Remarks on the examination of recruits : intended for the use of young medical officers on entering the army / by H.H. Massy.

MASSY

ON THE

EXAMINATION OF RECRUITS

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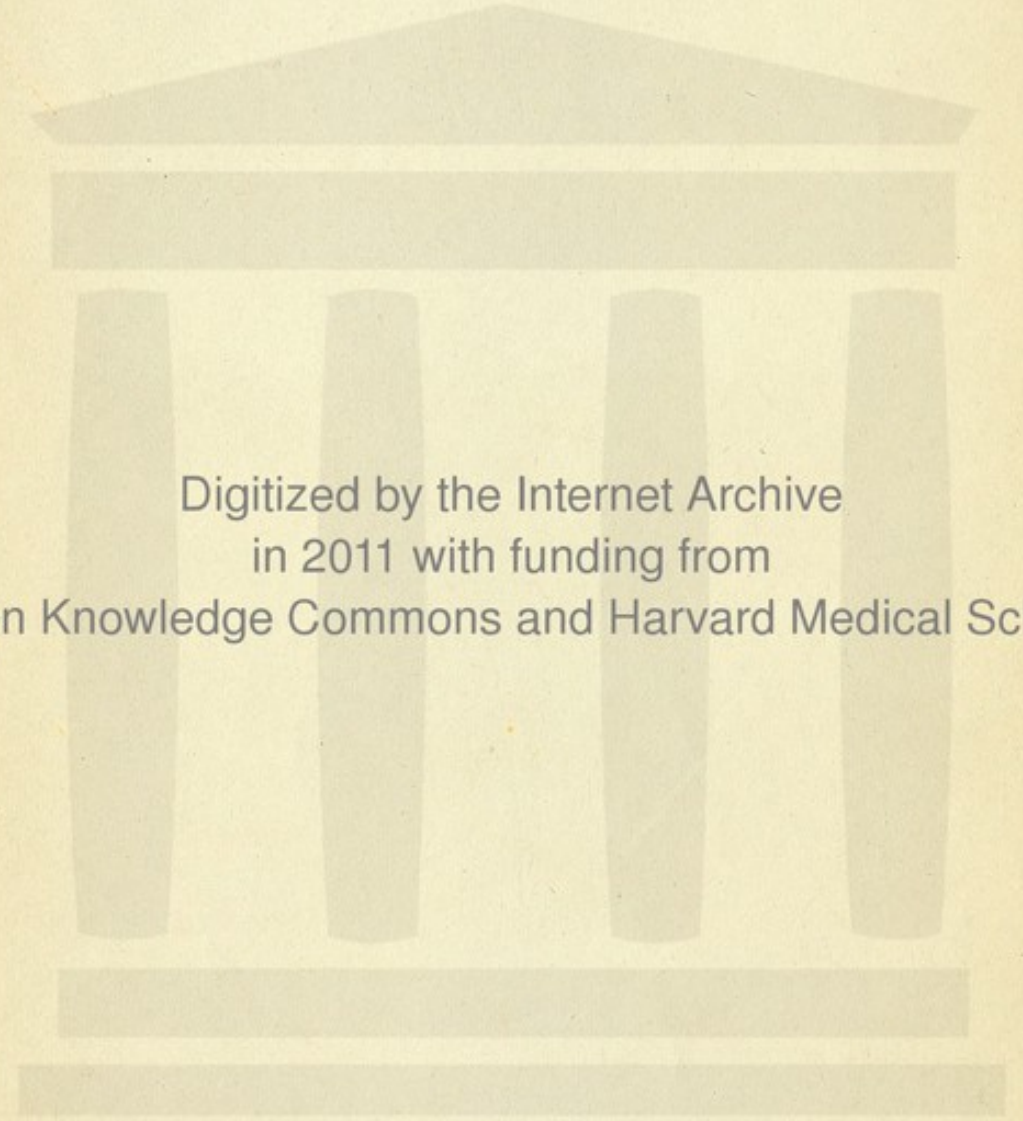

REMARKS

ON THE

EXAMINATION OF RECRUITS

INTENDED FOR THE USE OF

YOUNG MEDICAL OFFICERS

ON ENTERING THE ARMY.

BY H. H. MASSY, A. B. M. B.

4TH LIGHT DRAGOONS.

"It must always be kept in mind, that the power of the greatest armies depends upon what the individual soldier is capable of doing and bearing."—WELLINGTON.

LONDON:
JOHN CHURCHILL, PRINCE'S STREET, SOHO.
1854.

TO

ANDREW SMITH, Esquire, M.D.,

DIRECTOR GENERAL

OF THE

ARMY AND ORDNANCE MEDICAL DEPARTMENTS

My Dear Sir,

Your well known desire to encourage literary pursuits amongst the Medical Officers of the Army, emboldened me to solicit your countenance for this small work, which I almost feared to make public on its own merits; but while wishing for the honour of connecting your name with these pages, a difficulty suggested itself that requires a word or two in explanation. It might be imagined that I wished to render you responsible for all the views advanced by me on the subject of the Examination of Recruits; this is by no means the case. A discretionary power is allowed to Medical Officers, and controversy frequently arises

upon the different questions involved, concerning which I can only offer an individual opinion, unsupported by the advantage of very lengthened experience.

Your kindly expressed approval of my efforts, and your sanction to permit them to follow the intention expressed in the title page, is most highly esteemed by me. Allow me then to offer you the following "Remarks" in dedication, as an humble mark of respect and as a trifling acknowledgment of gratitude for your many kindnesses to me.

I am,
My Dear Sir,
Your's very truly,
H. H. MASSY.

PREFACE.

The object of these remarks is expressed in the title page. Being addressed to Young Medical Officers, on first entering the service, ideas that to the Army Surgeon of standing would appear trite, may to them bear an interest as a practical commentary on the "Instructions," which, by alluding to the duties of Soldiers, in a somewhat more extended sense, viewing the essential attributes and inquiring into the causes that ought to constitute unfitness, may assist in the comprehension of the very numerous questions thence arising. In this respect, chiefly, can interest pertain; as an investigation of the pathological relations of disease or its treatment, in statistical, authorative, or other connexions, is totally out of the question, beyond what is merely necessary for impressing upon the mind the objections to such diseases as they occur in Soldiers.

A further discussion of the extensive associations of disease is likewise inadmissible, as these are usually familiar to an educated Young Surgeon, and in the elementary degree here introduced, would only be interesting as details previously unassociated with Soldiers.

The usefulness of a publication is generally estimated by its object, and in proportion to the attainment of that object. The author is aware that in both respects these pages may be open to criticism, inasmuch as it is questionable how far the examination of Recruits can be practically considered in writing, and in what degree the intention has been fulfilled in proportion to the possibility of accomplishing it. In both

respects these objections are candidly admitted; yet, in the first place, it is to be borne in mind, that this work is not intended for the use of those who have practical experience, but as a help to the Young Medical Officer, when first placed in the position of an examiner; and, in the next place, indulgence may reasonably be claimed on account of circumstances extraneous to the author's controul. Stationed in country quarters, reference to many books by English, French, and other Military Surgeons, acknowledged authorities on various features remarked upon in the following pages, has not been attainable. The influence of this want has been seriously experienced, and in the composition of suggestive instructions, on such a variety of topics, can hardly be exaggerated. Nevertheless, the object of this work will be amply attained if the accomplishment of a most important duty is in any way facilitated.

