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Contributors

Kirwan, Charles J.
Royal College of Surgeons of England

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NOTES

ON

THE DISPATCH OF TROOPS
BY SEA.

By

CHARLES J. KIRWAN, Esq., L. R. C. S. I.,

Formerly Demonstrator of Anatomy, &c. &c. &c.

ASSISTANT SURGEON,

H. M. 13th (Prince Albert's) Light Infantry.

Calcutta:

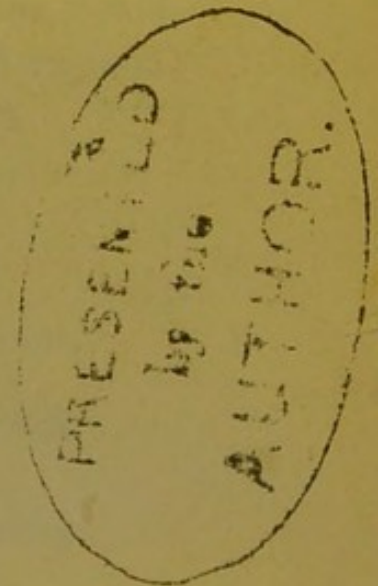
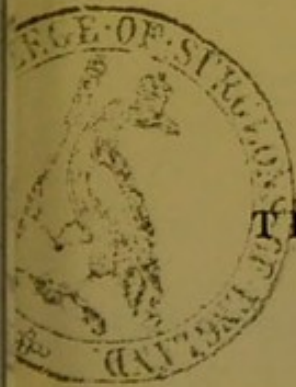
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1859.



NOTES

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THE DISPATCH OF TROOPS

BY SEA.

BY

CHARLES J. KIRWAN, Esq., F. R. S. E.,

Member of the Council of the Admiralty.

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1852.

To

THOMAS ALEXANDER, C. B.,

Director General,

Army Medical Department.

SIR,

THE observation of your continued endeavours to promote the health and efficiency of the British Army, has induced me to forward to you the accompanying Notes on the Transport of Troops by Sea, in the hope that you may be induced to make enquiry into a phase of the economy of the Soldier's life, which does not appear to have received so much attention as it deserves.

I feel confident that were the subject introduced to the notice of her Majesty's Government under the sanction of a name so much respected as your's, substantial results would follow in the improved sanitary condition of the Army and the consequent maintenance of the honor of England.

I have the honor to be,

Sir,

Your Obedient humble Servant,

CHARLES J. KIRWAN,

Asst. Surgeon,

H. M. 13th Light Infantry.

CALCUTTA, }
4th May 1859. }

THE UNIVERSITY OF CHICAGO

PHYSICS DEPARTMENT

1950-1951

The following is a list of the students who have been admitted to the Ph.D. program in Physics for the fall semester of 1950. The names are listed in alphabetical order of their last names. The number of students in each class is given in parentheses.

The following is a list of the students who have been admitted to the M.S. program in Physics for the fall semester of 1950. The names are listed in alphabetical order of their last names. The number of students in each class is given in parentheses.

There are four in all

W. J. ...
C. ...
J. ...
M. ...

INTRODUCTION.

THESE notes which form some portion of the results of journals carefully kept during nine voyages with troops are submitted with the anxious wish that attention may be drawn towards the manner in which our troops are sent to sea. Nothing but the conviction that an immense amount of destruction of the property of the soldier, and permanent loss of health (not to speak of the temporary discomfort) result from the imperfect fittings of the ships employed, and the defective arrangements made for the government and discipline of the men when on board, would have induced the writer to introduce a production which he is painfully conscious is full of imperfections. But voyage after voyage and year after year the same subjects for regret have forced themselves on his notice—no endeavour to improve the state of matters has become apparent to him—and no one has taken up the pen either to point out existing defects, or to suggest remedies for them. The soldier proceeding to India is profusely fed, but in some instances he is ill lodged in a leaky ship, where his clothing is injured and his bedding frequently wet, and he is harassed by night watches injurious to his health, and that too in a

situation where the appliances for its restoration are of a very inefficient description. No amount of over-feeding will protect men from the effects of exposure to cold and wet, and the want of convenience for that strict cleanliness both of clothing and person which is so necessary at sea as a means essential to the preservation of a sound state of health, as well of the mind as of the body. The equivocal position of the Officer in Medical charge in a situation where his services as a sanitary agent are necessarily of such paramount importance, seemed also to be a subject demanding attention, and although it be one somewhat delicate for a Medical Officer to treat upon, the author has not hesitated to do so, being fully convinced that the suggestions made tend to an improvement in the service. Subjects have sometimes been touched upon which may not seem to come legitimately within the sphere of the observation of a Medical Officer, but it has not been done in any offensive or dictatorial spirit, but rather with the hope that the attention of Officers within whose province they naturally lie, may be drawn to such matters. It may seem that some of the topics noticed are of a trifling description, but when it is considered that a very small neglect often causes a great deal of discomfort, or even danger at sea, they will assume a much greater degree of importance. No note has been made on any subject, and no conjecture as to consequences has been ventured, on speculation. Every single matter which has been commented upon, and every consequence which is noted as likely to result from certain methods of procedure, has actually come

under the observation of the writer, and this, it is conceived, adds a *practical* value to remarks which might otherwise appear of minor importance. That they may be stigmatised by some as visionary, is perhaps what may be expected. But be this as it may, the writer has merely done what he considers to be his duty, in availing himself of the opportunities of observation, which have been afforded to him during the period of his service in endeavouring to direct a tide of enquiry upon a subject so intimately connected with the health and efficiency of our Troops, and one which seems so deserving of attention as their **SAFE AND COMFORTABLE TRANSPORT BY SEA.**

under the observation of the writer and this is the
 first time a medical man has been known to
 observe a case of this kind. It is therefore
 a singularly interesting case and one which
 is of great value to the medical profession.
 The patient is a man of about 40 years of age
 and has been suffering from a complaint of
 the nature of the one which has been
 described in the preceding pages. The
 symptoms are of a peculiar nature and
 are of a kind which has not been
 previously described. The patient is
 now in a state of great improvement
 and is able to perform his usual
 duties.

AND CORRECTED THE PROOF SHEET.

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CHAPTER I.

Introductory—Causes rendering subject important—Number of Troops now being shipped—Objections to Merchant Vessels—To Men of War—Class of Vessels which would be suitable—Size—Ports—Upper-decks—Houses on Deck—Store-room—Hospital—School-room—Galleys—Laundry—Lavatory—Butcher's shop—Hurricane Deck—Live stock—General Remarks.

THE following notes on the Transport of Troops by Sea, have been written under an earnest conviction, that the subject well invites attention, and that any propositions however unpretending the source from which they may emanate, or however humbly they may rank as a literary production, will, on a matter of such vast importance, elicit due consideration; and that the critical tests which may be applied to them will be concerned rather with their usefulness and practicability, than with the correctness or style of the language in which they may be couched.

2. An opinion prevails among those who have studied the subject in all its bearings, that England ought to possess a fleet of Government Troop-ships creditable to her position as a great maritime nation, and efficient for the despatch of Troops at any moment.

The possession of transports urged.

3. Trusting to chance for vessels in every way suitable for troop-ships is questionable policy. The number of men England is obliged to send

to her colonies and dependencies is gradually increasing, and her detached army being insufficient to maintain possession of her immense territories, it may become necessary, to adopt means for its rapid assembly.

4. To prevent the loss of men, or the reduction of the standard of health during the progress of such a concentration, necessarily rapid and exciting or even during the quiet relief of a regiment in a distant colony, is a matter of paramount importance. To effect such desirable ends, sufficient space, and proper appliances are absolutely necessary; and these, it will scarcely be disputed, are rarely to be found in the ordinary Merchant Vessel, chartered for the conveyance of Troops.

5. The urgent necessity, which of late years has more than once arisen for the rapid deportation of large bodies of men from one country to another, seems to suggest the need of having at hand to meet such emergencies, some means of transport readily available, and better suited for the occasion, than the means of conveyance hitherto in use.

6. Various and weighty objections to the conveyance of Troops either in Men-of-War, or merchant Vessels, might easily be stated. Not the least of these as regards most Merchant ships is their general unsuitableness, and want of convenience for the purpose for which they are employed; while the simple fact of employing Men-of-War for the transport of Troops, suffices to prevent them from exercising their proper functions.

Men-of-War
as troop-ships
objectionable.

7. Independently of the advantage which would accrue from the possession of a class of ships expressly devoted to the transport service, in the

speedy removal of troops from one part of the globe to another, an additional recommendation for their use would be found in the *improved general health*, and the favorable state of morale or pluck in which men would be landed. In the means of conveyance now in use there are in nine cases out of ten, no appliances of a suitable description for the care of the sick, for the prevention of the spread of infectious or contagious disease, for the drying of wet clothing in heavy weather, for the preservation of the cleanliness of either the person or clothing of the soldier, for the segregation of married men and their families, or for that continual drill which is so essential to the efficiency and soldier-like bearing of the men. In short, there exists in too many cases, absolutely from want of means, the utmost difficulty in enforcing order, cleanliness, and obedience, without which men are in danger at the termination of a voyage, of being landed, a mob, rather than an army.

8. For the prevention of such evils, the introduction of a class of ships solely devoted to the transport service is proposed as a distinct arm of the service.

New arm of
service pro-
posed.

9. The size of such vessels might according to circumstances be varied; but perhaps ships ranging from 2,500 to 3,000 tons register would be best adapted for the purpose. They would be sufficient for the accommodation of a regiment a thousand strong, with its proportion of women and children, and stores and provisions for twelve months' use. The means of progression for a ship of this class, would in favorable weather, be sails, but with the addition of a small steam power, say from 250 to 300 horse, applied to a screw propeller, for the purpose of steaming through belts of calm, or of keeping way against light baffling head winds. These engines would be of little

Description
of troop-ship
necessary.

avail during the prevalence of strong head winds against which the ordinary expedient of beating would require to be adopted.

10. The decks on which the troops are lodged should have no impediment to the free circulation of air, and should also have ports similar to those of the fighting decks of a War ship, with the addition of the usual bull's eye port in the centre of the folding part, to be used for the purposes of light and ventilation when it became necessary to shut the larger ports.

Deck houses. 11. The upper deck should have as few impediments as possible, in order that plenty of clear space may be left for parading and exercising the men. Immediately in front of the poop deck, which ought to occupy as little space as possible, consistent with the comfortable lodging and messing of about a hundred Officers, naval and military, the roof of the engine room would stand, occupying only the central portion of the deck. From hence to a point considerably in front of the main hatch, would occur but few obstructions, and this portion of the deck could be used as a parade and drill ground. In front of the main hatch would follow a range of houses on deck, *viz.*—

Store-room. *a.*—A store-room having shelves like a retail shop, in which supplies of every kind, for immediate use, could be stored. This room ought to contain a hatch communicating with the main stores in the hold, so that all provisions could be brought direct to the proper place for being served out, without any of the inconvenience of moving boxes or barrels along the decks.

Hospital. *b.*—An Hospital and Surgery which last should also be fitted up with shelves, and all

other essentials for the proper and expeditious arrangement and dispensing of medicines.

c.—A school-room, which might serve also as a Library.

School-room.

d.—Galleys or Cook houses, divided into Ship's Saloon, Hospital, and Troops departments, furnished with salt-water pumps communicating with the sea.

Galleys.

e.—A laundry or washing-house, in which the women of the regiment could be employed as on shore, in washing the men's under clothing, and so constructed as to be capable of being used as a drying room for wet clothing in heavy weather. For this purpose it should be furnished with a large number of hooks on the ceiling beams, and around the walls, and also be provided with a steam drying, or rather heating apparatus, which could, by a little management, be supplied with the requisite quantity of heat from the same fires which serve for the washing and cooking apparatus. This apartment as well as the galleys to be provided with conveniences for pumping in salt water, and both to be lined with tiles, and floored with them in every part where the furnaces may be in the vicinity of timber.

Laundry.

Both the galleys and the laundry should have some method of discharging refuse water, without deluging the decks in their neighbourhood.

f.—The lavatory for the men would also be well situated near the laundry. There is, on board a troop-ship hardly any point which requires more strict attention than cleanliness of person, and there is none

Lavatory.

which seems to have received less, if the nature of the appliances, furnished for the purpose, is to be taken as a criterion.

Butcher's shop. *g.*—A butcher's shop ought to be provided in the range of deck houses, in order to guard against the filth created by slaughtering on the open deck, as well as to hang the meat in until required.

