

LESSON 8: CREATING A HEALTHY CAMP

INTENDED AUDIENCE

High-school students; first- or second-year undergraduates in history, social studies, or science

LEARNING OBJECTIVES

- *Describe the self-care tactics practiced by Civil War soldiers.*
- *Evaluate how surgeons and the military establishment exploited issues of health care to tighten military discipline.*
- *Describe how Civil War Americans imagined the causes of sickness and disease.*
- *Identify the health dangers in Civil War camps.*

TIME REQUIRED FOR LESSON

The role-play and debriefing will occupy an hour. The background exercise can be done as homework but will require class discussion. The debriefing question is intended as a supplementary exercise to provide broader context to the classroom discussion.

KEY TERMS/WORDS

camp diseases, typhoid, typhus, miasma, diarrhoea (diarrhea), diet, food

MATERIALS REQUIRED

Readings that accompany this lesson.

BACKGROUND QUESTION

Camps were deathtraps during the Civil War. The statistics are staggering. Some historians, for instance, have estimated that nearly 40% of the Union army in Virginia was sick at one point in 1862. The convergence of so many men living in crowded and often unsanitary conditions turned every tent into a potential morgue. Early in the war, the medical establishment in both the Union and Confederate army lacked the administrative capability, the scientific knowledge, and the trained doctors to keep pace with the ferocity with which disease and sickness ripped through camps. In time, army regulations stiffened, providing greater sanitary oversight. Relief aid also increased in short order, although it was never delivered in sufficient amounts to the troops. Federal soldiers received additional assistance from the United States Sanitary Commission, a relief organization that distributed instructional pamphlets on how soldiers might prevent illnesses in the field, including homesickness. The Commission also raised funds for, purchased, and distributed medicines, food, and clothing.

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Union and Confederate soldiers shared a similar understanding of the natural world. Through experience and a fixed belief that physical surroundings mattered, men on both sides adjusted to the natural forces of the environment. Soldiers did not simply turn fatalistic, waiting for the invisible enemy of disease to take their life. They developed habits and strategies to cope with the unpredictable and unknowable dangers passing through the air while also finding ways to skirt military policies that were seen as harmful to the health of ordinary privates. Typhoid and malarial fevers, diarrhea and dysentery, rheumatism, and scurvy wiped out countless units, but even though soldiers and doctors could not always agree on the origins of these illnesses, they recognized a link between the environment and physical health.

A new climate, or a swamp miasma, seasonal changes, drinking water, and insects were seen as having a direct impact on bodily conditions. Although the Civil War took place before the discovery of germ theory, soldiers and doctors were not blind to ways that the environment had a decisive impact on the body and mind. As a result, they continued to pressure the military establishment to do more for the troops, to enforce sanitary regulations, and to look the other way and allow the troops to forage for food, since army rations were simply not sufficient in calories or in nutrients to keep men healthy and fighting as disciplined soldiers. In the end, if the army failed to hold up its end of the contract and properly care and feed for the men, Union and Confederate soldiers did not hesitate to take matters into their own hands, a bold and sometimes dangerous step, driven by the sheer quest for survival.

- *Have students read the report below on the condition of camps and the arrival of new recruits. What health problems did the author find among the troops, and what connections does he make among health, morale, and the physical environment? Why did he believe that recruits were so vulnerable?*

Roberts Bartholow, "The various influences affecting the physical endurance ... of the men composing the volunteer armies of the United States," in Austin Flint, ed., *Contributions Relating to the Causation and Prevention of Disease* (New York: Hurd and Houghton, 1867), 6-12. Complete text available on-line at:

<https://archive.org/details/contributionsrel00flinuoft>

[Lesson 8 Attachment 1]

LESSON 8: CREATING A HEALTHY CAMP

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Camp of the 31st Pennsylvania, near Washington, DC

Courtesy of Library of Congress Prints and Photographs Division Washington, D.C.



Army Kitchen and Cooks, 1864

Courtesy of Library of Congress Prints and Photographs Division Washington, D.C.

ROLE PLAYING QUESTION

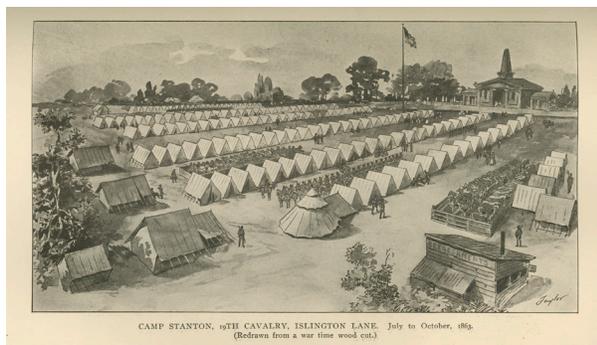
Assume that students are members of the U.S. Sanitary Commission and they have been handed regimental reports from the Army of the Potomac, describing camps that have become breeding grounds for fatal diseases, including typhus.

- *Using the standard forms of the U.S. Sanitary Commission, evaluate the regimental reports of camp conditions found in the Medical and Surgical History of the War of the Rebellion.*
- *After students have responded to the questions, evaluate and discuss what you believe is behind the sickness in the various regimental camps. Conclude their analysis with recommendations on how to improve conditions.*
- *The two readings based on reports from U.S. military camps link typhus to certain camp conditions, but particularly bad air or miasma. For an additional project to this role-play and debriefing, analyze what the reporting doctors have said about air. What kinds of bad air do they describe, and how does the onset of infection relate to the quality of air? If students were to investigate miasmas scientifically, what hypothesis can they create based on these reports? What evidence would they seek to confirm or negate the hypothesis?*

U. S. Sanitary Commission, “Camp Inspection Return,”
Form No. 19a, 2-4, 6, 8. [Lesson 8 Attachment 2]

Reports from U.S. military camps in Medical and Surgical
History of the War of the Rebellion Part III, Vol. I: 329-30.
[Lesson 8 Attachment 3]

Reports from U.S. military camps in Medical and Surgical
History of the War of the Rebellion Part III, Vol. I: 326-28.
[Lesson 8 Attachment 4]



*Drawing of Camp Stanton, 19th Cavalry,
Islington Lane, July to October 1863*
Public Domain

DEBRIEFING QUESTIONS

- *After reading the regulations in S. D. Gross’s A Manual of Military Surgery, how do students’ recommendations from the role-playing exercise compare?*
- *Try to explain the differences. What assumptions about the human body do students hold that diverge from how Civil War Americans viewed the causes of sickness and disease?*

S. D. Gross, A Manual of Military Surgery or, Hints on the Emergencies of Field Camp and Hospital Practice (Philadelphia: J. B. Lippincott & Co., 1861), 139-51. Note that the complete manual may be found on-line at:
<http://jdc.jefferson.edu/milsurgusa/>
<https://archive.org/details/manualofmilitary01gros>
[Lesson 8 Attachment 5]

BIBLIOGRAPHY

Alfred Jay Bollet, *Civil War Medicine: Challenges and Triumphs* (Tucson, AZ: Galen, 2002)

Glenna R Schroeder-Len, *The Encyclopedia of Civil War Medicine* (New York: M. E. Sharpe, 2008) On-line at: http://books.google.com/books/about/The_Encyclopedia_of_Civil_War_Medicine.html?id=fVZeGtxiMcYC