The mode of arrangement which has been adopted is that pursued by the late Mr. Marshall, Deputy Inspector General of Army Hospitals, in his valuable book on the "Enlistment, Discharging, and Pensioning of Soldiers," from which the author has not hesitated to borrow some observations deserving of recollection, as the results of his great experience and sagacity. He, however, always acknowledged the plagiarism. Mr. Marshall's views, though very briefly expressed, are so accurate, that occasionally it has been impossible to avoid similarity of diction, and indeed in these instances had there been much difference, the author would have feared to have fallen into error.

The letter *of the "Instructions" has been rarely exceeded, and, in the few instances where such is the case, a justification will, it is hoped, be apparent; but the author cannot believe that the most guarded inference from the intention and authorised discretionary power has been transgressed.*

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REMARKS

ON THE

EXAMINATION OF RECRUITS.

THE complete consideration of the subject of Recruiting would require more extended notice than is consonant with the intention of these remarks. Setting aside, therefore, the investigation of the system of recruiting in this and other countries, the effect of locality, the influence of trades, and many other important and interesting relative considerations, it is purposed, with but a few preliminary observations on some general questions that could not be judiciously omitted, to proceed at once to the examination of recruits; the perfect or imperfect performance of which duty must materially influence the efficiency of an army, inasmuch as, that muscular, symmetrical, and sound men, carefully selected, are better calculated to endure fatigue and bear privation than those in whom a less guarded selection has been instituted. That our source of supply admits of care in selection is explicable, when the physical proportion and the small rate of mortality of the inhabitants of this

country are contrasted with other nations in Europe, and still more so when it is recollected that the population of the united kingdom exceeds twenty-nine millions, to which our standing army bears but a moderate proportion. The same fact is likewise, in a great measure, practically shown by a reference to the statistics of recruiting, where it can be seen, that of the men brought forward for medical inspection, the number rejected exceeds half the number of those approved. Circumstances might nevertheless, at any time, temporarily alter the relation between the supply and demand for voluntary service, such as a sudden augmentation of the regular army, or the creation of any supplementary force, or other causes of a purely civil character affecting the resources of the country. Yet the conclusiveness of an argument founded on the relation between the population and its employments, is not a feature that can be directly connected with the province of a medical officer; as, after all, the incentive to circumspection in selection is, that freedom from certain conditions established as disabilities is absolutely necessary, and no circumstances can invalidate the conclusion that certain attributes are essential in a soldier, and that care is requisite in determining their existence.

The experience of years has provided a code of instructions enumerating the disabilities to be guarded against, and the mode of procedure in investigation, though most explicit as far as it comprehends, is

in intention little more than a code of enumeration, granting discretionary power. Upon this foundation, following it in detail, it is meant to form these remarks almost exclusively.

By the adoption and trial of different arrangements, influenced occasionally by circumstances which render slight alterations convenient, the height most expedient and advisable for soldiers can be easily ascertained and concisely defined. Not so, however, as regards the discrimination of the man fit or unfit for the duties of a soldier. No rules could be made definite, no directions explicit enough, to include the numerous contingencies that daily arise. The best instructor is experience; yet, as this cannot be available for all, the only other source of information can be the published experience of others. The honest and complete performance of his office is the duty of every hired servant, still I conceive a higher feeling should influence every man assisting materially in so great a national work. The military legislature, however, have wisely placed a far surer and more effective barrier to the admission of non-effective soldiers when enlisted by district recruiting parties; since when district recruits are passed by a private practitioner, or by a medical officer under the rank of a staff surgeon, it is necessary that they shall undergo a second examination by a district staff surgeon, and obtain his approval, before they are conclusively deemed fit for service.

When men are enlisted at places not in a district, or in the case of head-quarter recruits for a regi-

ment, many other circumstances conduce to effect the same object. A surgeon, for his own sake, for his regiment's sake, and in deference to the authority of his commanding officer, will take such precautions that no delicate or otherwise inefficient men are admitted; his length of service and opportunities of contrasting individual power and capability in numbers will always have afforded sufficient experience to determine satisfactorily the eligibility of a recruit.

The case is different when a young assistant surgeon on the staff, or in a regiment, is placed in the position of examining officer. The resources of a previous good professional education do not alone directly provide the necessary information. I do not from this wish to be understood that there is any abstruse acquirement or peculiar intelligence requisite in the examination of recruits, but that it requires either some experience, or else that the mind of the examiner should be decidedly directed to the comprehension of the subject; that reflection upon the duties of soldiers in comparison with their physical capabilities, and in connection with derangements and peculiar conditions, is a necessity. I conceive these points are not at first sufficiently appreciable by medical men unless the attention is drawn by some detail to the consideration, and even then they will constantly have to exercise their judgment upon circumstances that no descriptive statements could include. The subject ranges over such an extent that an attempt at a very minute investigation would be tedious, voluminous, and, in the end, imperfect. There can be no ques-

tion but that the ordinary causes of reflection and discrimination for the surgeon and physician, as the nature of diseases, their types, their symptoms, their lesions, the physiological effects of medicines, the prognosis, and other numerous features, are beyond comparison more difficult; still this does not affect the principle, that the examination of recruits can hardly at first be efficiently performed by a medical man without special attention to the question. Yet that thus correctness of decision can in a great measure be acquired by those who have not experience, is easily understood from the fact that the discrimination for the most part involves plain and recognizable considerations; the detection of diseases is most usually the rule for rejection, the necessity for estimating their amount the exception. For these plain features plain means alone are necessary; the detection, by physical signs or otherwise, of a disease of the heart is sufficient without discriminating its nature. When recruits are passed by a medical officer and subsequently rejected by a staff surgeon, the objections to the man are communicated to that officer, and his reasons for passing such a man required: the censure that generally follows is most unpleasant, as the purport usually implies carelessness or misconception, and to an educated man this is most galling,* in addition, no doubt, ascertained omis-

* It does not follow that *invariably* such fault rests with the medical officer who first passed the recruit, as the fitness or the reverse is frequently a matter of opinion, and the most experienced and intelligent surgeons have had recruits approved by them afterwards rejected.

sion of duty, whether from neglect or misconception, if often occurring, is likely to be recollected by those in authority on a future occasion.