Hurricane deck. 12. These houses, with the addition of any others which may suggest themselves as necessary and useful, and for which there may remain space, would run forward so as to meet the roof of the fore-castle; and the roofs of the whole combined, would form a spacious hurricane deck broken only by the foremast, and a few sky-lights and ventilating shafts. This deck would form a spacious promenade for the men, and ought to be kept sacredly clear of all lumber, with the exception perhaps of a few sheep pens.

Live stock. 13. Since live stock has been here incidentally mentioned, it may [be as well to finish the subject at once by saying that such an animal as a pig should not be allowed on board a troop-ship. The amount of dirt which they create and the intolerable stench which is ever about them, (all efforts to the contrary notwithstanding) forbid their presence. Good hams, well cured pork, bacon, pig's face, &c., are surely sufficient representatives of the animal deceased, without being disturbed by its living presence.

Pigs disallowable.

Milk. 14. The art of preserving milk has now been brought to such perfection, that the presence of a milch cow might also be dispensed with. The quantity of milk which these animals give at sea is so small, and

they get into such a dismally low condition, that economy and humanity combine in declaring their presence at sea to be unnecessary.

15. The few unconnected hints which have here been thrown out, regarding the class of arrangements and appliances requisite, on board troop-ships, might with the greatest ease, be multiplied indefinitely. Much might be said regarding the cabins allotted to officers, of their inconveniently small size; of the improvements which might be made in their mess and sitting rooms; of the disagreeableness of having the Messman's pantry, generally full of stewards, attendants, and Officers' servants, within ear-shot of every conversation carried on in the apartment allotted as mess-room, general sitting room and orderly room. These and many other points might be made the subject of comment; and in the parts of the ship allotted to the troops, mention might be made of proper companion ladders, distinct from the hatchways, of ventilating apparatus; indeed a thousand matters, trivial when singly considered, but taken together, forming the great whole of comfort, regularity and salutary arrangement for the preservation of a sound physical and moral condition among the men, press forward for consideration.

16. To enumerate them all would be to write a specification for a well appointed troop-ship, a task better executed by the Naval Architect, under the instructions of the officer whose province it may be to determine the class of vessels required, and the amount of accommodation to be allowed. Suffice it to say that the ship should be of the first class, whatever her tonnage, with every improvement in naval architecture which may have stood the test of careful experiment, and with every appliance for the health and comfort of the men with which

Troop-ships
should be worthy
of the
soldier.

modern science has made us acquainted, so long as these do not tend to degenerate from comfort into luxury.

17. Such a class of ships would be a credit to the liberality, and an honor to the good feeling for the welfare of its troops, of any nation possessing them, and would enable it to make the proud boast of having been *the first to organise a fleet of Sea Barracks, in which its troops could enjoy and maintain a state of comfort, health and efficiency, inferior only by a few degrees to what they could enjoy in Garrison, on shore.*

CHAPTER II.

Troops in Merchant Vessels—Matters to be attended to—Time should be allowed to get ready—Ships trading to Northern Climates—Leaving Dock—Caulking of Decks—Danger and inconvenience of neglecting this—Life-boats should be hung on davits—Awnings should be fitted up before leaving port—Drawing and distributing water—Insufficiency of usual appliances—Danger and inconvenience arising from this cause—Downton's Pumps—Their advantages—Saving of life, time, and fresh water from their use—Shoots for carrying off refuse matters—Such matters ought not to be put into latrines—Cook-houses—Insufficiency of Cook-houses usually supplied to Troop-ships—Their danger from fire—Lamps—Hints regarding them—Examination of Ship previous to sailing—“Clerk of Works”—His Duties—Queen's Regulations on the subject—“Stevedore,” or stower—Necessity for such an Officer.

18. SHOULD it not be considered expedient to construct a fleet of transport ships or *sea-barracks*, it would be well that certain points were attended to in chartering vessels for that service. A few of these may be enumerated, in the hope that they may prove suggestive of others, to those who have devoted their attention to the subject.

Matters to be attended to in chartering.

19. In chartering for the conveyance of troops it is not at all unusual that ships are accepted to sail within a few days, having at the time of tender their inward cargo to discharge. The Merchant marine of Great Britain can do a great deal, but it is expecting or believing too much, to think that a ship of a thousand or two thousand tons can discharge, be overhauled, fitted up, take in ballast and cargo and stores, and be every way

Owners should be allowed reasonable time.

ready to embark troops for a long voyage in a space of perhaps not more than a fortnight; except in cases of emergency, no charter party should be entered into without allowing ample time for all necessary alterations, repairs, &c.

Suitable vessels only should be taken up.

20. Ships which have been built for the purpose of trading in Northern climates, should, as a general rule, be avoided; they are ill adapted for conveying troops through the heats of the tropics, and, from their original construction, it is next to impossible to alter them, so as to render them suitable for sea-barracks for soldiers during a long voyage.

How the ship is found.

21. Before leaving dock it would be well to see that all the standing rigging is properly set up, and as much of the running gear as is possible rove, and that the ship is well found in sails, spars and cordage.

Troops on board 36 hours previous to sailing.

22. No vessel ought to be allowed to proceed to sea, until fully 36 hours have elapsed from the time of the embarking of the last company or detachment, nor until the whole of the spare spars shall have been properly lashed, and the deck lumber either cleared away, or properly secured.

If properly water-tight above and below water-line.

23. It should be carefully seen that all vessels, and especially those which have recently arrived from tropical ports, have their upper decks properly caulked and pitched before proceeding to sea; indeed this precaution should extend to every part of the ship. If this be not attended to, the comfort, health, and spirits of the men will soon suffer, so soon as heavy weather or rain is met with, the rain runs through to the tween-decks, making them messy and sloppy, the air is rendered foul, and the damp induces rheumatism and chest affection. In addition to

this the clothing and accoutrements of the soldier are partially or perhaps totally destroyed, causing him to become dispirited and careless, and obliging him to go in debt for a new kit, at which it is not wonderful that he should feel aggrieved; to be placed in a leaky ship, and made to pay for the damage done, owing to that cause, is an arrangement which he cannot well understand.

24. Suitable arrangements for preserving boats intended for saving the lives of passengers should be one of the chief cares of those charged with the fitting up of troop-ships. The arrangement by which we see the great proportion of the boats, and these the heaviest, fixed on board on beams running from bulwark to bulwark cannot be sufficiently condemned. The boats become warped and cracked by the sun, and, in heavy weather, get strained by bumping and jolting one against the other. In addition to this, they prevent the free current of air down the hatchways, and render it impossible to spread a proper awning over that part of the deck where the men most congregate. In the event of their being required, the probability is, that they will be found to be useless, and in any case, much valuable time is lost and needless danger incurred, in getting them overboard. Any one who has seen a storm at sea, or has even read a detailed account of one, knows how little chance there is of securing anything like unity of action. Without it how foolish to expect that a boat, freighted with living cargo, can be lowered into a raging sea, when two tackles, each working independently of the other, are required for the purpose. All life-boats therefore, should be hung on davits, furnished with Clifford's patent lowering apparatus, or some other of a similar description, by which a single individual, or at most two, working on the same line, can lower an entire boat's crew.

Life Boats.

Awnings.

25. It is also a matter of some importance that the upper decks of ships carrying troops to India should be supplied with proper awnings, which should be seen fitted up before the ship is passed as being ready to proceed to sea. These awnings, it must be understood, are not intended as articles of mere luxury, but as medical necessaries, for it is considered that men, by lying exposed to the vertical rays of the sun, become *predisposed to suffer from coup-de-soleil*; and on this account alone they may be considered a necessity. Their being fitted up before starting is recommended from the belief that there is little chance of their being made at sea, as many ships from the construction of their upper decks are not well suited for them; and Captains, once escaped from port, naturally evade, if possible, cutting up canvas for a temporary purpose, preferring to make an old sail suit the end in view.

Water supply.

26. The means of drawing and distributing water, both fresh and salt, is a subject which should perhaps engage more attention than it seems at present to do. Few ships taken up for the conveyance of troops contain any appliance for the purpose of drawing salt water other than the ordinary pump, of the simplest construction, which is usually fixed in the heads; and however well this may suit when there are none on board but the crew, and a few passengers in the cuddy, it is quite inadequate in a troop-ship. The multiplication of the number of passengers, requires a like multiplication of the means of water supply.

Danger from drawing water by buckets.

27. The appliances which sufficed for forty, cannot suffice for four or five hundred. The consequence is, that much danger is incurred in procuring even an insufficient supply of water, by means of buckets

thrown overboard. With a ship running at eight or ten knots an hour, a stiff breeze and some sea on, he must be a strong man, and steady at standing on a lee rail, if he do not run some risk of being dragged overboard, or of losing his bucket. Men do not like being dragged overboard, so they let go the bucket, and thus the means of water supply become day by day diminished, until at length a few buckets, cherished like gold, are all that remain. These, of course, must be kept for what may be called Public purposes; such as washing decks, cleaning urinals, latrines, &c., &c. Were it not that the shifts to which men are then put in order to ensure an approach to cleanliness are distressing, they would be ludicrous to contemplate. Mess *kids* capable of containing about a gallon and a half, serve for tubs to wash clothes; and grave attempts are made to supply the want of proper lavatories for the person by the use of the tin from which preserved meats (about four pounds to each tin) have been emptied.

28. A simple remedy for all this, would be to put on board at least two force pumps on Downton's or some similar principle, with a sufficient supply of leathern and canvas hose and nozzles, as well as the materials for repairing them efficiently when out of order; one of the pumps to be kept in reserve as a fire engine, and the other to be constantly at the disposal of the troops, under charge of a Serjeant appointed to take care of that and all other cleansing apparatus. By these means, decks could be washed down,—latrines cleaned out, tubs filled, buckets and perhaps lives saved,—fresh water drawn from the hold, and this, almost independently of the state of the weather, and in one-fourth part of the time which, by the primitive bucket and head-pump system, is occupied in doing one of them.

A liberal supply of force pumps necessary on troopships.

Force pumps
a means of
saving fresh
water.

29. So far as salt water is concerned, the saving of life, time, and labour should be a sufficient recommendation of the proposition, but an additional one presents itself in the case of fresh water, *viz.*, the saving which would be effected in the quantity of water used, or rather destroyed. No one who has seen the laborious operation of drawing fresh water from the hold in buckets, or who has suffered from the want of water at sea, can witness without pain the spectacle of twelve or fourteen men toiling for four or five hours under the burning sun of the tropics to bring up two or three hundred gallons of water, and in the process wasting, not by carelessness, but inevitably, from the nature of their appliances, at least one-sixth part of the whole quantity rendered available. A force pump, and a few hundred feet of hose, would prevent all this, and the work would be done in half an hour.

Refuse dis-
charging
shoots neces-
sary.

30. Another matter may be noticed, and although it may appear trivial, experience has proved it to be of no inconsiderable importance in securing the cleanliness of a ship's sides, decks, and latrines. This is the fixing in the bulwarks of some apparatus for the purpose of carrying off dish-washings, cinders, cook-house refuse, deck-scrapings, &c., &c. It is highly improper that these matters should be discharged into the latrines or urinals, as is too often the case. It is almost unnecessary to adduce reasons for this. One may suffice. The angle at which latrines are set is not acute enough to carry off these matters, and consequently they become choked up. It is therefore recommended that an iron shoot, two and half feet wide, having its upper edge projecting two feet inwards, should be inserted into the bulwarks, forming an angle with them of about 45° . Their proper place would be a few feet abaft the galley doors on each side.

31. Every one who has been at sea knows that, great as is the economy of space in every part of the ship, there is no portion of it where the pinching system is more rigidly carried out, than in the cook-house or galleys. And if this is the case even in the best class of passenger packet ships what can be said of the kitchen of a troop-ship, where all that is required of the owner is, that boilers be provided, capable of containing after the rate of half an imperial gallon per man. Of course the form which takes up least superficial or deck space, (always a primary consideration on board ship) is the deep square tank shape. A flimsy wooden caboose is erected around the boilers leaving just space enough on one side of the interior, for two men to pass each other, and here the cooking for four or five hundred men is carried on.

Inferior cooking appliances in troop-ships.