Paul E. Steiner, *Disease in the Civil War* (Springfield: Charles C. Thomas, 1968)

Bonnie Dorwart, *Death is in the Breeze: Disease during the American Civil War* (Frederick, Maryland: National Museum of Civil War Medicine, 2009)

WEB LINKS

New York Times essay on smallpox in camps, “*The Minister of Death*”

<http://opinionator.blogs.nytimes.com/2012/08/17/the-minister-of-death/>

New York Times essay, “*Brother Against Microbe*”

<http://opinionator.blogs.nytimes.com/2012/10/26/brother-against-microbe/>

New York Times essay, “*Notes on (Civil War) Camp*”

<http://opinionator.blogs.nytimes.com/2012/04/14/notes-on-civil-war-camp/>

Pennsylvania Education Standards

(see <http://www.pdesas.org/standard/views>)

PA Core History and Social Studies standards

11TH GRADE

1.2.11.A-E; 1.6.11.A-B; 8.1.U.A-B; 8.3.U.A-D

12TH GRADE

1.2.11.A; 1.2.12.B-D; 1.6.12.A-B; 8.1.12.A-B; 8.1.U.A-B; 8.3.12.A-D

COMMON CORE 11TH-12TH GRADES

CC.1.2.11-12.A, B, I; CC.1.4.11-12.A, H, I; CC.1.5.11-12.A, D, G; CC.8.5.11-12.A-C, F, H; CC.8.6.11-12.H



Colored lithograph illustration of a soldier “dreaming of home.”

Courtesy of The Library Company of Philadelphia



Federal encampment on the Pamunkey River, Cumberland Landing, VA, May 1862

Courtesy of Library of Congress Prints and Photographs Division Washington, D.C.



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THE VARIOUS INFLUENCES

**AFFECTING THE PHYSICAL ENDURANCE, THE POWER OF RESISTING DISEASE. ETC.,
OF THE MEN COMPOSING THE VOLUNTEER ARMIES OF THE UNITED STATES.**

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The various influences affecting the physical endurance of the men composing our volunteer armies, their power of resistance to disease, etc., may be comprehended in four groups, namely: —

1. *The influences in operation previous to enlistment;*
2. *The causes affecting the physical stamina of the recruit subsequent to enlistment;*
3. *The causes affecting the physical stamina of the soldier in active service; and,*
4. *Moral causes, as malingering, desertion, nostalgia, etc., in operation during the whole period.*

I.

Under the first head must be included an outline of the qualifications of a recruit for the military service: race, temperament, occupation, age, height, weight, capacity of thorax, muscular development, and a proper performance of the functions of animal and organic life.

Perfection of the senses is essential. The organs of special sense should not only be free from disease, but they should have that ready appreciation of their appropriate stimuli, which is a proof of the healthy activity of the central nervous system. The functions of all the organs should be so well performed that the happy balance between waste and supply should be maintained.

Besides these physical requirements, there are certain mental states favorable, and certain others unfavorable, to the proper performance of military service. The soldier should possess a cheerful disposition, a calm temper, and that indifference to danger and fatigue which is more frequently the result of mental forces than physical strength.

We assume that the recruit submitted to the usual inspection conforms to the standard as set forth in the preceding causes in paragraphs. The question then occurs, What causes arising in his previous life and experiences may affect his physical stamina, independently of the new conditions to which he is subjected immediately on enlistment? These causes may include certain hereditary diseases, as insanity, epilepsy, scrofula, and tuberculosis; and such acquired cachexiae [wasting away] as the chronic malarial poisoning, masturbation, chronic alcoholism, and incipient disease of important organs. Although not recognizable on ordinary examination, these conditions may yet exist in sufficient degree to be readily excited by ordinary causes into well-defined morbid processes.

The operation of these occult causes of disease in recruits antecedent to enlistment is shown in the following statistics: In 15,500 discharges on surgeon's certificate, as examined by me at the War Department, there were 154 for mental infirmities, 341 for epilepsy, 411 for various cachexiae, 44 for bad moral character, and 3593 for diseases of the chest. A large majority of these were either hereditary, or existed in modified form at the time of enlistment.

Many of the causes affecting the physical stamina of the recruit previous to enlistment might have been recognized by proper care and diligence in the examination. The neglect to examine men in the beginning of the war, and the lack of thoroughness in the examinations afterward, increased the number of men serving, but diminished the relative efficiency. The statistics bearing on this point are quite conclusive. Thus, in 15,500 discharges, there were 388 for disqualifications due to age, and 209 for natural feebleness of constitution, both of which are recognized without difficulty.

II.

The recruit makes a sudden transition from a natural to an artificial state without any preparation for the change. It may be admitted as true, at least of a large majority of the people of this country, that the recruit has had sufficient food, and in proper variety; that he has been suitably clothed; that he has had undisturbed sleep as many hours as his health required; that he has had the necessary air-space in his daily avocations and during his sleep at night; and that he has been able to avoid the more trying vicissitudes of the weather. Those who have not enjoyed similar comforts are, it may be safely affirmed, usually unfitted for military service.

As soon after enlistment as possible, the recruit is hurried to the depot; he is supplied with army rations badly cooked and uncleanly served; he is drilled vigorously several hours each day; at night, furnished with one or two blankets and occasionally a little straw, he is thrust into a tent with a large number of others, or into crowded temporary quarters, where he is subjected to horribly impure air, frequently to cold and dampness, and always to excessive discomfort, or he is required to perform a tour of guard duty which interrupts his habit of nightly repose; but slender opportunities of washing and bathing are afforded him, and he is at all times exposed to the influence of the unwholesome air of badly-policed camps and quarters, and to the emanations from his comrades suffering; under various contagious maladies.

Scarcely any depot of recruits was an exception to this description during the rebellion. Some of these evils of necessity grew out of the military service, and could not be eliminated from it; but many more were entirely preventable. To a military man, a recruit is a piece of mechanism, to be adapted to the needs of the military service; and the shortest method to accomplish this object is the best. Hence, a kneading and compressing process is followed. With the few recruits for the regular military establishment, this process may be pursued with less extensive injury; but mental, moral, and physical consequences ensue to the volunteers, which limit their efficiency in service, and often prove fatal to them at the outset. It will be useful to consider, in the first place, the physical consequences which ensued by reason of the improper hygienic management of recruits; for the mental and moral consequences largely depended on the physical.

The several drafts of men after the three months' service were so issued that the recruiting and organization of troops occurred mainly in the fall, winter, and spring. The buildings at the camps of rendezvous in the various States were wholly inadequate, and hence, the recruits, as a rule, were placed in tents. Suitable provision, in these places, could not be made against vicissitudes of weather and dampness. Drainage, ventilation, and police of camps and quarters, were usually neglected. Guard duty at night, and exhausting drills, lessened the vital forces. Heated and fatigued by drill, the recruit was too much accustomed to throw himself upon the damp straw or blankets. Catarrhal and pulmonary affections were produced, the more promptly in the case of those recruits — a large number — who were not at all habituated to such experiences.