Many Lieutenant-Colonels likewise esteem the selection of recruits a seriously important matter, but their predilection is usually for fine-looking men. They generally, however, fully and quickly detect any physical or decided constitutional incapacity or mental deficiency in a man; the admission of such men, if repeated, sometimes loses a young assistant surgeon the confidence of his commanding officer, which he may never regain. It must not be forgotten that bad recruits remain as living reminders of a serious fault. Circumstances often conduce to the influencing men's minds in returning recruits as eligible, such considerations are always to be dismissed; the question admits but one interpretation, is or is not the individnal fit for the duties of a soldier? No incidental circumstances or associations ought to bias the opinion of a medical man; good looks often exert an influence in approval, but if to the suppression of a disability, this is a cardinal error. The respectability of individuals is sometimes another inducement, yet I am doubtful that it should be so as a rule; they are often the most worthless members of their family, in which case they are invariably bad soldiers. Should the cause of enlistment be the enthusiastic misconceptions of a young lad, the restraints of discipline and menial occupations

soon occasion a revulsion of feeling; this most frequently ends in purchasing a discharge, after all the trouble of drilling and forming a soldier has been perfected; occasionally, it is true, the reverse is the case, and such men make and continue good soldiers; still as a circumstance creating a bias in favour of a man otherwise hardly fit, it is at least hazardous; the just course to pursue as a rule is to decide on the recruit's actual fitness.

At the head quarters of a regiment, sometimes an interest is endeavoured to be excited by urging the plea of relationship to some soldier of the corps. This is often a falsehood by connivance; and even if true, ought not to procure the approval of an ineligible recruit. These and similar circumstances might often produce a prejudicial influence which is to be carefully guarded against as the various duties of the service require, and our instructions are so far definite as to direct the disapproval of all such men. The positive and implied opinions of the best authorities on recruiting, inculcate a particularity in choice. Mr. Hennen and Dr. Cheyne have both gravely considered the subject. Mr. Marshall says, "the duty imposed upon a medical officer in the inspection of recruits is not merely to reject persons who are absolutely unfit, he is to select men who are in every respect well fitted for military service."

The age within which recruits are to be enlisted is a matter defined by the Legislature. In adopting a limit no doubt many circumstances must have

influenced, and the conclusion have been perfected from different reasons, including especially the burthen on the resources of the country, the maintenance of the system of *voluntary* enlistment, and the efficiency of the service. As the age for enlistment, at least the maximum age, will always be determinate, this point might be left without further remark as one definitively appointed. Still I think a short discussion is needed, in order to bring it under observation as a question in itself necessitating careful reflection on the part of the medical officer, and the more so as it might otherwise be passed over, because it is not, as in the case of the fitness of a recruit, left in a great measure as a matter of opinion.*

The general opinion advanced a few years back, by eminent army surgeons was, that we enlisted too early, the marches of armies mainly composed of lads, and their effects were contrasted with similar exertions of older soldiers; the superiority, as might be expected, was uniformly associated with the men nearest the maximum of adult strength and vigour. A similar opinion prevailed with reference to enlisting for tropical service. Sir George Ballingall, Mr. Marshall, and others, whose vast experience entitles their ideas to the greatest attention, recommend

* There is no minimum age for enlistment in the British army except for the troops serving in India, China, Australia, and St. Helena, for these the minimum is eighteen. The maximum age is established at twenty-five.—A soldier's service, by the present regulation, does not begin to count as actual service, until he is eighteen, though except for regiments serving in the above localities, he may enlist prior to that age.

twenty as the minimum age for enlistment, especially for service in tropical climates In any condition of life where the possession of resistance to the causes of disease, unavoidable during a tropical residence, are specially advantageous, the attainment of age exceeding twenty is unquestionably a great object, as men at this time of life are less susceptible of disease than lads of eighteen, from constitutional resistance; and the more mature the age, the greater the likelihood of the exercise of reflection in preserving the health and avoiding temptation. Were men required for immediate active service, to undergo immediately after enlistment the fatigues of a campaign, to endure hardships, to continually sustain weight, and to resist by strength and the moral dignity of energetic men the many sources of fatigue thence arising; a close approach to the fullest strength, both physical and mental, is undoubtedly advisable; and enlistment, as far as it is possible over the age of twenty, could not but be conducive to real power in every relation of an army in the field. At this time of life the figure is approximating its physical perfection, and in a calling which usually, on service, affords supremacy to the physically endowed, self-confidence and independence are the natural result, the true secret of resistance to enervating influences. Orders have been issued, at different periods, applying to this question; yet from some reason, probably expediency, alterations have from time to time been introduced; other changes

may again occur, so that they are only definite for the time being.

So far as the requirements for tropical and active service are alone to influence, there can be but little question as to the advantage of a time of life approaching maturity. Yet it appears to me that these are not the only points to be regarded; that numerous questions arise and various reasons can be urged in mitigation of exclusive opinions against admitting recruits under twenty into the service. By the admission of youths of eighteen, if not decidedly contra-indicated, the attainment of a sufficiency by our system of voluntary service must be much facilitated, as youths under twenty are much less likely to be established in life than when of more advanced age. The words of Napoleon, after the battle of Leipsic, are commonly advanced in favour of age in recruits, "I demand a levy of 300,000 men, but I must have grown men, boys serve only to incumber the hospitals and roadsides." The opinion here introduced, comprising the solution of so great a question by so great an authority, admits of some explanation that affords a modification of its full decisive value, when advanced as an argument applicable to the British army. The French army was, at that period, recruited in the proportion of one in forty of the population, a drain upon the resources of a nation employed at the same time with the necessary pursuits of civilized countries, never, I believe, equalled; and so excessive were the effects of the conscription, "which

was necessarily brought down to boys of seventeen and eighteen, that during the greater part of the last war the minimum height of conscripts for the French army was five feet seven-tenths of an inch, English measure." It can readily be conceived that young lads of such a height could make but very indifferent soldiers, even for the minor degree of duties in time of peace. Recruits at anything like such a height as this, and mere boys as the French conscripts then were, raised by compulsory levies and required for excessive duties on an arduous and disastrous campaign, might well be designated an incumbrance. For the infantry of the line in England recruits are not enlisted within several inches of this standard; youth and height much exceeding the above are found sufficiently combined to meet the exigencies of the service. The careful provision for the recruit's passing the first year or two of his service at home, usually attained by the arrangement of depôts, secures his having completed his novitiate, learned his drill, and approximated the time of life when strength is established and the frame is less susceptible of the effects of climate before serving abroad. Bearing upon this point, a portion of the regulations which were issued by Lord Hill, in 1828, is of peculiar merit.* "In the selection of men to complete the service companies, and more especially those

* Mr. Marshall on the "Enlisting, Discharging, and Pensioning of Soldiers." Page 11.

stationed in hot climates, attention must be paid to the age and constitution of the individuals, so that the draft may consist, as far as possible, of the oldest and most seasoned recruits, and therefore best qualified to bear the effects of change of climate. The opinion of the medical officers must, of course, be consulted in the selection."

In an instance where a regiment required unusually frequent support by drafts to replace the casualties from climate or other causes, a slight increase in the age of the recruits could be easily directed if deemed necessary.