32. Little provision is made for fire risk, unless the covering of the floor, and the lining of portion of the sides of the caboose, with sheet iron of a very light guage, be considered sufficient. Practically, however, this sheet iron is a sort of invitation to fire, with a promise annexed to keep its presence secret for a certain length of time. The fierce fire which must be maintained, in order to keep coppers of such a depth, and presenting so little surface to the action of the flames, in a boiling state, speedily renders every portion of iron-work about the surface red hot. From hence the heat is communicated to the flimsy sheet iron floor, the dry deals get it, and in a few minutes, and without any warning, the galley is in flames.

Troop-ship galleys a dangerous source of fire.

33. The lamps on board troop-ships should be sufficient in quantity, as well as efficient in quality. Instead of being made of thin tinned iron, they should be made either of strong block tin, brass or copper, and of considerably larger size than they usually are. Some-

Good lights tween decks.

thing like a globe mast-head signal lamp would be the proper thing. The guard wires should not be soldered, but either rivetted or screwed on, because when the lamps have been sometime alight, the metal gets heated, the solder gives way, and as the guard wires form the only support of that part of the lamp under the globe, it must fall to the ground, unless indeed the cement by which the metal is fixed to the glass, be strong enough to support the weight of the lamp which is seldom or never the case.

34. Many other requirements might be mentioned, but it is trusted that if public attention be once drawn to the subject of troop-ships, no single item will fail to receive the consideration to which it is justly entitled.

A practical man to oversee alterations.

35. Something more than a mere cursory overlook should be given to a ship, before being permitted to put to sea: indeed it would be no more than is necessary, if, in cases where alterations and repairs are required, an official, somewhat corresponding to the "Clerk of works" of civil life, were put on board, to check the whole of the materials and workmanship, and put his *veto* on any thing he considers insufficient. Without this, unsound and untradesman-like work can neither be avoided nor detected. It looks well enough on a passing inspection, but it is certain to give way during the first gale of wind.

Additional guarantees as to fulfilment of Charter Party.

36. In the Chapter of the Queen's Regulations treating of embarkation of troops (1st July 1857, page 195,) it is provided that "on the arrival of a vessel for the reception of troops, the General, or other Officer Commanding, is to cause such inspection to be made by the Staff and Medical Officers under his Command, as may satisfy him that the vessel is in every respect

“ fitted for the accommodation of the number of Officers and
 “ men to be embarked, and that proper and sufficient stores
 “ are provided for their use.” Now as it is utterly impos-
 sible for any Officer whatever, to satisfy himself *conscienti-*
ously upon all the requisite points, in the limited time which
 usually elapses between a ship's being reported ready for
 sea, and the period when it is anticipated that the troops are
 positively to embark, the officer, naturally anxious to ex-
 pedite the public service, will, unless he has reason to
 suspect delinquency or fraud on the part of the owners or
 master, upon the simple statement of the master, purser or
 some other party interested in the profits of the voyage,
 pass the vessel as ready for sea. It is true that pa-
 pers will generally be produced, purporting to shew how
 much provision has been taken on board, and to give corro-
 borative evidence on some other points, but it is contended
 that this is not enough, and that some other guarantee
 should be had. The penalty attached to having a short supply
 of provisions on board is so small, that a speculating captain or
 owner would think little of risking to make a passage to India
 with 90 or 100 days' provisions on board, instead of 140
 days which he is supposed to carry.

37. For the prevention of any-
 thing of this kind, and in order also that the ship may be
 guaranteed to be properly stowed, both as regards security
 from shifting and ease of access, it is recommended that an
 officer, corresponding to the “stevedore” or professional
 ship stower and discharger of the Mercantile Marine,
 should be appointed to superintend the stowing, and to
 check the shipment of every article put on board in fulfil-
 ment of the Charter party. This officer, as well as the
 Clerk of Works, previously mentioned, would give his cer-
 tificate of the fitness of the ship to proceed to sea, and
 thus the officer embarking the troops could give the neces-

“Stevedore.”

sary clearance with more satisfaction than if his information was derived from interested parties.

It should be seen that these subordinate Officers discharge their duties faithfully.

38. In order that these officials should thoroughly discharge the trust reposed in them, it would be requisite that they should remain on board during the whole time that repairs and alterations are going on, or goods being taken in, and be under the superintendence of a Director General of transports, from whose office visits should be occasionally paid to the ship, during the time that she is being fitted out for sea. It is impossible to expect that the head of such *an important branch of the service as the despatch of troops by sea is fast becoming*, should be able to devote the time necessary to see the fulfilment of details, and such an arrangement as above indicated seems well adapted for securing the end in view.

CHAPTER III.

Conducting Serjeants—How to be chosen—Hospital Serjeant—Percentage of Marines—Their uses and duties—Serjeant Major—and Quarter-master Serjeant—Their duties.—Sea Necessaries to be placed in Quarter-master Serjeant's Store-room.

39. THE ship fitted up and ready for sea with troops, the next consideration is, how the necessary details for comfort, health, and regularity are to be arranged and carried out. It too often happens that the selection of men qualified for the arrangement and management of these matters is left to chance. The excellent suggestion of H. R. H. the Commander-in-Chief, which eventuated in the appointment of Conducting Serjeants, went far towards removing the difficulty, but the fact of the men chosen having occasionally been parties *effete* from age, or who had perhaps never encountered a longer passage by sea than from London to Dublin, and who were therefore utterly ignorant of the economy of life on board ship has at times rendered inoperative a suggestion of great practical value. The men chosen as Conducting Serjeants for detachments should be young, active and intelligent; accustomed to life on boardship, and also to the special occupations in which they will be engaged.

Class of men
suitable as
Conducting
Serjeants.

40. Three of these Conducting or Sea-Barrack Serjeants should be sent on board every troopship as under, *viz.*—

Hospital
Serjeant
should be se-
lected from
Medical Staff
Corps.

41. First and as of greatest importance, the Hospital Serjeant. For this, more than any position in the Military life of a soldier, special qualifications are necessary. A man of even temper, active habits, and above all, having some knowledge of the nature and action of medicines, and of the method of performing the various capital and minor operations of surgery, so that he may be able to act in some degree as an Assistant to the Military Surgeon.

42. Such men are seldom to be found among the miscellaneous inhabitants of a troop-ship, and the officer in medical charge too often gets for an Hospital Serjeant, a man not only inadequate to the performance of his duties, but even incapable of being instructed in them in time sufficient to make himself useful. Such a man is a hindrance rather than a help. Again should there happen to be a man on board adequate to fill the situation, he may either not come under the observation of the Officer in Medical charge, or if he does, his own Officer may require him for Regimental duty. Accidents may, and often do, occur during the embarkation of troops, and in such a case the Medical Officer is either totally without assistance, or he has a mob crowding round him, all equally willing, and equally ill-qualified to render assistance; or he has one man handed over to him, hastily selected, ignorant of what an Hospital Serjeant is expected to do, and so, quite useless. It is earnestly recommended that the filling of such an important situation should not be left to *chance*, but that a young, active, and trustworthy Serjeant of the Medical Staff Corps should be put on board every troop-ship, which may not otherwise carry a person of known and approved qualifications. He ought to be a man knowing and exemplifying the difference between cool expedition and breathless hurry, and who has had experience in a Military Hospital. He

ought to be shipped one or two days before the troops are embarked, so that during the interval he may make himself acquainted with the nature and amount of the medicines put on board, and have them properly arranged, and ready for instant use.

43. Next to health, and as a principal means for its preservation stands, cleanliness. To ensure it, it is proposed that a small percentage of Marines should be put on board ships carrying detachments, to act as Sanitary Police. It would be their duty to see that all Sanitary Regulations on board were duly carried out, and strictly enforced, and that no dirt is allowed to accumulate about the decks, latrines, or any part of the ship. Being men accustomed to the sea they would be of essential service during the early part of a voyage, in seeing that cleanliness was preserved in every part of the ship, in washing decks, in rousing the men on deck, in acting as sentries on hatchways, latrines, wind-sails, and articles supplied for the cleansing of the ship; and this at a time when troops are usually prostrated by sickness, and perfectly unwilling and unable to take care of any person or thing but each one, himself, individually. These men as well as the Hospital Serjeant should be on board one or two days before the troops embark, in order to have every thing in readiness.

Marines as
Sanitary Po-
lice.

44. The next conducting or sea Barrack Serjeant is the Serjeant Major, who, as well as the Quarter-master Serjeant, should be chosen with special reference to his fitness, rather than to his length of service. Men steady, active, and intelligent, strict, but not tyrannical in discipline, and who have been to sea previously.

Serjeant
Major and
Quarter Mas-
ter.

45. The Serjeant Major having received from the embarking Officer printed regulations re-

Troop-ship
Regulations
published.

lating to the duties of troops on board ship, should have them posted up conspicuously throughout the ship, at the different hatchways, between decks, &c., &c. He should be ready to receive the various detachments or companies as they come on board, and conduct them to their quarters, and to publish all temporary orders of the Officer in command.

Duties of
Quarter Mas-
ter Serjeant.

46. The Quarter-master Serjeant should post in various parts of the ship the scale of rations, and the scheme of their distribution. He should be thoroughly acquainted with the quantity of every article of consumption put on board for the use of the troops, and with the part of the hold in which they are stowed. He should see that all rations are served out regularly at the specified time, and in the specified quantities, and take a general oversight of the cookhouses, so that no irregularities take place in that department. He should keep a correct account of all supplies received by the troops, and of the manner of their distribution so that his books, kept in a business-like way, may serve as a complete check on the accounts of the purser. With these duties to perform, his time would be fully occupied, and he should therefore be personally exempt from all duties connected with the cleansing of the ship, or the care of the utensils employed for that purpose. It might also form one of his duties on the arrival of troops on board, to see that the sea necessaries of the detachments were not put on board promiscuously with other cargo, but in a place where they can be had when required. Much trouble often results from these requisites being hurriedly put away, to be afterwards sought for.

Sea necessa-
ries not to be
shipped with
General cargo.

CHAPTER IV.

Troop-ship Hospitals—Position—How to be fitted—Lights—Medicine chest—Cooking appliances for Hospital—Medical history of patients to be entered in Soldier's Small book—Advantages.

47. THERE is no department in the economy of a troop-ship which should receive greater attention than the hospital, or sick bay, its appurtenances, and appliances. It is much to be regretted that the Commissioners appointed in May 1857, to enquire into the sanitary condition of our army, did not bring the subject of troop-ships under their consideration. The amount of talent displayed in the plan of investigation adopted by them, and the untiring labor undergone in carrying it out, *can never be forgotten by the public*, and almost the only omission in their philanthropic labours which these gentlemen left to be regretted, is that which has now been indicated.

Importance
of troop-ship
hospitals.

48. Having a number of sick, some perhaps labouring under contagious or infectious disease, contaminating the air of the sleeping quarters of the troops, is, as it were, inviting a dissemination of disease. The removal of an hospital, where all the disease of a ship is necessarily concentrated from a corner of the 'tween decks to the light, air, and comparative isolation of the upper deck, would be a matter of material benefit to the healthy, as well as the sick.

Should be
isolated.

How hospital should be fitted.

49. It should be fitted with berths and cots—the former made sufficiently high from the “deck floor” to let it be seen that no dirt is allowed to accumulate underneath them. They might also be sufficiently high to admit of the patient sitting up comfortably in bed, if occasion required that he should do so, as in bleeding, &c. ;—and the side boards be constructed so as to admit of their being folded down, to allow the patient to be easily lifted out and in, or a dry mattress or sheet to be slipped under him. The *cot-lashings* should be sufficiently strong, the principal lashing being of not less than half an inch in diameter. Much annoyance to patients often occurs from ropes supplied not being stout enough, and occasionally giving way. The Hospital should be fitted with shelves, presses, a table, and some seats, in fact with as many of the conveniences of the land as possible. The means of having both natural and artificial *light* should be abundantly supplied. A small apparatus for *heating water* quickly in cases of emergency during the night, when the cook-houses are closed is also recommended, as well as a *filter* for the purification of water used for compounding medicines.

Medicine chest.

50. The *medicine chest* put on board should be constructed in such a manner as not to render it necessary that one article should require to be turned out in order to find another. Such an arrangement, even on land, is inconvenient and unsatisfactory in the highest degree, and at sea, when the ship happens to roll, cannot fail to be attended with breakage and loss.

Cooking for sick.