Dietetic causes were scarcely less important agencies in the production of disease than climatic. Large numbers of recruits being suddenly thrown together at the depots, little provision was made, or, indeed, could be made, for the suitable preparation of food. The recruits themselves were wholly ignorant of the culinary art; there was neither time nor opportunity to instruct them; cooks were not provided, and the utensils issued were most inadequate for the purpose. Moreover, the components of the ration were not adapted to the peculiar circumstances; they were sufficiently various and in sufficient quantity, but were not in a form available to recruits unaccustomed to the preparation of food. Hence, in the midst of abundance, suffering from hunger was not uncommon. The effort to have the cooking done by companies was hardly accomplished, even with troops in the field, by the end of the war; and this system was not practicable with recruits who had no company organization, or, if organized into temporary companies, had no homogeneity nor completeness of detail in respect to company management. It usually happened that a squad of three or four organized themselves into a mess, each contributing his rations to the common stock, and alternating in the duties of cooking. The results were not satisfactory. An American intrusted with cooking for the first time, thinks only of frying. Flour made into a paste with water was usually fried in the fat of the bacon, or made into loaves with baking powder, if the cook possessed so much skill or experience. Beef was invariably fried, and the beans and rice frequently also. Being unprovided with suitable receptacles for their stores, and unskilled in defining their daily quantitative allowances, they were frequently without food for a day or two preceding the time for issue. Improvements were made, especially by constructing ovens and issuing baker's bread in lieu of flour, but the cooking by messes continued the rule throughout the war.

Eating badly-cooked food hastily, and without relish, resulted in indigestion, flatulence, and diarrhoea. Beans probably contributed, more than any single article, to the production of these intestinal troubles. They were almost always insufficiently cooked by recruits, to whom indeed they were not familiar as an article of human food, if we except the troops from New York and the New England States. It has frequently happened to me to observe an increase in the percentage of diarrhoea and dysentery on the day after the issue of bean soup. In a body of four hundred recruits, every man came on to the "sick report" with one of these disorders in the space of three months, and one fifth came more than once. Beans have been continued in the supplies of the commissariat upon a theory of their nutritive value, based upon a proximate analysis; on account

of their portability, and because they do not readily undergo change. Whatever may be their value in these respects, there can be no doubt that they are hurtful to recruits, who do not have the necessary skill in preparing them, and who, by various causes, are rendered peculiarly susceptible to their irritant action upon the intestinal mucous surface.

The Napoleonic maxim — the soup makes the soldier — was not sufficiently attended to at our recruiting depots. Bean soup requires more artistic skill in its preparation than other plain soups, but was more frequently made. The distribution of the rations to individuals prevented the preparation of food on a large scale. The waste of this system rendered it more expensive to the government than ample provision for cooking would have been. Moreover, the destruction in health and life was hardly to be estimated in the pecuniary sense. If this view had governed the authorities, so great was the cost of a soldier that money would have been well expended which insured his preservation in health and efficiency.

These dietetic causes influencing the health of recruits would not be complete without some reference to the irregular sources of supply, available in the sutlers' shops and booths permitted in the camps. The chief profits of the sutler were derived from the sale of fruits and "fancy groceries" — to use a commercial phrase — which the recruit too eagerly purchased to enrich his meagre diet, or supply the loss of misused rations.

Overcrowding of tents and quarters was a fruitful source of mischief. This was especially observable at night and during bad weather. The air of those places became quickly foul — loaded with organic emanations and with carbonic acid, and deprived of much of its oxygen. On entering the tents or quarters under these circumstances, there was immediately to be perceived a strong "animal odor," the more diffuse and powerful when the personal cleanliness of the men had been neglected. Headache, nervousness and tremors, a coated tongue and nausea, were frequently experienced by recruits subjected for a single day or night to the influence of such an atmosphere. Moreover, the increased action of the capillaries of the integument, the relaxation of the bronchial mucous membrane, and the diminished urinary secretion occurring under these circumstances, greatly favored the reception of morbid agents, and disposed to attacks of catarrh, bronchitis, and pneumonia, from slight causes. There can be no question that organic matter in a state of minute subdivision, derived from a number of persons crowded into a confined space, possesses considerable morbid power, especially in the production of intestinal diseases; for, absorbed into the blood, these particles are excreted mainly through the mucous surface of the alimentary canal.

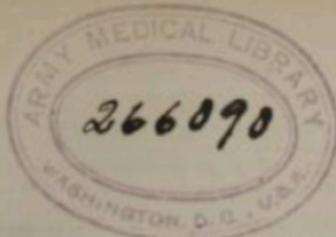
A lack of personal cleanliness was little less promotive of disease than the causes already enumerated. The water supply, at the inland depots especially, was never equal to the requirements; hence, if the recruit possessed the inclination, he had little opportunity to keep his person clean. Example and instruction were wanting as well as opportunity. Every thing about him being dirty and disagreeable, the necessity for cleanliness was by no means apparent. It was painful to see at all the depots the slovenly, slipshod appearance of the clothing and accoutrements of the recruits, their filthy skins, uncombed hair, and matted beards.

The association of men in masses or herds, rapidly produces mental and moral degeneracy. In their lives being assimilated to that of animals, their minds conform to the same standard. This brings us to consider the influence of these conditions and experiences upon the mental and moral qualities of the recruit. The great change in his habits and modes of life, associated with so much that was disagreeable and repulsive, induced in the recruit, if not possessed of considerable fortitude and personal resources, a state of deep dejection, hypochondria, and nostalgia. This was especially to be observed in young men and married men of mature age. If there existed any hereditary tendency to insanity, this state of despondency, hypochondria, or nostalgia, powerfully contributed to its development; hence, mental disorders arising during the war occurred more frequently in recruits than in soldiers of more than a year's service.

The mental impressions of these first experiences of the military service, if not sufficient to induce insanity, lead directly to various mental and moral disorders. Malingering was suggested as a ready expedient for avoiding further service; desertion was considered if not attempted. The monotony of the life and the unaccustomed restraint, together with the hardships to which they were exposed, disposed recruits, when occasion offered, to run into excesses of drinking and venery. They became intoxicated and indulged in venereal excesses who were not accustomed to do so before enlistment: the forces repressed by military training thus broke bounds and ran riot.

SOURCE

Austin Flint, ed., Contributions Relating to the Causation and Prevention of Disease (New York: Hurd and Houghton, 1867), 6-12.



*Amorante
Camp
1862*

SANITARY COMMISSION.

No. 19a.

CAMP INSPECTION RETURN.

Abbreviations.—Y, "Yes;" N, "No;" n. c., "not stated;" Q, "So reported, but Inspector doubts if correctly." The answers are supposed to express the fact as believed by the Inspector, unless otherwise indicated. Where one subdivision of a question is answered, the others may be disregarded.

References.—Reference is made to two editions of the Army Regulations: that published pursuant to the order of the Secretary of War, dated May 1, 1861, and that pursuant to the order of August 10, 1861, the latter being designated as "revised."

I. DESCRIPTION AND GENERAL CHARACTER OF BODY INSPECTED.

- 1. Name and locality of camp?
- 2. State?
- 3. Military department?
- 4. Date of conclusion of inspection?
- 5. Name of inspector?
- 6. Designation of the body inspected?
- whose brigade?
- whose division?
- 7. Name of its commanding officer?
- 8. Where recruited? Specifying counties, (if practicable)
- 9. Predominating nativity?
- American?
- Irish?
- German?
- Foreign, not Irish or German?
- 10. When recruiting began?
- 11. When mustered into U. States service?

- 12. At what places stationed since, and how long at each? *.....
- 13. How strong when mustered in?.....
- 14. Present strength?.....