As the fatigue of marching was to the infantry soldier one of his most debilitating duties in youth, it was a material objection to early enlistment; the baneful effect of sustaining too early in life the weight and drag of the knapsack on the chest on long marches, is now in a great measure obviated by the very general system of transporting soldiers on home service by railway. Night duty on guard is enumerated as an objection to young men's enlistment, since the enervating effects of want of rest in youth are fully admitted, and always deserve the attention of those who have the power of interference. In time of peace, on home service, however, this objection seems over estimated; soldiers in some garrisons are occasionally hard worked; but this is, I believe, usually accidental, and is certainly the exception. The improvements in discipline, the judicious restraints, the habits of obedience, cleanliness,

and system, at the present day inculcated, are more readily received and permanently retained in young minds than in those of older growth, which have possibly already acquired habits inconsistent with the duties of a soldier. The much greater prevalence of temperance than formerly, has likewise diminished a fearful source of temptation to lads too easily led into the insidious vice of intoxication. Depression of spirits, or occasionally even recklessness, said at one time to be induced by the hopeless prospect of being bound for twenty-one and twenty-four years service, has now been relieved by the power of enlistment for shorter periods.

Whether the foregoing remarks are generally admitted or not, as intended, with regard to the admission of recruits under twenty for service in infantry, I believe few important objections can be urged to enlistment at this time of life for cavalry on home service. The duties of dragoons, though constant, are very rarely severe, the employment is continuous, but not distressing or enervating. As youths they can be moulded to their work, taught to ride, to groom, acquire position, and hold themselves erect. Full grown men do not usually make such good horsemen. I have obtained the verbal opinion of many old cavalry officers, and feel I am pronouncing the conviction of the majority when stating that commanding officers of dragoons much prefer promising lads of eighteen joining their regiments than men exceeding twenty.

Thus far then I have been endeavouring to diminish the force of arguments advanced against the admission of recruits under twenty. Some objections can, on the other hand, be urged against exclusive enlistment over twenty, or rather of establishing this age as the minimum. Recruits of four or five-and-twenty frequently cannot be set up well, consequently never could look soldier-like; they have often contracted habits of walking and holding themselves, sometimes the effect of occupation, that no amount of drill can undo; at this time of life, flexibility, elasticity, or rather formative power, has frequently given place to a fixed position; and whether erect, round shouldered, or crooked, that position often cannot be materially altered. Idle, drunken, or dissolute habits, are sometimes the cause why men of four or five-and-twenty are not settled, or have not obtained a station in life capable of returning a means of living, and after enlistment it has occurred that such men have not made good soldiers. Nevertheless, well-made, smart, erect recruits, of the maximum age, are daily admitted who make excellent soldiers; nor is it intended to argue against any arrangement of the maximum, beyond contrasting the merits of age in reconciling early enlistment under specified conditions. How far below the age of twenty enlistment is judicious for the general service, is a question of very great importance. Yet if a minimum was established, a difficulty at once suggests itself;

how is the age to be determined if a man chooses to deceive? The general appearance of a recruit could alone guide; however equivocal this might be, a medical officer could at least judge in the instances of mere boys presenting themselves, since I believe the arguments used by different army surgeons as hostile to the general principle of enlistment under twenty, are applicable to the system when reduced for infantry below eighteen. The mind and body are in the undeveloped condition of boyhood. The ordinary marches, escorts, drills, guards at night, and other duties of infantry soldiers, if incurred much below eighteen, may with truth be designated exciting causes of disease; for the reasons before observed, this does not so fully apply to cavalry. By the decree of the 21st of January, 1852, reviving the old law, the minimum age at which volunteers are admitted into the French army is eighteen.

As a prelude to the investigation of the various disabilities, I trust to be excused for trespassing a little, while making a few general remarks that in an extended sense at least merit consideration, inasmuch as these are intended to direct the mind into a more general channel before proceeding to individual disabilities. Yet deductions from general arguments are always to be admitted with great care, for if understood as of universal application, or exercised to an excessive particularity, great numbers of eligible recruits might be dismissed. Selection

is not to be conducted on the probability of every deviation becoming a formidable disability. Medical officers ought not to be supposed to be infallible; since though diligence and care are exercised with intelligence, mistakes will occasionally occur. Our decisions must be from inferences purely practical, and our assumptions supported by probability and the confirmation of frequent occurrence under similar circumstances. Nothing more conduces to understanding disease, its prophylactics and remedies, than a fair and probable view of cause and effect, so far as they can be truly applied, and the arranging as far as possible diseases or disabilities into causes assignable to exciting and predisposing influences. It is from the result of such a principle applied in a more or less extended sense, that for different employments arrangements are usually made. If we allow ourselves to be guided by such a rational means of discrimination, and provision for difficulties, the simplest, safest, and least liable to erroneous results; the course to follow in the selection of soldiers is obviously to be fully aware of the duties, the habits, the influences, and enervating causes incidental tc their position, by which it can be comprehended that individuals deficient in certain physical proportions, although not of depraved health, cannot perform such duties or resist such enervating circumstances as they may possibly be subjected to; and the exciting causes of disease can also be easily understood, rendering more plain what are to be es-

teemed the predisposing causes most liable to be aroused to actual disease by such exciting influences.

A man with enlarged veins of the legs, or even a decided tendency to this affection, is not a fit subject of selection for an infantry soldier, to engage in possibly harrassing marches, sustaining considerable weight, and requiring the exercise of muscles and endurance; the effect must be the developement of varicose veins, deranged circulation, and debility, which increasing, of itself becomes a cause of extension and accumulation. Nor should a man with a narrow sunken chest be subjected to carry a heavy knapsack, occasioning compression and fatigue, or be submitted to the influence of cold night air and want of rest; he is from his conformation most likely predisposed to pulmonary disease, or at least is of a delicate habit, and these causes will assuredly create or invoke the assumption of epidemic or casual disease. General debility without organic or local predisposition is open to similar objections, as it is an established law that such habit absorbs morbific poisons far more readily than a vigorous constitution similarly exposed.* The greatest difficulty is often experienced in separating the intimate connexion between the exciting and predisposing causes of disease, in fact it is sometimes impossible;

* Any predisposing cause liable to develope disqualifying disease as the effect of continued submission to the exciting influence, must, as a matter of course, be not only condemnatory in individuals of an otherwise doubtful appearance, but is likewise applicable where the frame is in its general characters robust.