51. Sufficient provision for *cooking for the sick* should be put on board every troop-ship. Either a small detached galley, or a portion of one of the larger galleys should be set apart for this purpose, and well supplied with saucepans, &c., in all ships carrying a number of

troops. When such an arrangement is not made, the *greatest difficulty* is experienced in procuring supplies of hot water, and in having the requisite *diet* cooked for the sick, a state of things in itself sufficient to render nugatory the best endeavours of the Medical Officer.

52. Nothing annoys Military Surgeons either at sea or on shore so much as the want of any *certain information regarding the previous Medical history of his patients*. The symptoms may be obscure, the patient's account of his affections unintelligible, and he may be either unable or unwilling to give any satisfactory account of his previous Hospital service. In such a case the Surgeon has naturally some difficulty in arriving at a correct opinion regarding it. A simple remedy for this would be, to have a space set apart in the soldier's Small-book, in which his Hospital service could be entered. In case of his going on draft or on detachment, or in any other way coming under the notice of a fresh Medical Officer, there would be an innumerable host of difficulties cleared from the path of the Surgeon, and a very great benefit conferred on the soldier himself. This need not by any means be a full journal of each illness and its treatment, but should be rather suggestive in its nature, indicating by a word or two as much as might form a finger-post for another Medical Officer. A form somewhat similar to the following is submitted.

A compact
Register sub-
mitted.

Hospital Service of No.—A.—B.—H. M.—Regt. of—

Station.	Disease.	REMARKS.	No. Days on Sick List.	Discharg- ed.	Surgeon's Signature.
Bengal.	Cholera.	Spasmodic. Followed by Fever. Invalided to England,	47	19th March 1859.	
Chatham.	Venercal.	Phagedenic chancres, and gonorrhœa,	85	25th December 1859.	
At Sea.	Secondaries.	Syphilo-Rheumatic pains, skin eruption and Condylomata,	40	18th June 1860.	
Cape of Good Hope.	Heart Disease.	Accompanied by dropsy and general debility, Invalided to England.	60	14th February 1861.	
Total days, carried forward,.. .. .			182		

53. This form which measures 6½ inches by 4¾ inches, the exact size of the soldier's Small-book at present, and into which it could easily be inserted, would, it is supposed, prove valuable to Pensioning and Invaliding Boards.

Valuable as
a document of
reference.

54. A man's "*Hospital Service*" as distinguished from his "*duty service*," could be seen at a glance; and whether his disabilities were contracted on duty or from vice; and this knowledge *would be of service in enabling the Board to determine the amount of pension to be awarded.*

55. It is also considered that the knowledge that a man's Hospital service is kept in this public manner, would, to some extent, tend to prevent any unnecessary additions to the numbers on the Sick List.

CHAPTER V.

“Imperium in imperio”—Relative position of Officer Commanding and Medical Officer—Duties and position of each should be distinctly defined—Medical Officer considered as Sanitary agent—His suggestions relating to such subjects should be recognised—Reasons why authority under certain limitation should be given him—General Orders suggested—Informations be afforded to Medical Officer—Special regulation suggested—General Remarks—Remarks on night watches as a source of disease.

Knowledge of duty essential to harmony.

56 THE regulation of an “imperium in imperio” has ever been a task of the greatest difficulty. With the advantage of the best considered laws, collisions between governing powers seem to be inevitable, and it cannot therefore be surprising, if, in a troop ship, where a Commanding Officer, and an Officer in Medical charge are sent on board without having their duties distinctly defined, occasional difficulties should arise.

The responsibility of Medical Officers not clearly published.

57. This is the case more than it might otherwise be, on account of the prevalent idea that the duty of a Medical Officer is merely to *cure*. Were this the case, the recommendation which is sometimes given him, “to confine his attention to the Hospital” would be somewhat more pertinent. But when it is taken into consideration that the duty of a Medical Officer, and this holds more particularly at sea, is as much concerned with the *prevention*, as with the cure of disease, it will at once become apparent that there are

many points where the Commanding Officer, and the Officer in Medical charge, may easily come into collision.

58. It is therefore suggested that each should be furnished with a Code of Regulations, defining the limits of the duty of both; and containing instructions for their guidance, in all cases where it may be advisable that they *should work in unison*. The Medical Officer is, from his *special* education, more keenly alive to the danger of infringing Sanitary laws. He has been taught, and he knows by experience, that nothing so much conduces to perfect health as perfect cleanliness. Thus he becomes at once alarmed if the decks, or indeed any part of the ship, or the persons, or clothing of the men are not kept in a state of perfect purity. He is, from his position minutely acquainted with the state of the general health on board, what forms of disease prevail, and by induction he arrives at a conclusion regarding their originating causes; and consequently *is best able to form a judgment as to the means to be adopted for their immediate suppression and future prevention*.

The publication of Instructions urged.

59. On these accounts, recommendations having in view the conservation of the health of troops should receive every consideration; indeed it should be made known that the forwarding of such recommendations to an Officer commanding constitutes an important part of the duty of a Medical Officer; and that it is as incumbent on him to suggest the adoption of measures suited for the general sanitary good, as it is to treat disease when developed.

Medical Officer recognised as Sanitary adviser.

60. In fine, now that Military Hygiene or the conservation of human life ranks as an accepted science, its qualified representatives may surely be entrusted with authority, as well as burdened with responsi-

Situations in which Medical opinion should preponderate.

bility. There are situations and contingencies in which Medical opinion might well be left to preponderate,—where pure military necessities are seldom likely to overrule sanitary recommendations. Not the least important of these situations may be found on board a troop-ship, where, for the time being, military education is in abeyance. When large numbers of men, with their proportion of women and children are for a time, confined within a limited space, it is of paramount importance that the vigilance of the Hygienist should be exercised to the utmost, to detect any predisposing cause of disease—to check the slightest departure from strict sanitary law; and so to nip in the bud the elements of disease and general ill-health. No one, so well as he, knows that contagious or infectious disease, once having gained a footing in such a situation, cannot be isolated, and that they will pass like a destroying angel through every part of a ship.

General Order suggested.

61. Such considerations as these render it imperative that great regard should be paid to all recommendations and suggestions emanating from an Officer in Medical charge, on subjects which may either directly or indirectly have a tendency to affect the health of troops.

62. In order that this should be as far as possible ensured, the publication of a General Order, somewhat to the following effect, is strongly recommended.

63. “ That every troop-ship shall
 “ have a ‘ Sanitary Recommendation Book’ in which an Officer
 “ in Medical charge shall write his opinion on every thing
 “ likely to act prejudicially on the health of the troops, to be
 “ laid before the Commanding Officer, who will append his
 “ approval and publish the recommendation, or note in the

“ same book his objections thereto. If the recommendation
“ objected to, be of an important character, copies of
“ such memoranda may be forwarded to the Director Gene-
“ ral of the Army Medical Department, and to the Adju-
“ tant General.”

64. A Medical Officer, more particularly if he be a junior, should, upon embarking, receive the fullest information regarding the nature and extent of his duties and responsibilities, and the description and amount of Medical and Surgical appliances at his disposal. It is also desirable that he should be furnished with a copy of the charter party, and the scale of rations, a list of the Medical comforts, the Hospital bedding and utensils; and indeed, generally, every information should be afforded to him which might in any way be turned to account in the successful prosecution of his special duties.

65. With reference to the position of the Medical Officer as a Sanitary Agent, some such regulations as the following might be advantageously promulgated :

The publica-
tion of a few
Sanitary rules
advisable.

- a. Bedding to be aired as often, and in such manner as the Officer in Medical charge of the troops shall recommend.
- b. Upper decks to be cleaned as often as he shall consider them dirty.
- c. Articles considered likely to perniciously affect the atmosphere of the ship generally, to be removed or disposed of to his satisfaction.

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- b. Upper decks to be cleaned as often as he shall consider them dirty.
- c. Articles considered likely to perniciously affect the atmosphere of the ship generally, to be removed or disposed of to his satisfaction.

- d.* Sleeping places to be cleared out, cleaned and fumigated, to his satisfaction.
- e.* Awnings to be spread at such times as he shall consider them necessary.
- f.* Parades, punishments, &c., to take place at such times as he shall consider advisable.
- g.* The issue of rations considered bad by him shall be prohibited until they shall have been surveyed by a Board of Senior Officers.
- h.* Ventilating apparatus to be worked at such times as he shall consider necessary for the purity of the air between decks.
- i.* Sanitary recommendations regarding cooking, cleanliness of the ship, persons and clothing to be attended to.
- j.* Recommendations having in view, the prevention of accidents to receive attention, and to be complied with as far as possible.

A matter of great importance to the State and the Soldier that Medical Officers be upheld in the conscientious discharge of responsible duties.

66. Experience as an Officer in charge of troop-ships has produced an earnest conviction that the publication of a memorandum, somewhat to the above effect would be productive of good results. There are many points which naturally escape the observation of Officers commanding, and unless they have Orderly Officers of some experience and zeal, they are not always apprised of every thing which it is necessary for them to know. An Orderly Officer coming on duty only at intervals of nine or ten days,

cannot be expected to manifest as much interest in the discharge of duties of such a temporary character, as if they were of a more permanent description, and implied more ulterior responsibility. Except during the twenty-four hours of his tour of duty, an Orderly Officer is not expected to manifest any great anxiety regarding the care of a detachment, and it not unfrequently happens that the Orderly Officer who gives least trouble considers himself the most efficient. Many energetic and zealous Officers will be found, in almost every troop-ship, but when accompanied by others of a less practical disposition, and the Commanding Officer happens to be indulgent, irregularities affecting the sanitary condition of the ship not unfrequently occur. The position, therefore, of an Officer, on permanent duty, and having continually in view the health of the troops, should be upheld as an incentive to the due performance of the responsible duties of an Orderly Officer as enumerated in the Queen's Regulations. If the utility of the above regulations be acknowledged, it is conceived that their publication would tend to harmony on board ship.

67. In concluding these remarks on troop-ship Hospitals, it may be desirable to draw attention to a fertile cause of sickness on board troop-ships, viz., night watches. However beneficial it may be that troops when on board ship should be as much on deck as possible, the propriety of four hours watches, night and day, is open to question. During the day there is nothing to be apprehended, but from eight in the evening until sunrise is a prejudicial time. Men sleeping in the sweltering 'tween decks are hurried up into the night air. If the night be fine, they lie down upon the decks which are always more or less damp, or if it be rainy, they crowd together under some imperfect shelter and get to some extent wet. Upon

Night watches objectionable.

Troop-ships should not be over-crowded.

going below, the chances are that they lie down in their wet clothing, and sickness ensues. Would it not be better to discontinue watches altogether from eight P. M. until sunrise? Troops are not of the slightest use on deck at night, and the benefit which is supposed to accrue from their absence from between decks, is more than counterbalanced by the sickness which that absence engenders. That turning a man out of his warm hammock at midnight to sleep (for sleep he will) on a cold damp deck is prejudicial to health there cannot be a doubt, and many a man invalided for rheumatism and chest affections has, in all probability, laid the foundation of his disabilities during night watches on board a troop-ship.

Guards
should be un-
der shelter.

68. A strong guard in a round house on deck should be sufficient for all purposes, and arrangements should be made to have as few sentries posted at night as possible. The cook-houses should be properly secured and therefore should not require one, and no sentry should be required over the meat tubs, which should be securely locked. The men being all asleep would require neither light nor sentries between decks, and the only lights necessary would be in the Hospital, and a safety lamp with the guard in the round house.

CHAPTER VI.

Victualling of Troop-ships—Queen's Regulation Scale—Indian Scale—Passenger Act Scale—Indian Scale full—Alterations—Biscuit—Tea and Sugar—Beef and Pork—Vegetables—Butter—Preserved meats—Suggestion regarding them—Medical Officer in charge should be qualified to give opinion on quality of provision.

69. THE scheme of victualling provided for troops proceeding to India, while it is on the whole well considered and liberal, may be made the subject of a few remarks with a view to its improvement. It may not be popular to audit the quantities which are so amply, and with something like an excess of generosity provided for the troops, but if the task should prove conducive to the improved health and efficiency of the men, and at the same time effect even a slight saving in the public expenditure, a good purpose will have been served.

Rations.

70. Upon comparing the scale of victualling provided for troops proceeding to India with that taken from the Queen's Regulations, or with the one required by the Passenger Act to be provided for persons proceeding to the Australian Colonies, the reader will be struck with the immense superiority of the Indian scale, especially in the article of animal food. But taking into consideration that Passengers proceeding to Australia, after a voyage of ninety days during which they subsist on the

Review of
different victu-
alling scales.

somewhat meagre scale of the Passenger's Act, land in good, and even in improved condition, the idea must naturally occur, that the Indian scale is not only liberal, but somewhat extravagant.