II. CHARACTER OF CAMP SITE.

- 15. Who selected present camp site?.....
- 16. Had the site been occupied shortly before for the same purpose?.....
If so, date when last evacuated?.....
- 17. Was the selection influenced by military considerations which might overrule sanitary?.....
- 18. Situation of camp :
 - upon a hill-top?.....
 - “ “ hill-side?.....
 - “ “ hill-foot?.....
 - in a glen?.....
 - on a plain?.....
 - slightly elevated?.....
- 19. Is the site unshaded?.....
“ “ in the shade of woods?.....
- 20. Is it sheltered by higher land?†.....
“ “ “ wood? †.....
- 21. From what quarter is the prevailing wind?.....
- 22. As to malaria, what is the reputation of the site?.....
unknown?.....
good?.....
bad?.....
very bad?.....
- 23. Local conditions presumptive of malaria :
 - near a swamp?.....
 - near a pond?.....

* Stations of less than one week may be disregarded if the list would otherwise be too long.
† If so, show on what side by letters, as S. W.

23. Local conditions presumptive of malaria :
- near a river?.....
 - near a river delta?.....
24. Soil of camp site :
- sandy?.....
 - loose gravel?.....
 - loose loam?.....
 - firm loam?.....
 - agglomerated pebbles, gravel,
or sand, (hardpan).....
 - impervious clay?.....
25. Sub-soil :
- sandy?.....
 - loose gravel?.....
 - loose loam?.....
 - firm loam?
 - agglomerated pebbles, gravel,
or sand, (hardpan)
 - impervious clay?.....
26. Is the site favorable for surface drainage? (as to inclination)

III. ARRANGEMENT AND CONDITION OF CAMP.

27. Is the camp arranged mainly in accordance with the "army regulations"?
- more crowded?.....
 - more open?.....
28. How far apart are the tents in the rows?.....
29. How is the artificial drainage?.....
- systematic and complete?.....
 - partial, and with no general system?.....
 - entirely neglected?.....
30. Are the drains mainly straight?.....
- Are the drains very sinuous?
31. About how deep are the drains generally?.....

- 32. About how wide at the top are the drains generally?.....
- 33. Are the drains kept clean?.....
- " " foul or clogged?.....
- 34. Is there a good outlet for all the drains?.....
- 35. Condition of the camp streets:
- very clean?.....
- moderately clean?.....
- dirty or neglected?.....
- 36. Edges of tents and spaces between tents:
- very clean?.....
- moderately clean?.....
- neglected and littered?.....

IV. CHARACTER, VENTILATION, AND MANAGEMENT OF TENTS.

- 37. In what sort of tents are the privates mostly?.....
- Sibley, or conical, with ventilator at top?.....
- regulation wall-tents?.....
- regulation "servants," "common," or "wedge-shape"?.....
- If not of regulation pattern, state form and size?.....
- 38. Average number of men to each tent?.....
- 39. Is the ventilation of the tents looked after by any officer at night?.....
- 40. Are the tents struck on certain days for the purpose of a thorough cleansing and airing?.....
- if so, how often?.....

V. BEDDING AND CLOTHING.

- 41. On what do the men sleep?.....
- rubber blankets?.....
- wooden tent-floor?.....

* Thus: "4 x 8 x (9 high.)"

VI. PERSONAL CLEANLINESS.

- 54. Do the men bathe frequently?
- 55. Are they required to bathe under the eye of an officer?
- if so, how often each man?.....
- 56. Does each man (as a rule) wash his head, neck, and feet once a day?
- 57. Is evidence of neglect of this looked for at inspection?.....
- 58. Are the men infested with vermin?.....
- 59. If so, has any application been made to remove them?

VII. CLEANLINESS OF CAMP.

- 60. Do you observe scraps of food, bones, or rubbish collected in the edges of tents?
- in the drains?.....
- in the camp streets?
- between the tents?
- 61. Are refuse slops and food disposed of systematically, so as not to be offensive?
- 62. Do you observe odors of decay in the camp?
- 63. Do the men void their urine within the camp? ..
- at night?.....
- both day and night?.....
- 64. How far is the men's privy from the tents of the body of the camp, (in paces) ..
- 65. Is there a sufficient pit or trench for the purpose?
- 66. Is it provided with a sitting rail?.....
- 67. Is it provided with a screen?.....
- 68. Is earth regularly thrown in it daily? ..
- 69. Are disinfectants used in it?
- 70. Are the men forbidden to ease themselves elsewhere?
- 71. Do you find this prohibition to have been enforced?.....

- 86. About how often are fresh vegetables?.....
- desiccated vegetables?.....
- desiccated meats or soups?.....
- dried fruits?.....
- 87. Is the cooking in most instances done with portable stoves?.....
- with earth flues?.....
- in trenches?.....
- on the unbroken ground?.....
- 88. Is "the greatest care observed in washing and scouring cooking utensils?"⁴.....
- 89. Is most of the food of the regiment prepared by cooks who perform that duty regularly? (a).....
- or by men taking short terms at it, and who generally have no skill? (b).....
- 90. How is it probable that the food is generally cooked—well?.....
- badly?.....
- 91. Is the last question answered with the more confidence from personal observation?.....
- 92. Is tea sometimes drawn in the ration instead of coffee?.....
- 93. Is fresh bread served?.....
- 94. Is soft bread served?.....
- 95. Is it baked in the regiment at a general bakery?.....
- 96. Is it generally of good quality?.....
- 96. Have any companies been able to save from their rations?.....

X. COMPANY FUND.

- 97. Has the company fund arrangement been successfully established in any case?.....
- with several companies?.....
- with all?.....

⁴ Army Regulations, ¶ 112, page 15, (¶ 116, page 23, "Revised.")
⁵ See Army Regulations, ¶ 112, page 15, (¶ 117, page 23, "Revised.")
⁶ See Army Regulations, ¶ 197, page 27, (¶ 202, page 26, Revised.)

SOURCE
 U. S. Sanitary Commission, "Camp Inspection Return," Form No. 19a, 2-4, 6, 8.

TYPHUS FEVER

**ASS'T SURG. WARREN WEBSTER, U. S. A., ON TYPHUS
IN THE 12TH ARMY CORPS, ARMY OF THE POTOMAC**

MARCH 5, 1863

[This inspection was occasioned by the reported occurrence during February, 1863, of two fatal cases of typhus fever in the 123d N. Y. and five cases with four deaths in the 149th N. Y. The monthly report of Surgeon JOHN MONEYPENNY, of the former regiment, contains the following remarks: The regiment moved into an old camping ground situated near Court House, Va. The camp is located in a hollow between two ridges, near the edge of a brook. The soil is porous and the water filtering through it is in my opinion impregnated with an undue quantity of vegetable debris. We brought rubeola with us from our last camp at Fairfax Station. The men had made a hard march through the storms of December. The rations were salt and deficient in quantity. After the first week of camp life here diarrhoea of severe grade showed itself; this was followed by cases of remittent fever, generally assuming a low type; then typho-malarial, typhoid and typhus fevers made their appearance. Two of the cases, reported as typhus, occurred after convalescence from rubeola. Pneumonias were of a typhoid type and dysentery assumed the same sinking character. The health of the camp is bad, the situation is bad and the weather has been unfavorable for us to move; but I have chosen another locality and will probably effect the change next week.]

