be a fixed principle with every medical man to render the hospital, as far as circumstances will allow, a place of comfort and relief to those who are really distressed; so, on the other hand, it should be converted into a place of punishment and confinement for such as only pretend sickness. We confess that there are doubtful cases, where a surgeon is unable to ascertain whether the complaint be feigned or real; in such cases, however, the person complaining should be treated as if he were really ill, should be confined to a low diet, consisting chiefly of broth and bread, and entirely debarred the use of butcher's meat, fish, spirits or fermented liquors, and all those gratifications that are so agreeable to idle people. Above all, the visits of the healthy part of the regiment to those in the hospital ought to be forbidden, for two reasons: first, as they afford an inducement for others to pretend illness, in order to avoid duty; and, secondly, as the contagion of the sick can easily be communicated by frequent visits of this kind to the hospital, the visitors are not only liable to catch infectious diseases themselves, but also to communicate them to the whole camp."

The purpose of this regulation is to preserve good order and decency in regimental hospitals, if some such regulations as those following were to be enforced.

1. No card playing or gaming to be allowed.
2. No spirits or strong liquors to be vended.
3. No article of food to be used unless it has been directed by the medical attendants.

4. No loose women nor visiting females to be admitted on any account whatever.
5. None of the comrades of the sick soldiers to enter the hospital without a written order.
6. No patient to go abroad without leave of absence obtained from the surgeon himself.

7. No cooking, nor washing or drying linen, to be suffered in the hospital.
8. Every nurse who commits at the breach of these regulations, or encourages the patients in any other misdemeanor, to be punished and discharged for the first offence.

It is the duty of the medical attendants to see that these regulations are strictly enforced, and to report any breach thereof to the commanding officer of the hospital. The commanding officer of the hospital is responsible for the maintenance of good order and decency in the hospital, and for the enforcement of these regulations. The medical attendants are to be assisted by the nursing staff in the execution of their duties. The nursing staff is to be composed of women of good character and sound mind, and to be trained in the duties of nursing. The nursing staff is to be under the control of the medical attendants, and to be responsible to them for the care of the patients. The nursing staff is to be paid for their services, and to be provided with suitable clothing and food. The nursing staff is to be allowed to visit their families and friends, and to be allowed to receive visitors. The nursing staff is to be allowed to engage in any lawful occupation, and to be allowed to receive any remuneration for their services. The nursing staff is to be allowed to be married, and to be allowed to have children. The nursing staff is to be allowed to be promoted, and to be allowed to retire. The nursing staff is to be allowed to be discharged, and to be allowed to be re-engaged. The nursing staff is to be allowed to be transferred from one hospital to another. The nursing staff is to be allowed to be employed in any other capacity, and to be allowed to be employed in any other hospital. The nursing staff is to be allowed to be employed in any other capacity, and to be allowed to be employed in any other hospital.

It would tend to preserve good order, and decency in regimental hospitals, if some such regulations as those following were to be enforced.

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2. No spirits or strong liquors to be vended.
3. No article of food to be used unless it has been directed by the medical attendants.
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CHAPTER 12

Of Intemperance and Dissipation

The habits of the lower classes of people in this country, unfortunately dispose them much to intoxication, whenever opportunity permits them to gratify their inclinations. It is not to be supposed that their morals in this respect will in general be amended, by entering into the army. The precariousness and hardships of the military life, render those who are subject to them eager to indulge in every gratification, which accident throws in their way; and, of these, drinking is the most frequent and fascinating.

The prevalence of this vice, though it be at present punished by military discipline, fully proves the difficulty and necessity of eradicating it. The only liquor whose price permits the soldier to use it as a means of intoxication is ardent spirit. And such as is provided by the followers of a camp, is usually of the most vile, sophisticated, and pernicious kind. To form a soldier, requires much time, labour, and expense: and as there can be no doubt that many of them fall sacrifices to the intemperate use of spirituous liquors, it might be deemed an act of humanity as well as of sound policy to prohibit the sale of them in the neighbourhood of a camp, and in their stead to encourage the use of sound beer, ale, or porter, in which the pay of a soldier will never allow him to indulge so as to injure his health. In a word, all the provisions, and liquors of the outposts should be inspected by a captain, and the surgeon of each regiment; and none allowed to be sold till they had been approved by one of them, nor higher than at the usual market rate.

