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978-1-108-06982-3 - Notes on Military Hygiene for Officers of the Line: A Syllabus of Lectures Formerly Delivered at the U.S. Infantry and Cavalry School

Alfred A. Woodhull

Excerpt

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NOTES ON MILITARY HYGIENE.

I.

THE SELECTION OF SOLDIERS.

Nature of Military Hygiene.

1. In general terms military hygiene means the care of troops. This duty is ever present, and it concerns line officers as they control the daily lives of men, and staff officers as they supply their food, their clothing, and their habitations.

2. It is of importance to soldiers because, removed from much independent action in relation to their own sanitary care, honesty requires they shall not be injured by the system imposed on them, and to the State because nothing is so costly as disease and nothing so remunerative as the outlay that augments health and thus increases the amount and value of the work done. (Parkes.)

General Physique.

3. The whole military fabric rests upon the physical character of the individuals composing it. The recruits must be trustworthy in physique before the military character can be developed, and extreme

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Excerpt

[More information](#)

2

NOTES ON MILITARY HYGIENE.

care is necessary to avoid accepting blemished men who will break down under strain. Recruiting is, therefore, a serious duty, to be both conscientiously and intelligently performed.

4. It is not true, as sometimes assumed, that every full-grown man who supports himself by hard manual labor will make an efficient soldier; because all his senses may not be keen nor all his joints flexible, and although accustomed to vigorous work he may not be sound. Unsound men, enlisted on account of special skill as craftsmen, can never be depended on for the field and will certainly be absent in battle. When in doubt as to a recruit, reject.

5. Some allowance may be made for blemishes not affecting organic soundness that have originated in the service, in men who technically re-enlist, because their education in military matters and their habits of discipline compensate for some minor weaknesses. But all variations from the standard must be carefully noted on the enlistment papers. Blemished men who failed to re-enlist but seek to engage later are rarely acceptable. It usually means that they cannot succeed in civil life.

6. "An army raised without due regard to the choice of recruits was never yet made a good army by any length of service." (Vegetius, A.D. 300.)

Age of Recruits.

7. In peace, maximum for cavalry, 30 years; for all other arms, 35 years; minimum for musicians, 16 years; for all others, 18 years. No limit for subsequent enlistment.

8. Volunteers are accepted between 18 and 45,

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[More information](#)

THE SELECTION OF SOLDIERS.

3

but men were drafted in the Civil War only between 20 and 45. The unorganized militia are between 18 and 45, but no men of less than 20, and by preference 22, should ever be sent into the field.

Height and Weight.

9. Standards of height and weight are fixed by regulation. Present minimum height, 5 ft. 4 in. Maximum height for cavalry, 5 ft. 10 in.; for all others as determined by relation to maximum weight.

Cavalry, no minimum weight; cavalry and light artillery, maximum, 165 pounds. For all others, minimum weight, 128 pounds; maximum, 190 pounds. An exceptionally good recruit may be accepted at 120 pounds, if completely filling all other conditions.

10. Physiological relation between height and weight, used as the standard for recruits, is: To include 5 ft. 7 in., 2 pounds to the inch and add 7 pounds for every inch above 5 ft. 7 in.

11. Application of rule for weight: Multiply the whole height in inches by 2; multiply the difference between 5 ft. 7 in. and a greater height by 5; add the products.

Example: To find the normal weight of a man 5 ft. 10 in. 5 ft. 10 in. = 70 in.; $70 \times 2 = 140$; 5 ft. 7 in. = 67 in.; $70 - 67 = 3$; $3 \times 5 = 15$; $140 + 15 = 155$ = weight.

12. The maximum height for cavalry is fixed, and it depends upon the maximum weight of 165 pounds for light artillery and 190 pounds for all other troops.

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[More information](#)

4

NOTES ON MILITARY HYGIENE.

Example: 5 ft. 7 in. = 67 in.; $67 \times 2 = 134$; $190 - 134 = 56$; $56 \div 7 = 8$; $67 + 8 = 75 = 6$ ft. 3 in. for foot troops.