On my arrival Medical Director MCNULTY informed me that the only regiments in which the fever had existed were the 123d and 149th N. Y., and that there was now but one case in each regiment. The case in the latter regiment was not, in his opinion, of so malignant a type as the preceding cases in that regiment, and the case in the other command had, he believed, undergone decided amendment. He also informed me that the camps of the infected regiments had been removed to sites offering in his judgment the best available combination of sanitary conditions. Both patients are isolated in separate hospital tents placed at a considerable distance from the old and new encampments of the respective regiments.

The reports already made by the medical director have given information of the number of cases of typhus reported by regimental surgeons as occurring in these two regiments and the number of deaths resulting therefrom; I therefore need not refer to them except to say in passing that while my inquiries lead me to doubt whether all the cases so reported were genuine typhus, it is undoubted that most of them were distinctly marked cases. Of the two existing instances there cannot be question. My opinions on the subject coincide fully with those of Surgeon MCNULTY, whose thorough professional training and extended observation of the disease in New York City make him especially acute in the recognition of the characteristic symptoms.

In compliance with orders to inquire into the causes of this formidable affection, I have to say that I deem the close aggregation of the men of the two regiments in huts of defective construction and on ground having a wet sub-soil imperfectly drained and previously occupied by troops, to be a conspicuous promoter of the disease now under consideration. The 123d regiment was quartered in huts 11x6x4 feet, with eight men to a hut. These huts had been recently abandoned by General Sigel's troops, and the New York regiment arriving upon the

ground late at night occupied and remained in them without proper cleaning. Many were within one or two feet of each other. In the intervening spaces human ordure had been deposited; and I learned from the regimental surgeon that much of it had been allowed to remain there up to a recent time. Offal was also deposited from time to time in offensive proximity to the camp; Huts originally intended for the accommodation of a single regiment have been inhabited, since the arrival of the 12th Corps, by two regiments recruited six months ago, and therefore not reduced in numbers. The thin tent-cloth with which the huts were roofed admitted some air of course, when dry, through the interstices of the fabric, but when wet it was almost impervious. No system of ventilation was practiced, and the drainage of the camp was unattended to although the face of the ground presented every facility therefor. The reason assigned for these surprising neglects is that the command was daily expecting to move. This regiment, when organized in northern New York in August, 1862, consisted, I am told, of a fine body of 923 men. It has been in camp at Washington, Arlington Heights, Pleasant Heights, London Valley, Fairfax Station and in the locality I am describing, and at each of these places except the last, camps were generally made on ground not before occupied. Its duty has been picket, fatigue, guard duty, marching and the customary drills, and its sanitary condition has in general been quite good. Diarrhoea, malarial disorders, measles and a few cases of typhoid have occurred. The present typhus patient, who fell sick February 5, was in a partially excavated hut, 6X7 feet in area, in which five men had slept during the first fortnight. More recently the invalid and one or two well men occupied the hut.

On the 3d inst., day before yesterday, the regiment was, with the exception of the sick, removed to a new camping ground selected about a week ago. A new hospital, just obtained, and favorably located near by, contains the typhus patient. On visiting the new camp I found the site good, but the huts built irregularly and much too close together. As the result of a conference with Dr. MCNULTY and myself, the colonel of the regiment determined to immediately tear down the huts, build anew over a larger area, and allow no excavation of the floors or heaping up of earth on the outside of the walls. He resolved also to drain the camp systematically, protect from surface water by catch-water drains, ventilate the huts thoroughly each day, exercise a rigid police of the camp and interior of the huts, enforce cleanliness by bathing, which had never been attended to, and cause the undergarments of the men to be frequently washed. An inspection of the persons of the men by me was unnecessary, as it was frankly admitted that they were in a filthy state. Their physiognomy, however, did not indicate the cachexy which their wretched habits led me to expect; on the contrary I was surprised by their comparatively healthy appearance. I found in the regiment seven grave cases of typhoid fever, which, although not beset by the same dangerous elements of infection and self-propagation as typhus, still call as loudly for correction of the sanitary negligence which has given rise to both the allied diseases; and now that the insalubrious locality, the defective accommodations of the troops and the tainted atmosphere to which they were subjected have been changed and isolation with improved treatment of the single typhus case secured, we may confidently hope for the speedy eradication of these formidable disorders of the regiment.

The existence of typhus fever in the other regiment, the 149th N. Y., is attributable to influences similar to those reported above as having prevailed in the 123d. * * * * Much credit is due Major General SLOCUM for the promptness and energy with which he has employed the measures suggested to arrest the spread of fever and prevent its assuming an epidemic prevalence. He yesterday issued a general order positively prohibiting throughout his command—1st. The habit of sinking the floors of tents and huts below the surface of the ground. 2d. Occupation, in encamping troops, of spots recently used for that purpose; and 3d. Employment, in the construction of new huts, of any portion of old ones. The practice of using portions of abandoned huts in the construction of new ones on adjacent ground, in order to avoid the labor of procuring other materials, is so general that it made necessary the third paragraph of this order. Many points of improvement were urged upon the officers of the infected troops; but it was deemed unnecessary to request General SLOCUM to publish them. The troops are now sufficiently aware of their commanding general's earnestness in the matter to insure observance of verbal suggestions, and the intelligence and energy of Surgeon MCNULTY will accomplish everything to be desired of the medical officers under his direction. I think the officers with whom we conversed, line as well as medical, are convinced of the general injurious consequences certain to flow from overcrowding and defective ventilation, and more especially how much the prevalency and fatality of typhus depend upon the nature of the in-door accommodation with which the soldier is provided. Inattention to the purity of the air in each tent or hut, to personal cleanliness, constant supplies of fresh clothing and bedding, defective cooking and the accumulation about camps of decomposing vegetable and animal matters have been pointed out to them as potent influences in the production of camp fever. Advice was given to the attending medical officers with reference to the management of the disease, and if fresh cases should occur they will use the promptest means to isolate the patients and will urge the commanding to the adoption of any measure, no matter how extreme, necessary to arrest the evil.

SOURCE

Reports from U.S. military camps in Medical and Surgical History of the War of the Rebellion Part III, Vol. I: 329-30.

TYPHUS FEVER

BRIGADE SURG. J. H. WARREN
1ST BRIGADE, CASEY'S DIVISION, WASHINGTON, D. C.

JAN. 25, 1862

The 1st brigade is finely situated on Meridian Hill, a very healthy location, the camp well policed and drained. The internal arrangements of the barracks are very bad, as the ventilation is not sufficient, and is obstructed by partitions across the building at intervals of ten or fifteen feet, destroying the free circulation of air. If this defect is not immediately remedied we shall have camp or typhus fever, as it has already made its appearance in the 56th N. Y., and in one case proved fatal.

Brigade Surg. J. H. WARREN, on the condition of the 77th N. Y., Jan. 27, 1862.—This regiment is encamped on the western slope of Meridian Hill. The ground, owing to its gravelly and porous nature, is as well adapted for a camp as any in the vicinity. The atmosphere is impregnated with a malarial odor, arising from an open field where a large number of dead horses are deposited on the surface and allowed to remain and decompose. This, with the rather poor policing of the camp, has given rise to typhus fever, from which, I regret to say, we have lost some ten or twelve men already. The tents are the wedge-tent, and have a wall of boards built up some three feet high, with the tent placed on top. As they have no door, using the fly as such, the men step over the boarding down into this box arrangement, which generates one of the most fetid and vile atmospheres that human beings can possibly be placed in. I suggested that the banking of earth about the boarding should be at once removed, and holes made through the walls near the floor that a free circulation of air may be had. I would also suggest that the regiment be removed to the grounds opposite the Columbian hospital. The men should sleep upon cedar leaves, which can readily be obtained at a short distance from here. They should not be allowed to keep fires in their quarters but a few hours by day and the same at night, nor should they be allowed to wear their overcoats or eat in the tents. A disinfecting agent should be thrown around their quarters and a strong solution of lime inside and out. Should these suggestions be adopted, I think all forms of typhus will speedily disappear from the regiment.