knowledge is only derivable from experience, or rather comparison of numbers subjected to the same influence, and it may be argued that predisposition as a remote cause of disease may often pertain, and not be appreciable; yet that idiosyncracy, by constitution or the arrangement by natural formation, may actually exist, but to a degree not discoverable. Select a number of cavalry soldiers, expose them to similar duties, some become ruptured, the very great majority escape. It appears a rational inference that the few in whom similar causes produced dissimilar effects, were predisposed, by congenital or accidental anatomical arrangement, to hernia, though a weakness of tissue or a laxity of the rings was not appreciable. Still such an argument is only referable in regard to universal application, and if a predisposition be discoverable in the majority, or even in a very great minority, its value and importance as a guide to selection must be immense. Incipient or chronic disease, also, when limited, not developed by constitutional, sympathetic, or local derangements, frequently escapes detection, and men so affected gain admission into the service. After a time, active duties or exposure developes most usually by increase, the unobserved condition. Such a state of things must always exist, even if we look with certainty to vast improvement in diagnosis. In instances of hereditary or constitutional tendency, there is more than likely no actual disease; and were the prophylactics of climate,

occupation, and other circumstances attended to, such disposition would, in human probability, often be replaced by a habit associable with perfect health. However difficult this discrimination may be, still assuredly it is frequently much less confusing and not so problematical; for turning to the converse where symptoms or signs, or the general characters traceable not to positive local disorganization exist—(though its advance may be determinate hereafter)—how often may such assistance be derived by the power or frequency of the pulse, by emaciation, by feeble muscle or traces of strumous habit; or still more, referring to local derangement; how often is structural delicacy discovered in the lungs by auscultation, or a predisposition to fatigue by the shape of the feet, or a tendency to rupture by a laxity of the rings. The value of the detection of a predisposition to disease, or to any formation, which from certain similar appearances, repetition, and comparison, have been established as ill-suited for the duties of a soldier; are but to us appreciable for selection, as the discovery of causes, the effects of which would be objectionable in a man so situated; it is, therefore, unnecessary in any other relation to consider the subject here.

We are directed, and it is our duty, to reject those predisposed to disease; such is contemplated by the instructions. The knowledge that disabilities may be present by predisposition, though not decidedly so as regards extensive organic change—should

always be borne in mind, and it should not be forgotten, that experience and a scientific education, by assembling and separating facts, will often form a diagnosis when the mere application to an organ, *per se*, for evidence of extensive disease might be made in vain. Nevertheless even here a great difficulty is presented; the assistance derivable from the evidence of the individual is not available; he is in the position of a dissimulator, if he has a disability, he endeavours to conceal it. The effect of this is often to induce scepticism in cases not meriting it, which however is a fault of less frequent occurrence than the reverse; still such scepticism may easily be carried too far. Prejudice is too often dominant in the selection of recruits, maxims are occasionally inculcated and received by young medical officers entering the service as absolute, which when taken in a universally definite sense, are precepts the result of less extended views than seem to be the intention.—*E. g.*, some hold that in all cases where marks of medical treatment are detectable, the man is unfit; others are similarly influenced if a slight lateral curvature of the spine exists, yet it is obvious that bleeding, leeches, or a blister, may have been resorted to as treatment for acute disease or injury, which very possibly is completely cured, leaving no derangement, sequela or even trace, save the evidence of treatment; and slight lateral curvature may exist in a robust man, produced by a particular employment, occasioning neither actual nor disfiguring unfitness.

In all investigations where predisposition, or presumption of predisposition, is assumed as sufficiently important evidence from which to draw definite conclusions, errors must occasionally arise; as such predisposition may never be developed into actual derangement, or the legitimately conceived presumption may be altogether unfounded in reality, depending on other causes unassociated with or irrelevant to the presumed malady. But in cases where if the disability did afterwards become apparent it would be of serious consequence, and in which experience by extensive comparison had rendered the probability great that this predisposition would end in the disease, or that phenomena warranted the conclusion of presumed predisposition, such decision is quite justifiable, as upon this strong evidence and such penalty, in the matter of soldiers, the hazard is inadmissable. Many examples as direct cases in point could be deduced, but neither original intention permits, nor does necessity require, the subject to be followed in detail further than is merely requisite in exemplification of the argument. A narrow chest, having the conformation designated chicken breast, associated even with a form of moderate proportions in other respects, would very properly create a suspicion of tendency to disease of the lungs, which might never be rendered prominent or might not even exist Old cicatrices of scrofulous ulcers in the neck or elsewhere, would indicate the presence at some period of a strumous habit, from which the

individual might very possibly have recovered. Nevertheless in these instances were the conformation remarkable, or the cicatrices of strumous disease plainly observable, the risk should not be incurred, but the subjects, as is most usually the case, concluded to afford evidences of predisposition.

INSTRUCTIONS REGARDING THE SURGICAL INSPECTION OF RECRUITS.*

"I. The first object is to guard against the approval of ineligible Recruits.

"II. The external characters of a sound constitution and efficient limbs may be briefly stated as follows, viz.: a due proportion between the trunk and members of the body—a countenance expressive of health, with a lively eye—skin firm and elastic—lips red—teeth sound—voice strong—chest capacious and well formed—belly lank—limbs muscular—feet arched and of a moderate length—hands large rather than small. The reverse of these marks may be considered to indicate infirm health and inefficiency.

"III. The question of fitness or unfitness of a recruit must, in a great measure, be determined by the discretion and experience of the officer who inspects him; for no rule can be formed so definite as to dispense with the exercise of such discretion.

"IV. As soldiers are liable to serve in every variety of climate, to be exposed to frequent vicissitudes of temperature and weather, to undergo much fatigue and danger, and often to sustain considerable privations, no recruit who is not vigorous ought to be approved."

* These Instructions are taken from the printed Regulations for the Management of Army Hospitals, &c. &c.

The first points to be determined, on the actual examination of a recruit, are, as to whether he possesses the requisite amount of osseous and muscular developement for the performance of the duties of a soldier, and if their arrangement is so apportioned as to constitute their perfect exertion, and the disposition of moderate symmetry. It would seem that these are desiderata not always sufficiently attended to; the subject at first sight appears very difficult; yet, when analysed, resolves itself to an easier consideration. The muscular fitness of men is to be considered in reference to two classes; into those over twenty-one, where increase of muscular developement cannot be speculated upon, and into growing lads. In the latter class great circumspection is imperative, lest the minimum be lower than advisable; a most dangerous and deceptive discrimination, the allowance for which ought always to be most limited.

The term "growing lads" is often interpreted in too vague a sense, more so than seems likely to be the intention of the authorities. A slight spare-limbed lad, with a thorax hardly thirty-two inches in circumference, small boned, though possibly of sufficient height, under twenty, is looked upon occasionally as "a growing lad," as well as a large-boned moderately-muscular lad, with a thorax of about thirty-three inches, with a countenance expressive of health, skin firm and elastic indicating vigour, under the age of nineteen; yet they are very different. The latter, I conceive, implies "a growing

lad," and the minimum description. In the first class, or those who have attained an age or appearance where a further developement cannot be safely speculated upon, the decision ought to be most definite; it should never admit of a doubt; the want of muscular power ought always without modification, independent of any cause of which I am aware, be a sufficient warrant to reject a man. Recruits are sometimes, when slight, instigated by old soldiers to declare that they have been subjected to hard labour and a scarcity of food. This is by no means uncommon, especially in Ireland; it is a dangerous statement to believe in most instances, as it is not founded on fact; yet, even if true, these men's constitutions have most frequently been irretrievably impaired; constantly when this allowance has been made these men have not improved, and have never made efficient soldiers. Questions may admit of argument, medical men will and ought to be allowed to differ as to the extent or importance of disabilities, connected with incipient or suspected disease or injuries; a discretionary power is of course granted to army medical officers in passing men, but no argument or difference ought ever to occur relative to the muscular capacity of a man who has reached a period in life when the limbs cannot be expected to afford much greater muscular proportion. For instance, were there any doubt relative to the complete fitness of a man of twenty-one, he should be rejected; for if he was not then fully competent for every contingency,

no medical officer would be justified in assuming he ever would be. The determination of this point must comprise not only what he may be called upon to do immediately after enlistment, but what at any period of his service a soldier's eventful life may subject him to. At the enlistment of lads they may not then from their age be capable of sustaining the fatigues of duty on active service, but if care is instituted in their selection, if a healthy and vigorous frame is considered essential, there is an assurance that a year or two will provide for the deficiency. Not so in the other case, if not thoroughly physically qualified at the period of enlistment, he more than likely never will be; in such a man immediate fitness ought not to be deemed enough, he should be fully equal to every contingency.