It may, with propriety, be mentioned here that the Venereal Disease also deprives the service of a great many useful men. A very judicious regulation has lately taken place with respect of the mode of remunerating the surgeon for the cure of this complaint. But soldiers are still inclined to conceal its early stages, from dislike of confinement, or perhaps from ignorance of the consequences of its recent, and apparently trifling, symptoms: Whence they are induced to apply to mercenary quacks, mountebanks and farriers, or to some of their ignorant comrades, who promise more than they can perform. Thus the period at which medical assistance is of the utmost importance elapses; and the disease is allowed to take root in the system, and acquire a degree of malignity not easy to eradicate. Instead of communicating their cases to the regimental surgeon as soon as they are infected, the men are frequently rendered unfit for duty, and are necessarily discharged from service. I have often admitted such mutilated objects to the Lock Hospital; and sometimes have been obliged to dismiss them, cured indeed of the lues venerea, but with constitutions too broken and impaired to gain their livelihood in any capacity whatever.

The other hospital surgeons in London will bear their testimony to similar depredations of this disease, or its treatment, in the British army. But, much of this mischief might be prevented by ordering a sergeant to enquire individually of the men of each company, once a week (suppose every Monday morning) whether they have reason to believe themselves infected? And it might be proper to forbear stopping their pay: except of those who are so bad as to require confinement. By this ready discovery of their situation, men might even be cured while in the ranks, and kept out of the hospital: which must always be an object of consequence.

Long experience has proved that idle and vicious habits are not to be cured by punishment and severity. I would therefore propose, with all due submission, that, in order to amuse and civilize the soldiers; to deter them from pernicious habits of laziness; and as a means of preserving their health; the greatest possible encouragement should be given, not only to various athletic exercises, but to useful mechanical employments, and even to the diversions of music and dancing. With respect to diversions it might be a gratification to some of the officers to preside at them; and would be an innocent, if not useful, mode of filling up some of their leisure hours, both in camps and quarters.

Mr. Somerville remarks, that, "in all regiments there are a number of the privates, who have been bred up to mechanical employments, and who, from having been accustomed to constant labour, are early in life, are apt to become dissipated when they are idle. To this class shoe-makers, tailors, and weavers principally belong. People of this description may always be employed by the regiment, in such a way, as not only to benefit themselves, but to produce a saving to the country. By proper attention, the whole of the regimental clothing and shoes, may be made by the tailors and shoe-makers of the regiment; and in many instances, during peace, when the men are in quarters, a great deal of the coarse woollen clothes, of which their coats and waistcoats are made, might be woven by the men. This last expedient, however, is not always practicable, as there are many situations where looms cannot be had for the purpose; but the tailors' and shoe-makers' work admits of being done in almost every situation."

"A regulation of this kind would not only produce a saving in point of expense, but the articles would also be better than such as are obtained by contract; to which if we add, the habits of industry and regularity which the men will by this means acquire, the benefit resulting therefrom, will be great indeed; but we do not wish to confine ourselves merely to these branches of industry, as there are many others in which private soldiers may be employed (at their leisure hours, or when they are not upon duty) with equal advantage to themselves and the community. The greatest preservation against vice and dissipation in every line of life being employment; the more completely any man's time is occupied, the less will remain for acquiring habits of idleness or expence. Every private soldier ought therefore to be encouraged to work as much as

of which it is the duty of the Government to see that it is carried out. The Government has the honor to acknowledge the receipt of your letter of the 10th inst. and to inform you that the same has been forwarded to the proper authorities for their consideration. The Government is also in receipt of your letter of the 12th inst. and is sorry to hear that you are unable to visit the country at the present time. The Government is, however, glad to hear that you are still in good health and hope that you will be able to visit the country at a later date.

The Government is also in receipt of your letter of the 15th inst. and is sorry to hear that you are unable to visit the country at the present time. The Government is, however, glad to hear that you are still in good health and hope that you will be able to visit the country at a later date. The Government is also in receipt of your letter of the 18th inst. and is sorry to hear that you are unable to visit the country at the present time. The Government is, however, glad to hear that you are still in good health and hope that you will be able to visit the country at a later date.

The Government is also in receipt of your letter of the 21st inst. and is sorry to hear that you are unable to visit the country at the present time. The Government is, however, glad to hear that you are still in good health and hope that you will be able to visit the country at a later date. The Government is also in receipt of your letter of the 24th inst. and is sorry to hear that you are unable to visit the country at the present time. The Government is, however, glad to hear that you are still in good health and hope that you will be able to visit the country at a later date.

The Government is also in receipt of your letter of the 27th inst. and is sorry to hear that you are unable to visit the country at the present time. The Government is, however, glad to hear that you are still in good health and hope that you will be able to visit the country at a later date. The Government is also in receipt of your letter of the 30th inst. and is sorry to hear that you are unable to visit the country at the present time. The Government is, however, glad to hear that you are still in good health and hope that you will be able to visit the country at a later date.

possible when not on duty; and every liberty and indulgence granted for that purpose, compatible with the good of the service."