Report on Typhus by Medical Inspector PETER PINEO, U. S. A.—The 23d N. Y. moved Sept. 28, 1861, from Arlington, where it had been encamped some months, to Upton's hill. Because of what was considered a military necessity, the regiment occupied a hillside facing the northeast, the soil being a tenacious clay; the streets were very narrow, the A-shaped tents were close to each other, and the camp confined to the smallest possible space. During October and November, I urged unsuccessfully its removal to a more salubrious locality. The importance of striking the tents, careful police and cleanliness was also urged upon the colonel and surgeon of the regiment, but without avail. An almost total neglect of all hygienic precautions ensued, superadded to which was the fact that five or six soldiers slept in each small tent, and as cold weather advanced, their habit was to hermetically seal the tent as nearly as possible, sleeping in a space of but little more than one hundred cubic feet. The circulation of air in such a tent is, it seems to me, of the following character: The canvas permits the ingress and egress of almost no air whatever. The expired air

being heated and lighter rises to the top and sides of the tent, where it is immediately condensed, and falling to the bottom is again respired; this process is repeated constantly during the night, producing necessarily a condition scarcely rivalled by the Black Hole.

This regiment was composed of as fine a body of stout and intelligent young men as any I have seen in the army; yet in November a large sick report was noticed, and in December the sickness and mortality became so alarming that I instituted a careful investigation. In one tent was found a soldier who had kept his tent for a day or two, had scarcely complained at all, but was in articulo mortis. The patients generally on first coming under notice of the surgeon presented grave symptoms; they were listless, stupid and greatly depressed, though uncomplaining. Cerebral symptoms were shortly manifested with sordes [crusts or excrescences] about the mouth and teeth, rapid and irregular pulse and death by coma, often in from twenty-four to seventy-two hours after entering hospital. There was almost no convenience for post-mortem observation, yet in two or three cases autopsies were made by Surgeon Wilcox, 21st N. Y., at one of which I was present. The external appearance of the body was darker than usual and slight purpuric spots were present. No organic lesion was discovered, but there was unusual congestion of the internal organs generally. The symptoms above enumerated, with the history of the camp and the pathological appearances, led me to regard the cases as “typhus gravior,” the result of “crowd-poison.” It should be stated that malarial fever was the prevailing disease in the regiment previous to this alarming condition. It is also worthy of special notice that almost every case of sickness of grave character came from the shady side of the streets where no direct rays of sunlight ever found access. The 21st N. Y. was situated within a few rods of the 23d, in a valley, the situation being nearly or quite as objectionable. This regiment had served in and about Fort Runyon, and had strongly marked manifestations of malarial disease; but the police, cleanliness and ventilation were carefully attended to, and the regiment had only one death from disease in a year.

The camp was at length broken up and removed to a delightful spot; a foundation of logs three or four feet high was built on which was placed the tent; the streets were broad; cleanliness and ventilation were carefully attended to; the hospital, which had been in a small house with low ceilings and much crowded, was moved to a spacious church at Falls Church Village, and from being alarmingly unhealthy the regiment in a short time became one of the healthiest in the army.

Abstract of a Report of Surgeon R. N. BARR, 36th Ohio, for the four months ending Dec. 31, 1861. (This report was published by Surgeon BARR in the Ohio Med. And Surg. Journal, Vol. XIV, 1862, p. 95) [During this period the regiment lost 27 men by death from disease; 16 of the deaths occurred among 344 cases of fever and 7 among 22 cases of typhoid pneumonia. The mean strength of the command in November was 38 officers and 984 enlisted men. It was stationed at Summerville, West Va.] Fever made its appearance in this regiment shortly after its arrival at Summerville in September. The troops relieved by it had suffered from typhoid fever and left behind them in a crowded building about forty cases of the disease. Even in the earlier cases there were differences from typhoid as ordinarily observed: Prostration was greater, and there was severe occipital pain with stiffness and soreness of the muscles of the neck, particularly the sternomastoid. The chills in miasmatic cases were slight but came on at regular intervals, usually in the

early part of the day; and in the intermittent forms the febrile stage continued until late in the evening. The tongue was large and broad, indented by the teeth along its margin and creased in the centre, thickly and darkly coated on the dorsum and red on the tip and edges; it was tremulous and protruded with difficulty in the severer cases. Diarrhoea was of frequent occurrence but not obstinate. As the season advanced and a typhous condition became more and more developed diarrhoea became less frequent, and oftentimes the bowels would not move spontaneously in two or three days. Antiperiodics, even when remissions were decided, acted but indifferently, often increasing the cerebral and vascular disturbance and the dryness of the tongue and fauces; but during convalescence quinine in small doses, given in conjunction with wine, had a happy effect. By the middle of October cases of what seemed true typhus fever made their appearance. The pulse was frequent and feeble, the skin dry and dusky but not hot, the urine scanty and high-colored and the secretions generally deficient; the sclerotic had a bronzed appearance. From two days to a week from the beginning of the attack delirium or coma, partial or complete, would ensue; sordes collected about the teeth and lips and the tongue became dry and crisped. There was occasionally troublesome gastric irritability, but seldom any tendency to diarrhoea; no tympanites, and, excepting sudamina in rare cases, no eruption. If the patient survived this stage a profuse cold perspiration would come on, the tendency to coma would disappear, and for a few days there might be a partial return to consciousness. Hemorrhage from the bowels was not unusual, recurring at frequent intervals for several days; in these cases tenderness in the iliac regions was found to exist, and occasionally diarrhoea. During this sweating stage glandular swellings were present in almost every case of any severity, generally affecting the parotid and submaxillary glands, and in two cases the testicles; the swellings were large and terminated in suppuration more frequently than in resolution. Abscesses in other localities were also common, and from them would come an incredible amount of purulent discharge. Another singular symptom was the occurrence of an excruciating pain, apparently neuralgia, beginning in the great toe, gradually extending to the other toes and sometimes involving the whole foot and ankle joint; there was no swelling. This pain was invariably the harbinger of convalescence. This was so apparent and uniform as to be observed by the attendants, and Dr. BARR quotes the nurse as saying to him: "Such a man is going to get well, for he has been groaning all night, or all day, with a pain in his big toe." About the beginning of December, while the daily average on the sick-list was 240, an ounce of whiskey was given morning and evening to every man on police or guard duty, and to others engaged in exhausting labor or exposed to inclement weather; this allowance was also given to nurses in hospital. Good results were expected "because of the great depression of the vital energies and impairment of innervation not only of those on the sick-list but of the whole camp." It is asserted that almost immediately after this, new cases of fever became infrequent and of a milder character, and that in three weeks very few occurred. Although the hospital was well ventilated, nurses were frequently attacked before the use of the stimulant, but after its regular issue such cases became rare.