Independent of the baneful effects of climate, the exposure to morbific poisons, and numerous other exciting sources of disease on foreign service, an infantry soldier, on active service, is at all times liable to the exhausting and debilitating influence of hardships, consequent upon want of rest and long marches, frequently carrying very considerable weight. Attention is particularly directed to these points in the instructions, "as soldiers are liable to serve in every variety of climate, to be exposed to frequent vicissitudes of temperature and weather, to undergo much fatigue and danger, and often to sustain considerable privations, no recruit who is not vigorous ought to be approved." A reference to

historical details will put us in possession of the exertion and endurance, the marches and privations, sustained by our troops in the Peninsula, India, and elsewhere, the fatigues of continuous marches of many hundred miles by our's and other troops, as well as the remarkable energy and perseverance displayed in accomplishing distances in an almost incredibly short time. Even the ordinary marches men may have to perform are to be estimated at nearly fifteen miles a day; the usual weight they carry, including thirty rounds of ammunition, is between forty-five and forty-eight pounds When an infantry soldier is completely equipped for service, he generally carries, besides the above, three days' rations, additional ammunition, blanket, &c., which would, altogether, constitute a burthen to be borne of little less than sixty pounds.*

The routine of service is such that the soldier is always subjected to these influences to a greater or less amount; but, in making his examination, the medical officer is bound to bear in mind that fitness should consist in the capability of the recruit to bear the maximum of exertion.

Attention to the proportions of the different parts of the figure demands very particular notice. This can be fully estimated without dwelling on measurements or minute description; moderate symmetry is

* Subsequent arrangements may reduce the burthen at present borne by the infantry soldier, but the weight of his arms, ammunition, appointments, &c., can never be inconsiderable.

essential in every soldier, and its components are of course known to all medical men; deficiencies and irregularities will be more fully considered when investigating each individual organ. There is connected with this portion of the subject another point of material consequence, requiring reflection and special remark: that is, the branch of the service for which the recruit is enlisted, Artillery, Cavalry, or Infantry.

The Royal Foot Artillery are the largest framed and most muscular men of the three branches of the service, the nature of their employment requiring the exercise of strength more than activity; lifting weights, moving heavy guns, and working in the arsenal, tend to increase their muscular proportions. The chief characteristic of a gunner ought to be strength. Observation at a parade at Woolwich will shew how well this distinguishing feature is observed. In no army in Europe is it possible to find finer men than the Royal Artillery; they are pre-eminent for this characteristic.

A heavy cavalry soldier is above the ordinary height, and, whether on foot or horseback, is remarkable from his size and general appearance; an awkward or ill-made man rarely rides well, a tendency to corpulency or undue developement in any way is objectionable; round shoulders are most unsightly; knock-knee, if prominent, is objectionable in any soldier, but in none more than a heavy

dragoon. The object ought to comprise a selection of men at least moderately symmetrical.

In the choice of light cavalry, the institution of still greater circumspection is admissable, as the standard is much lower, nearer the average height, the facilities of obtaining recruits is far greater, affording a more extensive selection, admitting, if sought for, the acquisition of the stamp of men most eligible for this branch of the service. A frame manifesting strength and muscular developement is absolutely necessary in a light cavalry soldier; yet the nature of his duties in every respect, especially in the instances of not having to carry weight, and being but little subject to loss of rest or exposure at night, are vastly less productive of fatigue or other consequences injurious to the constitution than those of infantry, wherefore to the same extent it does not appear so essential. A dragoon's chief value consists in his being a good horseman, wherefore a figure manifesting activity, suppleness, and ease of motion, ought to be the object of acquisition.

The absolute necessity of such an arrangement when extensively pursued, or the vague unlimited standard that any medical officer may picture to himself as the requisite proportion may be open to objection; but such is erroneous, as the possession of these characters can only be insisted on as desirable; and though possibly it would not be judicious to imply a censure for passing a healthy man for a light dragoon who is inactively made yet not deformed, still

it appears to me very easy to understand the spirit of a suggestion to be particular that a proportion, indicating the presence of the features most necessary for the fulfilment of his employment, shall exist; and that it is a consideration recommendatory in recruits for each branch of the service that the general appearance of the man should, as much as possible, associate with his peculiar duties.

Assuming that equal attention is devoted to ascertaining the freedom from disabilities in each branch of the service, the stamp of man calculated for an infantry soldier, from the nature of his employments, comprises a combination of characteristics which must always be recollected as necessary and not merely desirable; he ought to be compact, strong, but not awkwardly made; the figure preserving a due proportion between the trunk and members of the body, combining the evidences of muscular power with the attributes of a good walker, or at least possessing a figure displaying no deficiency in this most necessary trait.

"V. The more common causes of rejection are enumerated below:—

"1.—*Feeble constitution: unsound health, indications of former disease, as leech-bites, traces of blisters, nodes, glandular swellings, or other symptoms of scrofula, &c. &c.*"

The general appearances indicating a feeble constitution or unsound health, when discoverable at

the age of puberty, are usually symptomatic of organic disease, which would, on careful examination, be most likely observed; still this is not invariably the case, as some cachexia, syphilitic, mercurial, strumous, or otherwise, may occasion the appearances to a greater or less degree; the existence of the general effect is alone disqualifying without proceeding further. Often in such habits there is the assisting diagnosis of indications of former disease, the traces of medical treatment such as leech bites, blisters, issues, setons, cupping, and the signs of bleeding in the veins of the arms; some of these marks, however, may exist under very different conditions, and although they are enumerated as alone causes of rejection, it does not appear to be the intention to instruct that a fine robust lad is unfit because bearing evidences of a few leech bites: it is especially a case where the medical officer is intended to use that discretionary power allowed him; still that discretion ought to be exercised with the greatest care and consideration, as the chief indication must always be the accompaniment of symptoms or signs of the least organic or constitutional disturbance; if either can be traced even in any degree, it would be imprudent to approve a man; but if associated with all the characteristics of rude health, it seems to me a great error to conclude all such traces as necessarily disqualifying. Were leech bites discoverable on the extremities, they would of course attract attention to the locality, and suggest the subjection of