71. A few instances may be noted in which it is conceived that alterations and deductions might be made with beneficial results.

72. The biscuit ration appears to be excessive, and might safely be reduced from 30lbs. to 24lbs. per mess of six men weekly. Those who have seen the wanton waste of biscuit which take place under the 30lb. scale, cannot but approve of this recommendation. Not only large quantities of broken biscuit, but biscuit positively untouched, may be daily seen thrown over-board, or given as food to the pigs. This being an indisputable fact, no material objection can be offered to the proposed reduction.

Shameful
waste of bis-
cuits.

Constitutions
of recruits
of the present
day broken
down by exces-
sive smoking
and drinking
strong tea on
board ship
where grog is
not procurable.

73. The rations of tea and sugar also appear to be somewhat too liberal. A pound of tea per week for each mess of six men is a much larger quantity than is generally used in a family of even greater numbers, and if other evidence were wanting, the colour and flavour of the infusion would settle the point. It is as black as ink, and, until the sugar is added, as bitter as wormwood. The sugar having been added it is much too sweet. For this reason it is recommended that the tea ration be reduced from one pound to $\frac{3}{4}$ of a pound per mess per week, and, it being preposterous to suppose that it is necessary for a soldier to require a quarter of a pound of sugar daily, (within $\frac{1}{7}$ of an ounce) exclusive of an ounce allowed for lime juice; the sugar ration might well be reduced from 9lbs. to $7\frac{1}{2}$ lbs. per mess of six men for seven days. Independently of the saving

which would be effected by the reduction, it recommends itself from the fact that the health of the men would be benefited by the change, as it is well ascertained that strong tea when combined with the *quantity of strong Cavendish tobacco* served out to the men, exercises an injurious tendency on all constitutions. It appears also that an occasional, or an alternate ration of coffee would be both useful and agreeable.

74. It appears somewhat anomalous that a ration of beef or pork consisting of 16 ozs. per diem should be issued to men at sea. The ration of fresh meat allowed on shore where men have regular exercise and drill is 12 ozs, and if men doing duty can be maintained in good condition on that quantity, it is difficult to conceive on what principle a ration of 16 ozs. can be necessary when leading a life almost totally inactive. Would it not be better to revise the regulation, and give an increased ration of meat when troops are actively engaged, and a less quantity during periods of inactivity? It is pretty well ascertained, that there is no tendency on the part of Europeans on their first arrival in India to debility, but rather a proneness to plethora, and its consequent diseases; it is more judicious therefore, to land men light, wiry, and active, than to have them moving masses of adipose and oleaginous matter, a condition *highly obnoxious to apoplexy and coup de soleil.*

Animal food
excessive.

75. The ration of compressed vegetables might be advantageously dispensed with, and preserved potatoes substituted. The vegetables are difficult to be kept sound, have little or no flavour, and do not appear to be relished by the majority of the men, while the preserved potatoes are generally liked, and possess greater antiscorbutic qualities than the mixed vegetables.

A daily issue
of preserved
potatoes re-
commended.

Butter ration insufficient.

76. The allowance of butter might be judiciously altered. If the article is to be served out at all, it ought to be in such quantities that with economy it might last during the entire week. To effect this 8 ozs. per man per week might be substituted for the 4 ozs. at present allowed.

Preserved meat.

77. As it is next to impossible to procure fresh preserved meats without a proportion of spoiled tins, it would be advisable if a percentage were sent on board, over and above the specified quantity, for the purpose of meeting any deficiency which might occur, and as they are an article liable to much adulteration, or rather to the introduction of inferior, or even injurious matters, it might be well that they were *prepared under the supervision of Government.*

Medical officer should be a good analytical chemist.

78. Medical Officers being frequently called upon to decide on the quality of articles of food, it would be well if, in the lectures to be delivered on various subjects of Hygiene in the Victoria Hospital at Netley, some instructions were given on the means of judging of the quality of such articles as salt beef and pork, pickles, preserved meats, compressed vegetables, spirits, limejuice, and generally, such articles of food as may be presented for issue on board troop-ships. A Medical Officer, particularly if a junior, would thus be enabled to give his decisions with more confidence, and to support them by irrefragable testimony.

CHAPTER VII.

Management of articles put on board by Quarter Master General's Department or Council for India—Hammocks—Blankets—Sea-kits—Remarks on Trousers—Smocks—Flannel—Forage cap—Marine Soap—Shoes—Socks—Scissors—Tooth-brush—Articles supplied by owner—Remarks on.

79. ARTICLES put on board troops by the Quarter Master General's department or by the India House, ought to have the greatest possible care taken of them, and be placed under the charge of a Military Officer to be appointed by the Officer commanding the troops and be again taken from his charge before disembarking. A list of such articles should be given to the Commanding Officer by the Official placing them on board. It would be well if they were branded with the Government mark, to prevent loss by stealth on board ship, and it should be distinctly made known at the commencement of the voyage, who is to be responsible for articles which cannot be satisfactorily accounted for at its termination. The hammocks should be indelibly marked with the broad arrow in several places, and have one or two particoloured threads interwoven in their texture. This remark applies equally to the blankets.

Government stores should be indelibly marked.

80. The substitution of a single blanket of superior quality for the present blanket and counterpane is recommended, as tending to prevent loss from the multiplication of articles with the care of which the

Multiplicity leads to confusion and loss.

soldier is charged. For the same reason the mattress and pillow should form one article.

Sea-kit re-
vised.

81. The schedule of articles put on board at the expense of the soldier, and known as his sea-kit might bear revision. One canvas smock and two pairs of canvas trousers would be a better arrangement than the present one, which is *vice versa*. A man *may* manage in his shirt sleeves while a smock is at the wash, but would both look and feel rather peculiar *sans culottes*, while the inexpressibles were being washed. Troops at sea generally go in their shirt sleeves in warm weather, and (the smock being of little use for warmth) wear their shell jackets or great coats in cold weather. Again some regiments are served with two flannel belts, and others with none. Would not these facts seem to suggest as an improvement, the dispensing with the smocks altogether, and furnishing all corps alike with two good red or blue flannel shirts. There is no part of a soldier's clothing in any climate more necessary than flannel, but it is more especially necessary at sea, where he is subjected to such sudden and frequent alternations of temperature. If this suggestion were adopted the neckerchief might also be dispensed with.

Light flannel
shirts.

A fatigue
cap, required.

82. The ordinary forage cap of the infantry soldier is an article of dress quite unsuitable at sea both from its form and weight. Its form renders it liable to be blown over board, and its weight in a hot climate is utterly intolerable, and when to its own weight is added that of the peak, furnished as part of the soldier's clothing for India, it becomes a matter of surprise how men can possibly wear it. A fatigue or forage cap of some light material might advantageously form part of the soldier's sea kit.

83. The quantity of *marine soap* served out for a voyage of four months is insufficient. In order to preserve proper cleanliness of person and clothing, eight pounds would not be more than enough. No fresh water soap should be served out to the men, as it only serves as an inducement to purloin and use fresh water for washing purposes, which ought at all times to be carefully discountenanced.

Marine soap.

84. The *shoes* furnished to some corps are not of the most suitable description. Instead of the regular ammunition boot or a substantial laced shoe reaching well over the instep, a light slipper shoe, leaving it totally uncovered, and the foot consequently exposed to wet is supplied. In addition to the insufficient protection which this renders to the foot, it is open to objection from the fact, that not embracing the foot properly it speedily gets out of shape and into a slip-shod condition.

Shoes.

85. The *socks* issued to soldiers should be either all wool or a mixture of wool and cotton. Nothing tends to blister the feet so much as marching in cotton socks under a coarse shoe, in warm weather. No part of the perspiration is absorbed by them, but is kept clogging about the foot which becomes cold and clammy so soon as the exercise has ceased, while at the same time it has become abominably dirty.

Socks.

86. A pair of *scissors and a tooth-brush* would be a judicious addition to the soldier's hold-all. The scissors would be useful for hair-cutting, clothes-mending, &c., and a necessary accompaniment to the house-wife supplied, while the tooth-brush must at once recommend itself as an indispensable adjunct to personal cleanliness. In a sanitary point of view, it is necessary as a foetid state of

Scissors and
Tooth-brush.

the teeth and gums tends not a little to render foul the sleeping apartment of a number of men. This suggestion was made in August 1857, in reply to a circular emanating from the Director General of the Medical Service. It was also in the same reply suggested that an examination of the teeth and gums might form a part of Medical inspections.

87. The results of the examination of the teeth and gums of troops for the detection of scurvy, has assured the usefulness of this recommendation.

Wash-tub
substituted for
water-keg.

88. With reference to the articles to be supplied by the *owners* of troop-ships, it is recommended that the "keg to hold three gallons slung, with nozzle and bung attached, and with 4 iron hoops," should be struck out, and a wash-tub substituted. If it is intended to hold water it seems to be a wasteful contrivance. The simplest and most economical method of issuing water is to give out a stated quantity to the cook-houses, and to have the remainder of the day's allowance placed in barrels lashed to the bulwarks, under charge of a sentry for drinking purposes only.

89. To the same list we would add a supply of *holy stones*, fine sand, peat charcoal, lime, grinding stones, old shot, the materials for fumigating purposes specified in the Queen's Regulations, and a signal gun to be used in cases of emergency ; fine sand and holy stone to clean and partially dry the decks, peat charcoal as a disinfectant ; lime to white-wash the latrines, the 'tween decks, and the sides of the ship in cases of an epidemic ; grinding-stones to keep the deck-scrapers sharp without which they are useless, and old shot to be used in case of a funeral at sea. The want of proper materials for sinking the body has been the occasion of some distressing scenes at sea.

CHAPTER VIII.

Relations of Officer Commanding and Shipmaster—Commandants at intermediate Ports.

90. THE relations which the Ship-master and the Officer commanding the troops on board hold with respect to each other demand some consideration. This is a case in which the inharmonious working of two distinct governing powers, neither of whom have the limits of their authority closely defined, may lead to serious difficulties, and be attended with even danger to the lives of all on board.

The relation of Master Mariner and officer Commanding considered.

91. Cases in point happily may not be easily quoted, but still there is a possibility, from the nature of the thing, that they may arise, and therefore some provision should be made to meet them.

92. It sometimes occurs that there is a disposition on the part of Masters of troop-ships to treat the Officers and men on board as if they were so much living freight, and unless there be some provision in the charter party or otherwise, to counteract this disposition, they can ignore the requests of the Commanding Officer and all on board; while it is only proper that the Master Mariner should under ordinary circumstances have the uncontrolled management of the working of the ship, and the discipline

Troops should not be treated as chartered freight.

of his seamen; still it might be well if there were a power reserved for the Military Officer in command with the consent of the Officers on board to regulate such matters as might seem imperatively to call for his interference.

Special powers to be notified to Officer commanding.

93. In case of mutiny among the crew, of habitual drunkenness or evident inefficiency on the part of the Master or any of his subordinate Officers, in case of danger from shortness of provisions or water; in case of extreme loss of sails or spars, or other damage to the ship; in spite of which it is notorious that many Master Mariners persist on continuing their voyage to the great peril of human life, for the purpose of saving expense and so standing well with their owners; in such, and many other cases which might be noted, it is conceived that it ought to be within the power of the Commanding Officer, with the concurrence above mentioned to issue an order to meet the emergency, which order it should be incumbent on the Master Mariner to obey, under protest, if he liked, but still, to obey.

Troop-ship crews amenable to Articles of War.

94. Indeed it might not be going too far, if the Officers and crews of troop-ships sailed under the Articles of War, and were for the time subject to such regulations and punishment as the Commanding Officer might issue and award. By this arrangement the Captain would assume the position of Master as in a War ship, and he might at the same time note any order which he might conceive unnecessary or prejudicial to the interests of his owners; who might if they chose institute proceedings for the recovery of any damages they considered they had unlawfully sustained.

Articles of agreement

95. Much good might result if the Commandant at any port at which troop-ships are likely

to touch were furnished with some well defined powers, enabling him to assist by his authority the Officer commanding a troop-ship, in case of any disagreement between him and the Master of the ship. There should also be at every such port a Naval Agent, and an Officer from the Quarter Master General's Department who would be authorised to settle all questions regarding the sea-worthiness of the ship, her efficiency as regards sea-stores, and the quality and amount of provisions on board.

should guarantee special powers to Commandants over troop-ships touching at intermediate ports.