Report on Typhus by Surgeon FRANKLIN IRISH, 77th Pa. Vols.—During the month of January, 1862, a few cases of genuine typhus fever made their appearance in this regiment while encamped at Mumfordsville, Ky. The cases all occurred in a period of about ten days during a protracted

spell of cold and wet weather which confined the men to their tents, the mud being so deep in the vicinity of the camp as to interfere with the usual parades and exercises. The cases presented the regular petechial blotches numerously distributed over the body; they were attended with sudden and excessive physical prostration and terminated fatally, generally from the fifth to the tenth day, death being usually preceded a few hours by delirium. I believe these cases to have been identical with the spotted or petechial fever of the books; in short, typhus fever of a most malignant type. In most instances the disease was perfectly intractable, the most active and vigorous stimulant treatment failing to rally or sustain the terribly depressed vital powers. I am unable to trace it to any malarious origin. It disappeared as suddenly as it came, and I do not know of its having appeared in any of the surrounding camps. I believe it to have been the result of the vitiated air of the tents, together with the depressing influence of long continued cold and wet weather, insufficient exercise and depraved diet surreptitiously bought from camp hucksters.

Report on Typhus in the 15th U. S. Inf. at Camp Wood, Ky., by Act. Ass't Surg. O. K. REYNOLDS, U. S. A.—During the period of my service with the 1st Battalion of this regiment, four cases of true typhus gravior were observed. No similar cases occurred in the brigade, nor, as I believe, in the division. The diseases prevailing at the time were chronic diarrhoea, dysentery and typhoid fever, and in many of the febrile cases there were evidences of malarial influence seen not only in a tendency to periodicity, but also in the color of the skin and in hepatic derangements. In most cases three things were worthy of remark: 1st. The adynamic condition of patients when first brought to the hospital tent. 2d. Intestinal congestions. 3d. The alvine evacuations, which were generally of a pale dirty—yellow color and quite thin, not offensive at first, but abominably so after a few days exposure in the stinks to a warm sun. The two hospital tents of the battalion were situated on low ground near the head of a small ravine; there was a shallow sink [latrine dug in the ground] not more than twenty-five feet behind one of them and above it, the ground being higher behind than in front. The patients lay on old straw which could not be replaced by reason of the scarcity of that article. Vegetation commenced under the straw, which was kept moist by its close proximity to the earth. The four typhus cases occurred in the tent on the low ground near the sink. These, when first brought in, exhibited few symptoms that were not common to every case of camp fever,—there was perhaps rather more debility and nervous prostration than in other cases; but a few days after their admission into the hospital tent stupor and low delirium supervened, and the stools became less frequent and scanty, darker in color and more offensive; the quantity of urine became diminished and the catheter was sometimes required; sudamina were seen in all and the rose-colored eruption in two of the cases, about the end of the first week, continuing until death. In one case epistaxis was troublesome. In all the pulse was small, weak and frequent and the tongue dry, brown and fissured; sordes accumulated rapidly on the teeth, gums and lips, and stupor deepened as the disease progressed. Brigade Surgeon CHARLES SCHUSSLER, under whose orders I was then acting, regarded these cases as true typhus. In scarcely any other cases of fever at Camp Wood did I observe the disorder of intellect attending these cases; the patients were generally rational even just before death.

Since camp fever prevailed in all the neighboring regimental camps, while few if any other cases of typhus occurred, these four cases may reasonably be attributed to local causes. These I believe to have been the fetid gas arising from the sink and the vapor exhaled from the earth saturated with putrescent fluids under the straw on which the patients lay. But as there were nine men in the tent, it may be asked why did not more cases occur? Probably because some were less reduced upon entering the tent and others remained only a few days exposed to its miasmas. I believe that any febrile case, if exposed to similar pathogenic causes for a length of time, would develop symptom of a true typhus.

SOURCE

Reports from U.S. military camps in Medical and Surgical History of the War of the Rebellion Part III, Vol. I: 326-28.

CHAPTER X

MILITARY HYGIENE.

Much disease and suffering may be prevented, and many lives saved, by a careful observance of hygienic regulations. There is no question whatever that immense numbers of soldiers everywhere fall victims to their recklessness and the indulgence of their appetites and passions. We would not advocate too much restraint; men are but men everywhere, and soldiers form no exception to the general law. They, like civilians, must have their amusements and recreations. The bow cannot last long, if kept too constantly and too tightly on the stretch. Occasional relaxation is indispensable to health.

Indolence, however, should never be countenanced in any army. Its demoralizing effects, and its influence upon the health of the soldier, have been noticed and commented upon in all ages. “The efficacy,” says an eminent military surgeon, in speaking on the subject, “of due attention to the occupation of the mind must never be lost sight of. Many illustrations of its powerful influence, whether for good or evil, whether in resisting or accelerating the inroads of disease, may be found both in ancient and in modern times, from the retreat of the ten thousand Greeks under Xenophon down to the present day. It may be observed that disease goes hand in hand with indolence and inactivity, whether of body or of mind; and that, on the contrary, where the minds of soldiers are agreeably occupied, and their bodies energetically employed, as in the attainment or pursuit of victory, disease is kept in abeyance.” It was the observation of another experienced authority in military medical affairs, Mr. Alcock, that “the period of the smallest loss to an army is a victorious and vigorously prosecuted campaign, with frequent battles and much marching;”[sic] an assertion corroborative of the facts, long since so painfully realized, that sickness, however induced, destroys incomparably more soldiers than the sword and the musket.

No intemperance, either in eating or drinking, should be tolerated in an army; both are demoralizing, and both predispose to, if not actually provoke, disease. Alcoholic liquors should not be permitted to be used except as medicine, and then only under the immediate direction of the medical officer. The ordinary drink and food should be selected with special reference to their healthful properties. The use of bad water, even for a short time, is invariably productive of mischief. The tea and coffee should be of good quality, and well prepared, to preserve their agreeable flavor and their soothing and refreshing effects. Lager beer, ale, and porter, if sound, are both nourishing and wholesome, if consumed within judicious limits.

The practice of allowing soldiers spirituous liquors as a portion of their daily rations has, I believe, been pretty generally, if not entirely, abandoned in the European service. Its injurious effects upon the health and morals of troops have long been deprecated. In the British army in India, the use of alcoholic liquors was, at one time, universal, on the supposition that it had a tendency to counteract the depressing influences of a tropical climate; the men took their spirits regularly before breakfast, and not unfrequently several times during the day, especially if on active duty; but it was soon found that it produced quite a contrary impression, causing instead of preventing

debility, and affording a temptation to general drunkenness, which was followed by insubordination and crime. The result was that the government abolished the alcoholic ration system altogether, substituting coffee and tea, which are now regularly served once, and often twice a day.

The condition of the 13th Regiment of Light Infantry, stationed at Jellalabad, during the late insurrection in India, affords a happy illustration of the salutary effects of abstinence from spirituous liquors. While the siege was progressing, the men, during a period of five months, were entirely debarred from drinking, and yet their health and courage were most excellent. As soon, however, as the garrison was relieved, and they began to indulge in spirits, many of them in a short time became sick and riotous. The experience of Major-General Wylie, of the Bombay army, was precisely similar. When the soldiers under his command were quartered in districts where no liquor could be obtained, their health, discipline, and morals were all that could be desired; whereas, under opposite circumstances, insubordination and disease prevailed to a frightful extent.