the position so circumstanced to minute examination; if accompanied by characters of complete integrity I would pass the man, remarking the fact in the attestation. The integrity of the limbs, by the exercise of motions and accurate investigation, can almost invariably be determined; so that the mark of a blister situated on the extremities need not attach much more serious importance, especially as such means of treatment are usually applied in young men calculated for soldiers, for the effects of injury; however, marks of medical treatment, connected either with the trunk or limbs, are obviously of diminished seriousness when the period of application is remote, local or constitutional delicacy not being appreciable; and it is not to be lost sight of, that however remote, even in youth, the application of leeches may be, the marks usually remain though the affection for which applied may have long ceased. Blisters, on the contrary, are demonstrative most frequently, though not invariably, of recent disease; a man may have been many times blistered without a trace remaining, but the use of leeches, if only on one occasion, leave recognizable evidences, so that an individual without a trace may have undergone much more local treatment by blisters than one who bears evidence of leech bites. Hence, then, it would appear that the mark of a blister ought generally to suggest more serious consequence, particularly when occurring on the trunk, as it manifests a recent morbid state which may afford a difficulty in deter-

mining the integrity of the organ. That the recognition of the recent or remote period of the application of local remedies is of great value in estimating their seriousness when situated on the trunk and over organs important to life is easily understood, since they may have been used at a distant period in acute disease from which the individual has completely recovered. When existing in these situations, great caution should be exercised; but if a medical officer be perfectly satisfied that the appearance was not recent, and that the man was clearly in rude health, his constitution untainted, the proportions of the figure symmetrical, and organs sound, it would be too dogmatical to assume that all marks of treatment upon the trunk are to be an unqualified cause of rejection. Nevertheless, though this ought not exclusively to apply, these marks, when they exist in some regions, should be viewed with still greater gravity than in others; thus under the clavicles, along the spine, or over the right hypochondrium, the observance of marks of medical treatment manifest the possible tendency to most disqualifying diseases, which duties or exposure may arouse. When such traces are found over the cardiac region, the man should be always rejected; they point out that disease once existed there, and it is more than likely that some sequelæ resulted and are persistent, although possibly not plainly detectable unless exertion or other circumstances favoured their observance, or time, by

increase, should have developed them. The argument usually adopted against the admission of men into the service, who bear any traces of medical treatment, is the power at any time of declaring themselves unfit for duty by alleging disease to exist; yet, assuredly, this is too definite. By such arrangement the loss of good recruits would often accrue; malingering is much less frequent in the army than formerly; and how little does a man so circumstanced differ from a soldier who, having been in hospital, has there undergone treatment that has left permanent marks.

Setons and issues are almost invariably to be deemed disqualifying; they are generally used in severe chronic disease; usually the traces are found on the extremities, on the nape of the neck, back, or loins, but they may be detected in almost any situation. The marks of cross-cupping are a recognized invariable cause of rejection; it has been so determined for many reasons; especially it is supposed, that diseases sufficiently serious to require treatment by cross-cupping may be liable to recur. Although sound men may hereby be occasionally lost to the service, this estimation of these evidences of treatment is universally admitted. Marks of single cupping need not always cause rejection; the observations relative to the evidences of leech-bites and blisters are in a great measure applicable here. Attention to the locality,

the probable period of application, and the other different associations, is of the greatest importance in these cases. A man may bear traces of bleeding in the arm for injury or acute disease which has left no lesion behind; if unaccompanied by other extensive marks of treatment, and the medical officer is satisfied of the man's perfect fitness, it does not appear that this is alone deserving of any serious consideration. If in any instance, as has been before implied, the least indication of local or constitutional disturbance were associated with traces of treatment, I hardly think any circumstances warrant the man's approval.

From the time of Celsus to the present day the consideration of scrofula has occupied the attention of some of the brightest intellects that have pursued the study of medicine. Statistics have been collected and examined, experience has been promulgated, experiments have been instituted with untiring energy, chemical analysis has lent its aid, pathology has largely contributed from its great truths, the master minds and sagacious understanding of Thompson, Carswell, Sir A. Cooper, Lugol, and Glover, with numerous others, have been zealously applied to the investigation of this subject, which must be considered of the greatest importance, from its frequent occurrence, from its frightful mutilations, from the horror with which all classes regard its appearance in their families, and the care they take to attribute the effects to other causes; and from the great fatality,

when affecting organs important to life. Volumes have been written, yet the results of all this labour, experience, and talent, are far from determinate, and are still open to future investigation in many relations; not only as to the nature of the disease itself, but as to preventive or remedial measures. The greatest diversity prevails as to the most feasible explanation of the proximate cause; the humoral and absorbent theorists have made no advance. The identity of scrofula and tubercle is denied by many; others, again, trace almost every chronic and many acute diseases to a strumous habit. The management and treatment are most unsatisfactory, whether considered in reference to the depleting system, or the more rational one, of good air, diet, and medicines, justly admitted to exercise a beneficial influence.

Most writers agree that scrofula presents itself in every tissue in the body, in every gland conglomerate and conglobate, from the liver to the smallest lymphatic, in cellular, mucous, and serous membranes, free surfaces or subtissues, in osseous structure or individual organs. No age or sex, no position in life is an exemption. A child may come into the world to pass its life a cripple, or live a mere existence unaccountable for its acts, cut off alike from social ties and participation in other happiness of thinking man,—a drivelling idiot. A child may be born healthy, and grow to man's estate, athletic, active, and intelligent; the insidious cough sets in, attributable to some irregularity, which in

a few months may blast the happy prospects that have dawned with childhood and risen with youthful hope. Or the man who has passed a healthy life, may find towards the termination, a bronchitic affection lapse into tubercular deposition. Different forms of the disease preponderate in childhood, adult, and old age, but almost each variety is met at every time of life. Much has been said of the appearance of scrofulous individuals, these appearances are sometimes laid down as definite as if they were invariable; the fallacy of this is quite evident, as individuals of almost any previous apparent character of constitution, are occasionally from the exciting cause of disease, especially venereal and its specific, mercury, rendered the subjects of struma.* We have all seen instances of men under the influence of a course of mercury for syphilis, develope enlarged glands in the neck or groins, tubercles in the lungs, or scrofulous disease in the extremities: happily prejudice has yielded to the advance of progressive knowledge, and from a wholesome dread of the effects of an unlimited use of this drug, these results are possibly less frequent than a few years back. Still such is often the sequela of debilitating disease.

In persons who are, by hereditary tendency or constitutionally, predisposed to scrofula, certain peculiarities in the face and figure, as protuberant upper lip, alæ of the nose enlarged and thickened, large flat feet, and various irregularities in the

* Manifesting more than likely an hereditary predisposition.

shape, are commonly described as associating with this habit; yet in others the indications of good looks are frequently observable, usually accompanied, however, by diminished muscular developement and lax fibre. Any tendeney to this habit is most difficult of eradication; by care, attention to diet, air, &c., extensive symptoms are often warded off until the frame is matured, when nature gradually establishes a healthy temperament, which seems capable of resisting the diathesis in frequent instances, unless the constitution suffers from mismanagement, or the debilitating influence of continued illness. But here is at once seen the reason why men, having a strumous taint, are so unfit for soldiers, even though they exhibit no marked physical disability.