CHAPTER IX.

Miscellaneous—Ventilators—Washing days—Suggestion on stowing Soldiers necessaries—Covering for bedding when on deck—Latrine—Place for Guard—Charter-Parties—Showing of arms—Ship's pumps—Senior Officers—Complement and rating of seamen—"Orders."

96. A FEW miscellaneous matters still remain, which might perhaps have been better introduced under the head to which they seem naturally to belong, but which it is considered better to mention out of place than to leave unnoticed.

Dank's Ventilators under charge of Military Surgeon.

97. Dank's patent ventilators, machines of the first importance on board ship, should be fixtures between decks and worked there. The state of the weather would not then interfere in any way with the comfort of the men working them.

Plenty of regular time for clothes washing.

98. Not less than *four mornings per week* should be allowed for washing clothing. When a large number of men are on board, and the hours allowed for washing limited, an accumulation of *damp and foul clothing* is apt to take place between decks, which is *extremely detrimental to the purity of the atmosphere there*. In drying clothes, or in towing them over board, the troops should be warned not to make use of any ropes but those

appointed for that purpose, and on no account to make use of any of the running gear.

99. To prevent the *loss of articles of kit* by stealth, or by the carelessness of their owners, and also to leave as much clear space as possible between decks, all articles of clothing and accoutrements not indispensably necessary should be packed up and stowed away in the hold, in such a position however as to be immediately available if requisite. Nothing can have a much worse effect in a sanitary point of view than an accumulation of damp clothing and boots, which in spite of all orders to the contrary, will be allowed to grow mouldy.

Superfluous articles in sleeping quarters of troops injurious.

100. Especial care should be taken that the *tarpaulin used* for covering the hammocks in case of wet weather is sufficiently large, and properly adapted for the purpose. Otherwise the result of sleeping in wet bedding will speedily become evident in the increased number of chest and rheumatic affections.

Tarpaulin should be of ample size and under charge of a sentry to watch the approach of rain.

101. The *men's latrines* should be made to discharge themselves as near the water line as possible, and particular care should be exercised in their construction, so that under no circumstances offensive matter from them can be driven back by the wind upon the port-holes. Indeed it is worthy consideration, whether it would not be advisable to prevent altogether the use of the latrines on the weather side. To prevent as much as possible a foul smell in any part of the ship the Hospital should have a water-closet communicating with the sea, upon the same principle as those provided for Officers.

Latrines should discharge near water line.

102. At sea the *Guard* should not be placed in any exposed situation, but rather, carefully

A Guard-room necessary at sea.

sheltered from sun, cold and rain. On land a comfortable Guard Room is provided with (in the winter season) abundance of fuel and light. If such are necessary on shore, surely at sea, where men are exposed at such short intervals to great alternations of temperature, a round-house on deck, or some other sufficient shelter should be provided.

Charter-parties should be equally binding.

103. Particular care should be taken that the authorities commit no act, which might by possibility render a *charter party invalid* before a court of law. No greater number of men especially, should be put on board than there are provisions stipulated for.

Attention to Rifles at sea of vital importance.

104. *The greatest care should be taken of all arms, but particularly rifles at sea.* It is questionable whether it is, under any circumstances, proper to leave these delicate weapons *exposed in open racks*; but should it be considered necessary that a portion of them should be so placed for the purpose of being ready for use upon emergency, such racks should be placed in such a position as to be perfectly secure from the slightest chance of the arms being damaged by sea-water or damp of any description. A water-proof covering should be made so as to cover and surround the whole rack, and (in proportion to the number of arms so disposed) one or two men should be told off, whose sole duty would be to take the oversight of the arms in rack, and keep them free from the first appearances of rust.

Exposure to sea-air and damp certain causes of *fouling*.

105. *Such a precaution will not appear unnecessary when the delicacy of these weapons is taken into consideration.* The very smallest particle of rust in the bore causing the bullet to strip and so render useless the skill of the best marksman. The motion of the bullet round its own axis is destroyed, and the atmosphere acting upon

the inequalities upon its surface caused by its stripping, renders its flight short in distance, and uncertain in direction. Indeed if a proportion of arms are to be kept in readiness for emergencies, it is conceived that it would be better to have that proportion properly packed in cases, and instead of being placed in racks, put away either in the Quarter Master's stores, or in the cuddy under the charge of some of the Officers. Should this recommendation be adopted, the amount of clear cubic space in the 'tween decks would be considerably augmented and an *impediment to the free circulation of the air removed*.

106. While upon this subject it may be remarked that experience teaches that arms having once been properly packed and stowed away should not, under ordinary circumstances, be opened from any motive of curiosity to ascertain their condition. However carefully the re-packing may be performed, some of the weapons will inevitably contract rust, and on next opening them a woeful exhibition will be presented to view.

Unpacking
of arms at sea
unadvisable.

107. The ship's pumps ought to be furnished with a *shoot* of some description to convey the bilge-water into the sea. Deluging a ship's decks every evening with bilge-water tends greatly to the production of ill health among the men, both from the fact that it keeps the decks damp, which should instead be kept carefully dried, and the pestilential smell which the fluid itself disseminates.

Pump-shoots
necessary.

108. It is a matter much to be desired for the preservation of harmony, and the prevention of irregularities that as many *senior officers* as possible should embark with detachments of Troops.

The presence
of Senior Offi-
cers among de-
tachments *de-
sirable*.

The ability as well as number of troop-ship's crew should be stipulated for.

109. In manning a troop-ship it should be seen that the *crew* comprises a fair proportion of able seamen. The Mercantile Marine merely provides *men* (not necessarily rating A. B.) according to tonnage; but an additional guarantee of the capabilities of the crew of a troop-ship would be had if the Charter party provided that a percentage of men rating as able seamen should be shipped, as well as a regular staff of quarter-masters or steersmen. A voyage may not only be lengthened, but *life may be endangered by inexpert steering.*

"Orders" should be openly promulgated.

110. In carrying on the discipline of a troop-ship it should be imperative that all "Orders" of a general nature be transcribed into an Order book and published for general information, instead of being given verbally, perhaps privately, or at best handed about on slips of paper, as is sometimes the case. A zealous Medical Officer should carefully observe and note all orders as they are promulgated, for the purpose of detecting anything which might act prejudicially on the lives entrusted to his care. It would be for the good of the service and the State, that an Officer having the Medical charge of Troops should be upheld and supported in his endeavours to keep his hospital as empty as possible, and this cannot be properly done unless he be consulted as to his opinion on a matter, previous to the issue of any orders affecting the economy of the soldier's daily life. *Many fertile causes of disease have often been recognised as such only when their effects have become fatally apparent,* and it is submitted that in many instances such catastrophies might have been prevented if the advice of the Medical Officer had been asked, *previous to setting the cause in operation.*

CHAPTER X.

Administration of Transport Service—Different departments engaged in—Objection to this—Remarks—Propriety of reducing whole matter to one responsible head—Arguments in favor of—Celerity—Simplicity—Efficiency—Suggestions as to details—Director General—Transport Service Board—How composed. Naval Surveyor—Officer from Quarter Master General's Department—Medical Officer.—Their qualifications and duties,—Subordinate Officers—Their qualifications and duties—Remarks.

111. The subject of the Sea Transport of troops is gaining such daily increased importance, that it demands that the greatest consideration should be bestowed on every point connected with it. The remarks contained in the preceding pages have been principally concerned with throwing out a few somewhat disconnected hints calculated for the improvement of details. In what follows, it is proposed to glance at the present system of the administration of the Transport "Service," with a view to the suggestion of some method for its improvement.

Transport service administration submitted to revision.

112. As well as the subject is understood, it appears that there are at present no less than three Departments directly connected with the despatch of troops by sea, the Admiralty, the Quarter Master General with the Commandant at the port of embarkation, and the Council for India. There are also different schemes of victualling provided for the troops according as their destination may be India, or any of the other possessions abroad.

Different departments engaged in transport service.

Different scales of rations for Her Majesty's Troops.

113. Leaving out of sight the apparent anomaly of having *different scales of rations*, it may be worth while enquiring whether any good purpose is served by having the despatch of troops scattered over so many Departments, and whether it might not be conducted more *simply, economically and efficiently* by having the whole business entrusted to *one* Department especially appointed and educated for that purpose.

A better system required.

114. Under the present arrangement it will scarcely be denied that *many ships of an inferior class are sent to sea with troops*. The frequency with which accounts appear in the public prints, of troop-ships putting back owing to stress of weather, and the equal or even greater frequency with which they are under the necessity of calling at intermediate ports during their voyage, for the purpose of taking in supplies, seem to indicate that they must have been ill found in the matter of spar and cordage, and that by some means or other they have managed to leave port without a sufficient quantity of provisions

A responsible head necessary for despatch.

115. Without for a single moment thinking to impute the slightest approach to dilatoriness in the discharge of the public business to any one of the Departments concerned, *it cannot cease to be a matter of regret that such things should occur*. Indeed, considering the circumstances under which they must undertake the duty, rather as a matter extraneous to their usual course of business, than as a part of regular duty, it is a matter of surprise that the transport service has not been even more unfortunate.

An Officer with whom to correspond.

116. Under the present somewhat complicated system, there is *some difficulty in fixing the Department to which to address any communications on sub-*

jects connected with the transport service, a state of matters which might occasion delays highly prejudicial to the public interests.

117. The duties required in the chartering and superintending the fitting up of troopships are such as to require a *special* education added to a knowledge of the requirements of troops. It cannot be fairly supposed that the Admiralty can have a very correct knowledge of, or take a very lively interest in all the requirements of the soldier, and so cannot be expected to make all the necessary arrangements for his accommodation at sea. The East India House, however able they may formerly have been to superintend the despatch of troops when only a limited number were required, and when all the transport in that direction was seldom more than the quiet relief of a regiment which had completed its period of Indian service: now, when the greater part of the available forces of the British Army is being poured into its late Dominions, can scarcely be expected with the limited staff at its disposal to be equal to the emergency. The Department of the Quarter Master General again while it may be able to decide most judiciously on every thing connected with its more especial duties, must feel that it forms a drag of no inconsiderable magnitude upon their efficient performance, to be called on to provide for and superintend all the details of the embarking and disembarking of such a large number of troops, as annually leave and return to the British shores.

Making the Transport service a special study causes an immense saving of public money—especially in war-time.

118. Independently of the vast amount of almost extraneous labour which the transport service entails upon the Department, it cannot be expected, that, composed as it is of Military men, the qualifications to be found in it are of such a description as to give a sufficient guarantee in every case for

The safe and expeditious despatch of Troops by sea is now so important that its close study

should be encouraged.

the discharge of duties which imply some amount of *special education*.

119. While it is only proper that all matters affecting the comfort or efficiency of the soldier should be under Military surveillance, still it is proper that the management of details should be left to a class of Officers *thoroughly acquainted with their nature*.

120. It seems also to be a matter urgently demanding consideration that these Officers should be so placed in relation to each other, and to the Officer charged with the superintendence of the whole matter that there shall be no risk of inharmonious working, and *no delays originating from one Department requiring to wait for another*.

A new branch of the public service proposed.

121. Some such considerations as these seem to suggest the necessity of establishing a *new branch of the public service having for its duties the superintending of all details connected with the embarking and disembarking troops*, to whatever part of the Globe they may be about to proceed.

Simplicity,

122. The arguments in favour of the establishment of such a department distinct from any of the other public offices of the country, are various and weighty. The whole working of the transport service would be simplified. All the business connected with it would be performed in one office, and under one management, so that errors and abuses would be less likely to creep in than when several departments did an independent share of the duty.

123. The celerity with which the business of the department would be conducted forms a powerful argument in favour of its establishment. It is unreasonable to suppose that any matter can be conducted to a successful issue, or without frequent and annoying delays when there are two independent parties engaged in its performance. Neither of them are willing to consider that the onus of the matter rests with it, and so frequent delays occur from one department requiring to wait for another.

Celerity.

124. But the principal argument in favour of such a department, rests in the additional security which the Government would have that ships of a proper class were taken up, that they put out to sea in good condition and well found in sea stores and provisions, and generally that all the conditions of a well conducted charter party had been fully carried out.

Better security.

125. The general detail of the manner in which these desirable ends are to be effected may now be briefly sketched, more indeed with the hope that such sketch may prove suggestive, than with the idea that it at all approaches perfection.