During the Crimean war, coffee and tea were found to be eminently wholesome and invigorating, enabling the troops to sustain fatigue and to resist disease. When the men were in the trenches, and could not obtain their usual supplies of these articles, they became languid, and suffered from dysentery and diarrhoea. To produce their peculiar sustaining and exhilarating effects, coffee and tea should be taken hot and moderately strong, with sugar, if not also with cream.

Fresh meats are always preferable to salt, though good ham and smoked beef may be taken once a day with advantage as an agreeable change. Fresh fish are always acceptable. Pickled pork and beef are far from being good articles as a portion of the daily rations. The frequent use of fresh vegetables is indispensable to the health of the soldiery. Ripe fruits are nearly equally so. Without a proper admixture of this kind, dyspepsia, bowel complaints, and scurvy will, sooner or later, inevitably ensue; and woe to the man that is assailed by them! The acids and other properties contained in these substances are indispensable to the healthy condition of the blood and the solids, and the importance of such a diet cannot be too deeply or too frequently impressed upon the attention of every commissariat. Potatoes, rice, hominy, beans, peas, beets, spinach, lettuce, asparagus, radishes, horse-radish, water -cresses, dried peaches and apples, and the different kinds of fruits as they come into season, should be constantly on hand. Soups, both animal and vegetable, are generally grateful to the palate, as well as useful to the system, and should be used whenever the occasion is favorable for their preparation.

Eggs, butter, milk, and butter-milk should be freely indulged in whenever they can be procured. Serious disease is often engendered by bad bread and biscuit, and it should therefore be made a part of the duty of every medical officer to see that no articles of this kind are brought into camp.

When in the camp or barracks, the soldier should take his meals with the same regularity as the ordinary citizen at his home. Neglect of this precaution must necessarily lead to great bodily inconvenience, and, if long persisted in, may ultimately lead to serious disease, especially dyspepsia and other disorders of the digestive apparatus. He should not disregard regularity even with respect to his alvine evacuations; for there are few things more conducive to the preservation of the health.

The soldier's dress should be in strict conformity with the season of the year and the vicissitudes of the weather. He should, at no time, be either too hot or too cold, but always comfortable, changing his apparel with the alterations of the temperature. Flannel should be worn next the surface both winter and summer. The shoes must be thick and warm, with broad soles; and woolen stockings will be more comfortable, especially when the troops are marching, than cotton. A thin woolen cap-cover, found so useful in India, will protect the neck from the hot sun, and an oil-silk cap-cover, from the rain. In very wet weather the shoulders might be defended with a cape of oil-cloth.

Frequent ablutions will largely contribute to the comfort of the soldier and the preservation of his health. They should be performed at least once a day, the best time being late in the afternoon or in the evening just before retiring. The feet, in particular, should be often washed, especially in marching, for reasons which need not be dwelt upon here. The under-shirt should be changed every night, and frequently washed, to promote the healthy state of the skin.

Exposure to the hot sun, to cold and wet, must alike be avoided. Sojourning in malarious regions will be certain to be punished by an attack of neuralgia or intermittent fever.

All offals should be promptly removed from the camp, and carried to a distance of several miles, or be well buried.

The privies should be in the most favorable location as it respects ventilation, and be closed at least every three or four days; or, what is worthy of consideration, every man should be compelled to bury his alvine excretions, as was the custom, in time of war, among the ancient Hebrews, each man being obliged to carry a paddle for that purpose. The emanations from these sources cannot receive too much attention, especially when large masses of men are crowded together, as they are then extremely prone to induce disease.

Finally, the medical officer should make it his special duty to see that every recruit is vaccinated, or, if the operation was performed prior to his enlistment, at a distant period, matter should again be inserted, experience having shown that the effects of the virus are, in time, in many instances, totally eradicated from the system. In most of the European armies revaccination is extensively practiced; and it is asserted by Stromeyer that during the Schleswig-Holstein war, on an average, 38 operations out of 1000 were successful.

It is impossible to bestow too much care and attention upon the selection of the camp ground and the arrangement of the tents, as a vast deal of the comfort and health of the soldiers must necessarily depend upon them. The following judicious remarks upon this subject are from the pen of an eminent military surgeon, the late Dr. Ballingall, who served in various campaigns, and who was for many years, as stated elsewhere, Professor of Military Surgery in the University of Edinburgh.

"A camp," says Ballingall, "is most advantageously situated on a gentle declivity, on a dry soil, and in the vicinity of a running stream. In order to ascertain the state of the ground it may sometimes be necessary to dig into it to some extent; for, although apparently dry on the surface, it may be found sufficiently wet at the depth of a few feet; and if so, ought, if possible, to be changed, particularly if an encampment is to be stationary. A camp should never be formed on ground recently occupied, nor on a field of battle where much carnage has recently occurred. Many

favorable spots are to be found on the banks of rivers, which, perhaps, upon the whole, afford the most eligible sites. We must yet bear in mind that, when the banks of the rivers are low, or the country subject to periodical rains or sudden inundations from the melting of snow on contiguous mountains, there may be a very serious danger from this cause. Against the danger of such a position, we are cautioned in Mezeray's 'Médecine d'Armée,' which states a case in which the Austrian army lost 500 men and 200 horse from a sudden inundation of this kind."

When damp ground or a low situation is unavoidable, it should be abandoned as soon as possible for a better, and, in the mean time, the greatest care should be taken to protect the soldiers from damp and wet with straw or other suitable means.,

An army has been known to suffer severely from disease contracted in a malarious region. Against such a calamity useful information may often be elicited from the people of the neighborhood, especially physicians conversant with insalubrious sites.

When an army is obliged to remain for a long time stationary, an occasional change of camp will be greatly conducive to health, although such change should involve a good deal of labor and temporary inconvenience. A camp under such circumstances should, at all events, be frequently ventilated, and kept constantly clean, a pure atmosphere being of paramount importance to health and comfort. It may often be difficult to do this, but it must, nevertheless, be done; the welfare of the service absolutely demands it, and no medical officer honestly performs his duty unless he interests himself personally in these matters. "The most obvious and perfect way," says Ballingall, "of thoroughly airing the tents is by shifting them occasionally, and exposing the straw, blankets, and soldier's clothing to the open air ; the necessity of frequently changing the straw, and enforcing cleanliness in camp in every possible way, are circumstances too obvious to require any effort of reasoning to enforce. With this view the slaughtering of cattle, and everything likely to create noxious or putrid effluvia, ought to be conducted without the camp, and on the side of it opposite to that from which the wind generally blows."

The demoralizing influence of a camp life is well known, and I am convinced that there is nothing so well calculated to counteract this influence as rigid discipline, reasonable activity of mind and body, strict temperance, both in eating and drinking, and frequent religious worship. Every regiment should have its chaplains, not less than its medical officers, not only with a view of restraining vice and promoting morality, but of affording to the poor soldier, away from home and friends, in the hour of his mortal extremity, those consolations which the minister of the gospel alone knows how to impart. The mitigation of the horrors and miseries of war, not less than the tendencies of the age in which we live, absolutely demand such a provision.

SOURCE

S. D. Gross, A Manual of Military Surgery or, Hints on the Emergencies of Field Camp and Hospital Practice (Philadelphia: J. B. Lippincott & Co., 1861), 139-51.