13. Present regulations permit the acceptance of recruits a few pounds over or ten pounds below the standard when active, vigorous, and healthy, with firm muscles. But recruits under weight are to be regarded with disfavor unless reduced by some manifestly temporary condition, and ten pounds less than the standard for men under 5 ft. 7 in. involves physiological risk. It is better that men, if muscular, should be over than under weight, but obese men should be rejected whether short or tall.

14. The present minimum height, 5 ft. 4 in., is merely a regulation that may be changed at any time; but experience has shown that 5 ft. 2 in. is practically the lowest limit for efficiency, and when men less than 5 ft. have been accepted they have been found to speedily break down as a class from want of physical strength.

15. Tailors, bandsmen, school-teachers, and similar skilled men may be accepted if not more than one-fourth inch below the minimum. Exceptions as to over-height may be authorized at the War Department; but exceedingly tall men serve only an ornamental purpose, such as drum-majors. They are seldom very serviceable in the ranks. The best all-around soldiers are between 5 ft. 6 in. and 5 ft. 10 in.

Chest Capacity.

16. Chest capacity is determined by the factors of chest measurement and chest mobility, and is an

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[More information](#)

THE SELECTION OF SOLDIERS.

5

important element in estimating vigor. The circumference of the chest should be measured at forced expiration and forced inspiration. The size at expiration is the more important, and it is that to which the designation of chest measurement is technically applied.

17. The official direction is to apply "a tape at the point of the shoulder-blade, when it will generally fall below the nipple." In actual practice the tape is generally applied in front just below the nipple, which brings it rather above the point of the shoulder-blade. Otherwise an oblique rather than a horizontal plane is described.

18. Chest mobility is the difference between the extremes of expiration and inspiration. The circumference at the nipple should be about one-half the height of the man, and, speaking generally, the more nearly the chest approaches a barrel in shape the better.

19. The capacity of the lungs increases with age to a certain period and with height and growth, so that men from 5 to 6 ft. high inspire from 174 to 262 in.

20. The physiological rule to determine the relation of chest capacity to height in recruits is: Between 5 ft. 4 in. and 5 ft. 7 in. the mean of the chest circumference ought to be 34 in., and there must be a chest mobility of 2 in., with a *minimum at expiration of 32 in.* Above 5 ft. 7 in. the mobility should be $2\frac{1}{2}$ in., and for every inch of stature add one-half inch to chest measurement. For 6 ft. and more the mobility should be 3 in.

21. The physiological rule and the official rule formerly agreed substantially, but for a few years

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[More information](#)

6

NOTES ON MILITARY HYGIENE.

past the regulation has established a lower standard and, further, has authorized the chest measurement—the circumference at forced expiration—to be 2 in. still less when the recruit is active, vigorous, and healthy. No recruit should be accepted who is not active, vigorous, and healthy, and officers are particularly warned against taking advantage of this further reduction.

22. Table showing the relation between height, weight, and chest capacity under the old and the existing standards.

(Greenleaf, modified.)

Height. Inches.	Weight. Pounds.	Chest measurement (at expiration).		Chest mobility. Inches.
		Old. Inches.	New. Inches.	
64	128	32½	32	2
65	130	33	32	2
66	132	33½	32½	2
67	134	34	33	2
68	141	34	33½	2½
69	148	34½	33½	2½
70	155	35	34	2½
71	162	35½	34½	2½
72	169	35½	34½	3
73	176	36½	35½	3

Minors.

23. All military experience is opposed to the enlistment of minors for active service, and, notwithstanding it is legal to enlist a minor above the age of 18 with his parents' consent, provided he is in all respects the equal of a man of 21, it rarely happens that such a lad responds to the tests of the field. This proviso is extremely important, and officers not insisting on this standard or not recognizing the physical deficiencies of a bright lad of 19 are liable to weaken the service by such enlistments.

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[More information](#)

THE SELECTION OF SOLDIERS.

7

24. Napoleon after Leipsic said: "I must have grown men; boys serve only to fill the hospitals and encumber the roadside."

25. In Egypt, in 1798, the 68th from Bombay was composed chiefly of boys. Fever broke out on their passage, they lost nearly half their number, and continued so sickly that they were re-embarked and sent back. But the 61st, over 900 strong, nearly all old soldiers, were sixteen weeks on board ship and landed with only one man sick. (It is probable, however, that the condition of the transports and the care exercised over the men had much to do with their health in both of these cases.)