126. First and as the head of the administration of such a department comes the Director General, whose duties would consist in conducting all correspondence, and superintending all legal business connected with the drawing up of agreements, charter parties &c., and in receiving and deciding upon the reports of the Transport Service Board, which might be constituted somewhat in the manner indicated below.

Director General.

127. The Board should consist of Naval Surveyor of high professional standing, an Officer from

Form of Transport Board.

127. Under such a department
 it would exist a unity in the relation of all things
 to one point of view, one mode of relations, relating to
 them on that point, thus simplifying the instruments of the
 other on that point, one head of the department, and one
 will draw up charts, partly in entire continuity with the
 (General) instructions.

128. These suggestions, somewhat
 crude it is confessed, but still conceived to contain the germ of
 great improvements, are therefore put in all humility as being
 likely to lead to the simplification of a branch of the public
 service which seems at present to be but obscurely understood
 by military men, with whom it has principally to do,
 and at the same time to place it upon a tangible and re-
 corded basis.

129. Each department joined to
 the possession of a moderate fleet of transport ships or fer-
 rieries, would be prepared and materially in maintain-
 ing for Great Britain the pre-eminence which she has
 hitherto maintained among the Great Powers.

The following are the
 suggestions for the
 improvement of the
 public service, which
 are here presented
 in a very humble
 manner, and it is
 hoped that they
 may be of some
 use to the
 Government.

APPENDIX A.

A CODE of specified and detailed instructions for the maintenance of discipline amongst Recruits in troop-ships, from their embarkation to disembarkation, considered a *desideratum* for junior Officers, or those who command troop-ships for the first time, as well as for obviating the necessity of a senior Officer writing, amidst a scene of hurry and confusion, a detail of duties of Officers, Non-Commissioned Officers, and Men.

The following Standing Orders of H. M. 13th (Prince Albert's) Light Infantry have been kindly furnished by Colonel, the Lord Mark Kerr, c. v., a distinguished Officer who has devoted much study to the management of Troops at sea.

*Embarkation and duties on Board Ship, for Standing Orders,
H. M. 13th Light Infantry.*

Companies to march on Board in Single or Double Ranks, arms advanced.

Pay Sergeants to show where the Companies are to be located.

The Side Belts to be placed in the Knapsacks, Pouch Belt and Sling rolled up and placed in the Pouch,—the same to be kept in possession of the Soldier.

Rifles to be placed in Arm-racks told off to Companies,—look constantly to Locks and Barrels, which must be plugged.

Tunics to be put in packs and smocks put on.

Companies to be shown where they are to parade, or assemble in case of any sudden call, and where to put their Hammocks.

Pay Sergeants to tell off into Messes alphabetically — men in a Mess,—Corporals and Buglers included.

Hammocks for five to be slung over each table. Each man to be provided with a piece of linen or something of the kind, with his name written on it, to be sewn on his Hammock.

Hammocks to be in their places each morning by bugle sound at — o'clock, and taken down at $4\frac{1}{2}$ P. M., (during Officers' breakfast and dinner hours.)

Bathing to be carefully attended to, and Soldiers constantly to be hosed.

A sail or screen to be put up in waist, for the women and children to bathe each week.

The children's hair to be kept short equally with the Soldiers.

Permanent Swab told off to each Mess, he is answerable for messing and swabbing.

Sergeants told off into Messes by the Sergeant Major. Permanent Bugler to be told off at $5\frac{1}{2}$ A. M. Men to turn out at 6, breakfast at 7, parade at 10, dinner at 12, beer at $12\frac{1}{2}$, supper at 4, grog after Hammocks taken down. Evening parade and orders issued at 6. Turn in at 9. Clean Shirts and Socks to be shown in hands at evening parade on Wednesdays and Saturdays, and worn at parade next morning.

No smoking between decks on any pretence whatever.

Daily watch to consist of one-third of each Mess (Non-Commissioned Officers and Men warned on evening parade by Orderly Sergeant) remains on for 24 hours, mounts at 10 A. M., told off in three reliefs, each relief remains on deck two hours at a time, other two reliefs below, if not required, will assist to pull ropes and to clean decks (about 4 A. M.)

Sentries to be taken from the watch (senior Sergeant of the watch to warn them) and to be on two hours as follows :

Officers' cabin, water tank and tubs, cooking place and meat, and women's privy.

Officers on watch 24 hours, commencing at 10 A. M. One to be always on deck, and one below to inspect decks and messes, and to be present at grog issuing, and to visit hospital and prisoners, go round decks at $9\frac{1}{2}$ P. M., (with the Adjutant) to see lights out and all in order, and to visit Sentries frequently during the night, report next morning to Commanding Officer,—to see that Non-Commissioned Officers and men assist in working ropes, and to prevent irregularities and noise.

The Regimental Orderly Sergeant will tell the officer on watch when the messes are ready. The senior Sergeant on watch will tell off 2 Corporals,—one for windsails, and one to be over the Sentries on water tank or pump and tubs, he (the Watch Sergeant) will also inspect Sentries.

The Sentry over the tank to allow no water to be taken except by those authorized, neither is any water to be carried away from the tubs, but to be drunk on the spot.

Prisoners Guard to consist of 1 Sergeant, 1 Corporal, and 6 men, to mount at 10 A. M. Increased at 6 P. M. by 1 Sergeant, 1 Corporal, and 24 men.

Sentries furnished by this Guard over the lights between decks, relieved every hour, and to call "All's well" every quarter of an hour, from Tattoo to Reveille.

Sentries to be placed on hatchways, to report to Sergeant of watch that the Sentries between decks call "All's well" correctly.

Sentries are not to lounge or sit down on their posts on Board Ship, any more than in the field. Any man doing so will be tried by Court Martial. This is to be part of their orders whenever posted.

Any man drunk for embarkation has his grog stopped for the voyage.

The Band will practise by day, and take watch in their turn by night.

The Bugles and Field Bugler will also practise daily. For slight irregularities, Officers commanding Companies have power to stop grog for three days. All punishments are to be reported to the Commanding Officer on the morning parade.

One parade each day without smocks, shoes or stockings.

An Officer per Company will see that the men are clean, and a Medical Officer inspect.

APPENDIX B.

In the following Scales of rations, marked B and C respectively, the first for troops sailing to any part of the world except India; the second for troops on passage to that country only, the marked superiority of the Indian Scale will be seen.

Published in the Queen's Regulations July 1857.

“ Rules to be observed by the masters of hired freight ships in the victualling of troops and other public passengers.

“ There shall be allowed to every soldier, male passenger, woman or child, to whom passage and victualling shall have been ordered to be provided, the daily quantities of provisions shown in the following scales of allowance :—

“ SCALE OF VICTUALLING.

	When to be issued.	Articles.	Troops.	Women.	Children under ten years of age.
1	Daily,	Biscuit or, ...	1 lb.	$\frac{1}{2}$ lb.	$\frac{1}{4}$ lb.
2		Soft bread, ...	$1\frac{1}{4}$ lb.	$\frac{5}{8}$ lb.	$1\frac{5}{8}$ lb.
3		Spirits, ...	$\frac{1}{8}$ pint.	—	—
4		Sugar, ...	$1\frac{1}{4}$ oz.	$1\frac{3}{4}$ oz.	$\frac{7}{8}$ oz.
5	Weekly,	Chocolate, ...	$\frac{2}{3}$ oz.	1 oz.	$\frac{1}{2}$ oz.
6		Tea, ...	$\frac{1}{4}$ oz.	$\frac{1}{4}$ oz.	$\frac{1}{8}$ oz.
7		Oatmeal, ...	$\frac{1}{8}$ pint.	$\frac{1}{8}$ pint.	$1\frac{1}{8}$ pint.
8		Mustard, ...	$\frac{1}{3}$ oz.	$\frac{1}{4}$ oz.	$\frac{1}{8}$ oz.
9	Daily, when procurable,	Pepper, ...	$\frac{1}{6}$ oz.	$\frac{1}{8}$ oz.	$1\frac{1}{8}$ oz.
10		Vinegar, ...	$\frac{1}{6}$ pint.	$\frac{1}{8}$ pint.	$1\frac{1}{8}$ pint.
11		Fresh meat, ...	$\frac{2}{3}$ lb.	$\frac{1}{2}$ lb.	$\frac{1}{4}$ lb.
12		Vegetables, ...	$\frac{1}{3}$ lb.	$\frac{1}{4}$ lb.	$\frac{1}{8}$ lb.
13	On alternate days when fresh provisions cannot be procured, ...	Salt pork, ...	$\frac{3}{4}$ lb.	$\frac{1}{2}$ lb.	$\frac{1}{4}$ lb.
14		Peas, ...	$\frac{1}{3}$ pint.	$\frac{1}{4}$ pint.	$\frac{1}{8}$ pint.
15		Salt beef, ...	$\frac{3}{4}$ lb.	$\frac{1}{2}$ lb.	$\frac{1}{4}$ lb.
16		Flour, ...	6 oz.	$4\frac{1}{2}$ oz.	$2\frac{1}{4}$ oz.
17	Suet, ...	$\frac{1}{2}$ oz.	$\frac{3}{8}$ oz.	$1\frac{3}{8}$ oz.	
		Currants or raisins	1 oz.	$\frac{3}{4}$ oz.	$\frac{3}{8}$ oz.

“ If it should be found necessary to issue substitutes for any of the above species of provisions :—

SCALE OF VICTUALLING FOR TROOPS FROM ENGLAND TO INDIA.

FOR A MESS OF SIX MEN PER WEEK, TO BE SERVED OUT DAILY.

For TWO DAYS,	Beef,*	12 lb.		For SEVEN DAYS,	Ground Pepper,	1½ oz.
	Flour,	5 lb.			Mustard,	¼ lb.
	Suet,	1 lb.		Biscuit,	30 lb.	
For ONE DAY,	Preserved Meat,†	4½ lb.		Salt Butter,	1½ lb.	
	Mixed Vegetables,	1 oz.		Tea,	1 lb.	
	Rice,	3 lb.		Sugar (crushed),	9 lb.	
For THREE DAYS, ...	Pork,* 3 Pieces, or,	18 lb.		Vinegar,	3 Pints.	
	Pease,	6 Pints.		Best London Porter,	42 Pints.	
	Patent Preserved Potato,	2 lb. 4 oz.		Pickled Cabbage, or Mixed	1½ Pints.	
For ONE DAY,	Flour,	5 lb.		Pickles,	2½ Pints.	
	Suet,	¾ lb.		Lime Juice,	21 oz.	
	Plums,	1 lb. 11 oz.				

Water at the rate of Seven Pints per Man per Day, for Twenty Weeks. To cover Wastage, Five per Cent. on the total quantity of water is to be shipped.

Lime Juice in Stone Jugs at the rate of Four and a half Pints per Man for the Voyage out.

Pickles to be shipped in Five-Gallon Jars for every 100 Men, and in Two-Gallon Jars if a Lesser Number than 100.

Pepper to be packed in 1 lb. Bottles.

Fresh Beef or Mutton to be issued to the Troops when procurable; 1½ lb. per Man per Day, with Vegetables and Oatmeal for the Soup. The Troops are to be Victualled for the Day of Embarkation, and the Ship is to have on board at least Two Days' allowance of Fresh Provisions and Vegetables for the Troops on leaving.

Patent Preserved Potato, equivalent to ½ lb. to each Man of the cooked Vegetable, to be served out on Three Days in each Week when Salted Pork is issued.

Compressed Mixed Vegetables, equal to 1 oz. per Man, to be issued on the Day that the Preserved Meat is served out.

Butter to be best Second Pickled Cook Butter, each Firkin to be calculated at 65 lb. net weight of Butter.

Biscuit to be of the quality of Navy Biscuit, the net weight of Biscuit to be marked on each package, either Barrels or Cases.

* Prime New India Beef of the cure of any country, and Prime New India Pork of the cure of any country except America. The Beef and Pork must be Fresh-cured.

† The Preserved Meat being of two kinds,—Beef and Mutton in tins of 4½ lb. each, separately cured and packed in flat wooden Cases, to be issued alternately.

QUANTITIES FOR EACH MAN PER DAY.