"This regulation, like that of regimental schools, is connected with the health of soldiers only in proportion as it promotes industry detaches them from habits of idleness and expense, renders them sober and diligent, and affords them the means of living comfortably."

In treating the subject of this chapter as well as some of the preceding, I am aware that an apology is necessary for having proposed what may be called "novelties and innovations". But I believe the good sense of my countrymen, and especially the well informed part of the British army, will not allow any antiquated or ill grounded prejudices to preclude the possibility of introducing a real improvement. The only motive I had in undertaking this publication, was a sincere desire to render myself useful; And I leave it to the judgment and experience of impartial men to determine what service I have done.

Mhi satis superque erit, publice utilitati, & praesertim
Britannorum Civium incoluntati consecrassa.

The End

A diagram of a rectangular component with a central vertical slot and a horizontal slot at the bottom. The component is labeled 'A' on the left and 'B' on the right.



APPENDIX

Mode of purifying a muddy stream.

This sketch represents an easy mode of purifying the water of a lake, or a muddy river, for the use of an army encamped in its neighbourhood.

A is the river, into the margin of which several strong wooden posts are to be firmly driven. To these, long planks, previously bored full of holes, are to be nailed; the lower one being sunk some way into the bed of the river. The same is to be again repeated at the distance of two feet or more; the intervening space being filled with close sand, or fine gravel previously washed, and rammed moderately tight. When this is done, a basin B is to be dug of a proper magnitude; a foot or more of earth being left next the wooden frame.

It is evident that the water in the river, from its natural propensity to find its level, will filter through the sand, and come clear into the basin. The vessel which contains the sand, should be wide in proportion to the muddiness of the stream; and several of these contrivances may be formed, according to the supply of water required.

The water, passing through the sand, will be found to be clear and pure, and fit for use. The contrivance is simple, and may be constructed by the soldiers of an army, without the aid of any tools or machinery.

When the water is required for the use of an army, it is necessary to have a supply of it, and this contrivance will be found to be a most useful one. It is also a most economical one, and may be constructed by the soldiers of an army, without the aid of any tools or machinery.

BLAIR, William (1766 - 1822), surgeon, youngest son of William Blair, M.D. and Ann Gideon, his wife, was born at Lavenham in Suffolk on 28 Jan 1766. He qualified himself for surgical practice in London under Mr. J. Pearson of Golden Square, by whom he was introduced to the Lock Hospital, and on a vacancy was elected surgeon to that charity. Blair was a Master of Arts, but it is not stated at what University he graduated. He became very eminent in his profession, and was surgeon to the Asylum, the Finsbury dispensary, the Bloomsbury dispensary in Great Russell Street, the Female Penitentiary at Canning House, Pentonville and the New Rupture Society. He was a Member of the Royal College of Surgeons of London and of the Medical Societies of London, Paris, Brussels and Aberdeen. For some time he was editor of the "London Medical Review and Magazine". Blair was a very earnest protestant of the Methodist persuasion, and laboured zealously in the cause of the British and Foreign Bible Society, to which he presented his valuable collection of rare and curious editions of the Bible, and many scarce commentaries in different languages. Once or twice, he attempted lectures on anatomy and other subjects but with little success. On his wife's death in 1822 he resolved to give up professional practice and to retire into the country. He accordingly took a house in the neighbourhood of Colchester, but before the preparations for removing were completed, he was seized with illness, and died at his residence in Great Russell Street, Bloomsbury, 6 December 1822.

His works are -

1. "The soldier's friend, containing familiar instructions to the loyal volunteers, yeomanry corps and military men in general, on the preservation and recovery of their health". London 1798. 12mo. 2nd edition 1803. 3rd edition 1804.
2. "Essays on the venereal disease and its concomitant effects". London 1798 8vo. 3rd edition 1808.
3. "Anthropology, or the natural history of man with a comparative view of the structure and functions of animated beings in general". London 1805. 8vo.
4. "The vaccine contest, being an exact outline of the arguments adduced by the principal combatants on both sides respecting cow-pox inoculation including a late official report by the medical council of the Royal Jennerian Society" London 1806 8vo written in defence of vaccination in answer to Dr. Rowley.
5. "Hints for the consideration of Parliament" in a letter to Dr. Jenner on the supposed failure of vaccination at Ringwood including a report of the Royal Jennerian Society, also remarks on the prevalent abuse of variolous inoculation and on the exposure of out-patients attending at the small-pox hospital. London 1808 8vo.