26. In the Peninsular War, 1805-14, 300 men who had served five years were regarded more effective than a newly arrived regiment of 1000 recruits who were lads.

27. In the Mexican War, 1847, our medical officers constantly reported that the inferior physique, and especially the youth of the recruits, materially increased the sick and mortality lists.

28. In the Crimea, 1854-55, when notified that 2000 recruits were ready, Lord Raglan replied that "those last sent were so young and unformed that they fell victims to disease and were swept away like flies, so that he preferred to wait," rather than to have young lads sent out as soldiers.

29. Lord Hardinge says that "although no men were sent [to the Crimea] under 19 years of age, yet when sent out it was found that instead of being composed of bone and muscle they were almost gristle."

30. In General Roberts's march from Cabul to

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Candahar in 1880 “it was the young soldiers who succumbed to its fatigues, while the old soldiers became hardier and stronger every day.” The Franco-German experience coincides with all this.

31. The influence of age upon disability in the field during the Civil War has not been shown by authentic statistics, but the experience of all officers serving with troops then will confirm the general statement that very young men generally broke down first under exposure and hardship.

32. In peace, as well, the official reports show that below the age of 25 the rate of sickness very much exceeds the mean for the whole army.

33. Discussing the defectives in the Philippines, during and after the insurrection of 1899–1900, Birmingham ranks first “the immature youth. The number of undeveloped boys, ranging in age from 17 to 21, met with in the hospitals, whose only chance for life lay in building up their strength sufficiently to admit of their being put on the first transport sailing for home, was simply deplorable.” Personal observation entirely agrees with this.

34. “A large majority of the men (or boys) invalided home from the Philippines were in their first or second year of service, and a great many were taken off transports, put in hospitals, and shipped home without doing a day’s duty.” (*Private letter.*)

35. “This general assent shows how wrong it is to expect any great and long-continued exercise of force from lads as young as 18 or 20, and the inevitable consequences of taxing them beyond their strength.” (Marshall.)

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[More information](#)

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9

36. *Per contra*: Young men are more easily trained and moulded than older men, especially for the cavalry, and when well led fight as well, as far as mere physical courage goes.

37. But as we cannot keep young soldiers several years in training, and as large bodies of troops will only be raised for sudden war, men not absolutely mature must be rejected, for the most effective armies have always been those where the youngest men were 22.

38. If battalions of military apprentices should be authorized, as once proposed, to be trained and kept occupied in practical military work at home, they should completely replace the minors now unwisely enlisted in the line and develop into excellent soldiers.

Growth and Development.

39. Growth "is the gradual increase to full size by the addition of matter," and development "is the advancement of an organized being from one stage to another toward a more complete state." Because a man has acquired his growth, it by no means follows that he is fully developed. Physical maturity does not occur until nearly the twenty-fifth year, and a man less than 22, and especially one not yet 20, is very liable to break down under the conditions of military life.

40. The skeleton is designed to enclose, support, and defend the important organs of life, and for locomotion. The bones which make it up arise from separate centres and coalesce so slowly that some of them are not consolidated until the twenty-fifth year.

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41. The weakest part of the spine is that of its greatest curve, at the "hollow of the back," and here the circle of the body, the waist, is least. Here the jar of a false step, the fatigue of drills and marches, and the early aching in fevers are most severely felt.

42. The sacrum and hip-bones together form a buttress and arches adapted to support weights, and upon them men can best sustain burdens, whether in military or civil life. These are consolidated at the 25th year.

43. Other physiological considerations in connection with the young soldier are the growth of the bones and muscles in relation to each other; for the muscles, or flesh, by whose contractions physical movements are made, are attached by their extremities, and sometimes along part of their length to the bones. Large and powerful muscles require proportionately large and powerful bones, and well-developed points, ridges, and prominences upon these for their attachment.

44. The bones become thicker, the joints stronger, and the shoulders broader from the 20th to 25th year, the maximum height is barely attained at 25, and the muscles gradually develop in size and strength up to 30th year.

Effect of Pressure upon Contents of Chest.

45. One important function of the skeleton is to enclose and protect the heart and lungs in the cavity of the chest; notwithstanding which these organs suffer more in the recruit whatever his age, but