	Beef.	Flour.	Suet.	Plums.	Pork.	Pease.	Preserved Meat.	Rice.	Compressed mixed Vegetables.	Biscuit.	Salt Butter.	London Porter.	Water.	Preserved Potato uncooked.	Sugar.	Tea.	Vinegar.	Mustard.	Potatoes.	Pickles.	Pepper, Ground.	Salt.	Lime Juice.
Sunday ...	16	6½	1½	—	—	—	—	—	—	—	—	1	7	—	—	—	—	—	—	—	—	—	—
Monday ...	—	—	—	—	16	—	—	—	—	—	—	1	7	—	—	—	—	—	—	—	—	—	—
Tuesday ...	—	15½	2	4½	—	—	—	—	—	—	—	1	7	—	—	—	—	—	—	—	—	—	—
Wednesday ...	—	—	—	—	16	—	—	—	—	—	—	1	7	—	—	—	—	—	—	—	—	—	—
Thursday ...	16	6½	1½	—	—	—	—	—	—	—	—	1	7	—	—	—	—	—	—	—	—	—	—
Friday ...	—	—	—	—	—	—	—	—	—	—	—	1	7	—	—	—	—	—	—	—	—	—	—
Saturday ...	—	—	—	—	16	—	—	—	—	—	—	1	7	—	—	—	—	—	—	—	—	—	—

N. B. Women receive the same rations as Men, with the exception of Porter, half that ration only being allowed to Women. Children receive half-rations.

The Porter to be in Barrels when the number of Persons is 60 or under, and in Hogsheads when the number is above 60 or under 160.

Five per cent. on the total quantity of Porter to be added for wastage.

DAILY MEALS.

BREAKFAST ... Biscuits, Tea, and Sugar.

DINNER .. According to the above Scale.

SUPPER ... Biscuits, Tea, and Sugar.

List of other Articles to be provided by the Owners for the Troops, viz.:

- 6 Strong Iron Spoons.
- 1 Ditto Wooden Mess Kid, to hold 1½ gallons, with 2 iron hoops and iron bale.
- 1 ditto Tin Dish, 14 in. by 11, and 3 in. deep, with Wise handle.
- 1 Ditto Bread Basket to hold 5 lb.
- 1 Ditto Tin Quart Pot.
- 1 Ditto Half-pint Mustard Pot.
- 2 oz. of Salt per day, when preserved or Fresh Meat is issued.

For each Mess of Six Persons.

To be numbered from 1 upwards to the extent of the Messes.

- 1 Strong Net to hold 12 lb. Potatoes.
- 1 Ditto Bag to hold 30 lb. Biscuits.
- 1 Ditto Pudding Bag, 16 inches by 10 inches, with string no. 8 Canvas.
- 1 Ditto Keg, to hold 3 imperial gallons, slung, with nozzle and bung attached, and with 4 iron hoops.
- 1 Tin Pepper-box.
- 1 Tin Pickle Dish.

The boilers for the Troops to hold at the rate of half a gallon imperial per Man.

- 9 Scrapers,
- 9 Swabs (of good size), 12 lb. each.
- 36 Birch Brooms.
- 3 Long-handled Scrubbers.
- 4 Horse Buckets to hold 5 gallons each.
- 1 Steep Tub, 60 gallons.
- 1 Scuttle Butt, 120 gallons.
- 2 Shovels.
- 9 Wash-deck Buckets, stropped.
- 2 Tin Quart Funnels.
- 1 Hanging Sore for drying decks.
- 1 Canvas Screen, for use of women when washing themselves, 8 yards long by 5 breadths wide, and to be No. 6 Canvas.
- 1 Set Pewter Measures
- 1 Ditto Wood
- 2 Ditto Tin

For every 100 Persons or under, and a proportionate quantity of each article when above 100 Persons.

What may be required for the use of the sick lay to be drawn from these articles.

- 2 Sets Iron Weights, 7 lb. to 1 oz. } Standard and stamped.
- 2 pair Tin Flour Scales. }
- 2 Copper Pumps, with Screens and 2 spare feet. }
- 1 Bilboa Bolt, 8 feet long. } With locks and keys.
- 1 Ditto 6 feet. }
- 3 Pair Shackles. }
- 3 Pair Handcuffs. }
- 1 Tin Oil-Filler. }
- 1 Pewter Bed-Pan. }
- 2 Wooden Close-stools, complete. }
- 5 Chamber-Pots. }
- 1 Urinal. } Of Pewter.
- 3 Spitting Cups. }

- 6 Large or Ball's Eye Lanterns, with Lamps, and secured with Lock and key, when Troops go on Orop Deck; and 4 when they go betwixt decks; with 4 gallons of Oil for each lamp in tins, and cotton for wicks.

1 Rice Sieve, brass wire. 1 Bread Sieve.

Water Butts to contain 150 imperial gallons each, (as certified by an experienced Gauger.)

One-third of the number to be of 1 inch Stave and Heading, and 1½ inch Hoop.

Two-thirds ditto ¾ inch ditto ditto 1½ ditto.

Porter Butts and Hogsheads ditto ditto ditto ditto ditto.

NOTE. The above scale of victualling for Troops, with the alterations previously noted, is recommended for adoption in all of Her Majesty's Troop-ships. The possession of one liberal sars/ars ration scale would be thereby obtained.

The first part of the report is devoted to a general
 description of the country and its resources. It
 is followed by a detailed account of the
 various industries and occupations of the
 people. The third part of the report
 contains a list of the principal towns and
 villages, with a description of their
 buildings and other interesting features.
 The fourth part of the report is a
 list of the principal rivers and streams,
 with a description of their courses and
 the fisheries which they support. The
 fifth part of the report is a list of the
 principal mountains and hills, with a
 description of their heights and the
 scenery which they afford. The sixth
 part of the report is a list of the
 principal lakes and ponds, with a
 description of their waters and the
 fisheries which they support. The
 seventh part of the report is a list of
 the principal forests, with a description
 of their trees and the products which
 they yield. The eighth part of the
 report is a list of the principal
 minerals, with a description of their
 localities and the methods of their
 extraction. The ninth part of the
 report is a list of the principal
 animals and plants, with a description
 of their habits and uses. The tenth
 part of the report is a list of the
 principal diseases, with a description
 of their symptoms and the methods of
 their treatment. The eleventh part
 of the report is a list of the principal
 occupations and professions, with a
 description of their duties and the
 methods of their practice. The
 twelfth part of the report is a list of
 the principal laws and regulations,
 with a description of their contents and
 the methods of their enforcement. The
 thirteenth part of the report is a list
 of the principal public buildings, with
 a description of their architecture and
 the methods of their construction. The
 fourteenth part of the report is a list
 of the principal public works, with a
 description of their nature and the
 methods of their execution. The
 fifteenth part of the report is a list
 of the principal public institutions, with
 a description of their objects and the
 methods of their management. The
 sixteenth part of the report is a list
 of the principal public officers, with a
 description of their duties and the
 methods of their appointment. The
 seventeenth part of the report is a list
 of the principal public revenues, with a
 description of their sources and the
 methods of their collection. The
 eighteenth part of the report is a list
 of the principal public expenses, with a
 description of their objects and the
 methods of their payment. The
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 of the principal public debts, with a
 description of their nature and the
 methods of their redemption. The
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 methods of their appointment. The
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 description of their nature and the
 methods of their performance. The
 twenty-seventh part of the report is a list
 of the principal public rights, with a
 description of their nature and the
 methods of their enjoyment. The
 twenty-eighth part of the report is a list
 of the principal public obligations, with
 a description of their nature and the
 methods of their discharge. The
 twenty-ninth part of the report is a list
 of the principal public interests, with a
 description of their nature and the
 methods of their protection. The
 thirtieth part of the report is a list
 of the principal public concerns, with
 a description of their nature and the
 methods of their management.

TO INDIA.

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For TWO	¼ lb.
	30 lb.
	1½ lb.
For ONE I	1 lb.
),	9 lb.
	3 Pints.
For THREE	orter,	42 Pints.
	age, or Mixed	
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 - 2 Shovels.
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 - 2 Tin Quar
 - 1 Hanging
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C. J. K.

APPENDIX D.

I AM indebted to the eminent physician, Dr. Martin, "for the following directions for the guidance of Medical Officers, and such as may be in command of troops about to embark on board of ship, and who should attend to the following circumstances:—

1st. The condition of the transport vessel, and state of health, of the crew. When ships of war are used, a frigate to be preferred to a ship of the line.

2nd. That all old and foul ballasting be changed, and no fresh or green wood be allowed in the ship's hold, or any matter capable of ready decomposition.

3rd. State of health of the troops to be carefully examined, and cases of contagious disease, old or extensive ulcers, to be left behind.

4th. On no account to permit crowding of the men, and to see that berths are secured for the sick and married. On no account should the aggregate number of men exceed the proportion of one man to two tons of measurement.

5th. That the men are not allowed to quit the ship, or to be on deck after sunset, if navigating rivers, or along level or marshy sea-coasts.

6th. Particular examination of the provisions should be made, and that the salted meat is not old: the same in regard to the water, which should, when possible, be from springs, and be kept in iron tanks: there should be quick-lime for the purpose of purifying it.

7th. For distant expeditions, there should be hospital ships, well provided, in order to the separation of sick from the healthy.

8th. Cold and moisture in the ship's hold are to be guarded against, and the pumps to be frequently worked, so as to leave but a few inches in the well.

RECORD OF VENTURES

FOR A TERM OF YEARS

The undersigned do hereby certify that the following is a true and correct copy of the original of the above and entitled instrument as the same appears from the records of the County of ... State of ...

Witness my hand and seal of office this ... day of ... 19...

Notary Public for the State of ...

The foregoing description of the land ...

QUANTITIES

No.	Quantity	Value	Remarks
1
2
3
4
5
6
7
8
9
10

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8th. Cold and moisture in the ship's hold are to be guarded against, and the pumps to be frequently worked, so as to leave but a few inches in the well.

9th. Ventilation and cleanliness to be promoted by every means, and in bad weather, when wind-sails cannot be used, fire-pots, or portable stoves, should be carried between decks.

10th. During fair weather, the men should be made to bathe daily.

11th. Moderate exercise and amusement of every kind to be encouraged by every means, during a voyage; and an union of strict discipline, with indulgence and humanity towards the men, should characterise the conduct of all classes of officers."

APPENDIX E.

IT may be well to state that Medical Officers at the termination of their voyage are expected to forward a report to the principal Medical Officer at the port of disembarkation on the following heads :—

- a.* Name, Tonnage and particulars of ship.
- b.* Strength embarked.
- c.* Cubic space, if sufficient.
- d.* Ventilation, ditto.
- e.* Rations, Water, Antiscorbutics.
- f.* Medical comforts, quality and quantity.
- g.* State of health of the Troops during the Voyage.
- h.* Number of men landed unfit for duty.
- i.* A notice of deaths from avoidable causes.
- j.* Improvements suggested.
- k.* Atmospheric phenomena observed during the Voyage.
- l.* Conclusion.

To the report the following documents should be annexed.

1. A Return of Medical comforts received and remaining.
2. Ditto of Medicines, &c., received and remaining.
3. Ditto shewing the diseases of the patients, their ages, length of service, time in Hospital, and in particular cases, a short account of their previous treatment.
4. Nominal Return of deaths during the voyage.

APPENDIX

It may be well to state that Medical Officers at the termination of their voyages are expected to forward a report to the Principal Medical Officer at the port of disembarkation on the following heads:-

- 1. Name of Vessel and particulars of trip.
- 2. Dates of departure and arrival.
- 3. Name of Surgeon or other Medical Officer.
- 4. Name of the vessel.
- 5. Name of the port of destination.
- 6. Name of the port of departure.
- 7. Name of the port of arrival.
- 8. Name of the port of disembarkation.
- 9. Name of the port of departure.
- 10. Name of the port of arrival.
- 11. Name of the port of disembarkation.
- 12. Name of the port of departure.
- 13. Name of the port of arrival.
- 14. Name of the port of disembarkation.
- 15. Name of the port of departure.
- 16. Name of the port of arrival.
- 17. Name of the port of disembarkation.
- 18. Name of the port of departure.
- 19. Name of the port of arrival.
- 20. Name of the port of disembarkation.

The report on the following documents should be annexed.

- 1. A list of all patients received and discharged.
- 2. A list of all deaths, showing the date, time, and cause.
- 3. A list of all cases of disease, showing the date, time, and cause.
- 4. A list of all cases of disease, showing the date, time, and cause.
- 5. A list of all cases of disease, showing the date, time, and cause.
- 6. A list of all cases of disease, showing the date, time, and cause.
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- 20. A list of all cases of disease, showing the date, time, and cause.

C. J. R.

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