If scrofula exists in the constitution only to a slight degree, the habits, the pursuits, the nature of the duties of a soldier all tend to its developement; how can prophylactic measures be adopted? On a march, independent of the fatigue, he may get wet, or take cold on guard; the careless life of a young soldier, with unlimited temptation, conduces to venereal; numerous are the causes exposing to illness, any of which might develope the latent tendency; then struma may appear in any of its varieties, even though slight, much to be dreaded, as almost every scrofulous affection requires the discharge of a soldier. Did it tend even to one of the mildest forms, suppurating glands of the neck, what more troublesome, what more unsatisfactory? As long as there

is a discharge from the abscess or ulcer, the man cannot usually appear on parade; do what one will, send him where one likes, we shall very frequently fail in procuring a permanent local and constitutional cure. True, it is said, suppurating glands of the neck are usually unassociated with the more fatal disease, phthisis, that they seem to act as a derivative for the diathesis to expend itself. Granting this to be the case, still as a man having strumous sores of the neck is unfit for a soldier, but little is gained to the service by the less fatal disease. Sores in this situation often continue for years unhealed: a sergeant in the — regiment of infantry, in which I once had the honour to serve, caught a severe cold; though of large and powerful frame, some of the lymphatic glands of the neck, as well as the tonsils, became swollen and inflamed, in the course of time matter formed in those of the neck, they were either opened or ulcerated, the tonsils remained permanently enlarged; this was a most trustworthy man of some fourteen years service, he had nothing to fall back on if discharged, with a pension for a limited period; he was unfit for duty in the ranks, yet the Colonel did not wish to lose him, the situation of provost sergeant being vacant at the time, he was appointed, his duty in this capacity comparatively screened him from observation; he satisfactorily served for a few years, until from some exposure he unfortunately subjected himself to fresh cold, his tonsils swelled to such a size as seriously

to impede respiration, the inflammation extended to the rima, from thence into the glottis, and produced thickening and effusion into the submucous tissue. In twenty-four hours, despite the greatest care, he died; this man had, to my knowledge, unhealed ulcers originating in the glands of the neck for more than four years He had resorted to various means of treatment, was quartered at the sea-side for twelve months, and never did a day's duty in the ranks from the period these abscesses formed; had there not been this situation vacant at the time he must have been invalided. His stout appearance was but little altered by the strumous diathesis, yet I have no doubt had he been subjected to the hardships sometimes incidental to a soldier's life, for which every man enlisted should be unequivocally fit, he would have broken in constitution and have fallen a victim much sooner to the consequences of his fearful idiosyncracy. The filth resulting from such a disease, the inability to wear a stock, and the disgusting spectacle of continued running sores in the ranks are sufficient, without the more formidable evil of depraved constitution, to render a man inefficient. The supposition is not for a moment entertained of the possibility of a man having extensive open ulcers of the neck ever gaining admission into the army; yet a good looking lad, with enlarged glands, or a single sinus or old cicatrices about the neck might do so; these evidences are usually accompanied by other indications of struma, but should they not, I believe

them sufficiently disqualifying on their own merits, as showing either remote or persistent scrofula.

If this habit is liable to be produced from the effects of debilitating causes in individuals not apparently prone to it, how much more likely, from similar reasons, is this malady to recur in one whose constitution has previously suffered, and where it is more than probable that a dormant taint remains to be awakened by any fortuitous circumstance.

There is hardly a necessity to urge additional arguments why the examination for evidences of this habit ought to be strictly investigated, and sought for with a most jealous care, as one might be led into the subject to a much greater extent than is at all requisite; the importance is patent on the least reflection. Nevertheless, as I have been more than once eye-witness to a very formidable sequence of this diathesis in relation to a soldier's duties, which seems to me worthy of notice, I will still further extend these observations by introducing a few instances. Infantry soldiers, on a line of march, when undergoing fatigue, carrying the weight of musket, ammunition, and full kit, are liable to injuries of the inferior extremities, and where the constitution is in the least imbued with a strumous tendency, such strains and injuries frequently assume serious characters. The last occasion on which such occurrences were observed by me, was on a march of some days in Ireland with an infantry regiment, when I wit-

nessed disease produced in three men of a scrofulous temperament. On arriving at our destination, one complained of pain in the tibia of the left leg immediately below the tubercle, the periosteum seemed engaged, the integuments were red and very painful to the touch. In despite of treatment the tibia became extensively affected, the disease extending into the joint, sinuses formed, the man was worn down by hectic, and eventually the limb was amputated. In the second case, disease commenced in the first metatarsal bone of one foot, engaging the internal and middle cuneiform bones, synchronous with which, strumous glandular enlargement appeared in the neck. Having undergone treatment in the regimental hospital for more than six months, without a prospect of his ever becoming again fit for duty, he was brought forward at the next inspection and invalided. In the third, a lad in the band, of considerable talent as a musician, strumous enlargement of the os calcis occurred, induced by this march; from this he suffered for a very lengthened period, and was eventually sent to his duty in the band, with some increase in size of the os calcis. As he was a useful boy, it was recommended not to subject him to similar exciting causes. In these three cases there were coexistent unequivocal symptoms of a strumous habit. The two first were men in the ranks, under three years service; it is probable, had they been in civil life, these affections might never have appeared; but as soldiers, the work they were subjected to clearly induced them.

Without hazarding any observations relative to the few arguments and supporters of the dissimilarity of tubercular and scrofulous disease, it will be well to assume a common origin, until the diversity is more generally adopted; and consequently, when a suspicion arises, invariably to direct attention to the state of the lungs, and the confirmatory evidence that may sometimes be there obtained.

I have thus endeavoured, as concisely as possible, to remark upon the incompatibility of a strumous diathesis with the duties of a soldier, from its general effects, from its being so little amenable to treatment, and from its being a most decided, formidable, predisposing influence, liable to be aroused to actual disease by the ordinary exciting causes to which men in the army are exposed. Thus then, if the slightest scrofulous disease be observed, no more definite cause is necessary to determine unfitness.

Nodes are generally connected with disease, either syphilitic or mercurial, but it is difficult to assign a cause in some instances, as they are occasionally found of small size on the surface of a bone in healthy robust men. If not associated with, or traceable in any way to, the above conditions, and if of very limited dimensions, occurring in healthy individuals, they should not of themselves necessarily disqualify. The slightest traces of caries or necrosis are usually so apparent as to be at once observed, and their importance so evident as hardly

to require enumeration. Osseus tumours, when of any size, must always disqualify for numerous reasons; there is no possibility of saying to what size they may attain, how they may interfere with the free use of a limb, to what they tend, or what the origin.

"*3.—Weak or disordered intellect.*"

This is a most serious objection to a recruit, and to a degree occasioning want of comprehension and memory sufficient to learn drill, to recollect and communicate orders is by no means uncommon. Were the returns of men discharged under three years service available for reference, it seems highly probable that the inquiry would show stupidity to be a prevalent cause of their unfitness for the army. Yet it appears more than likely, if the subject were investigated at the period of enlistment, the admission of such men would be of less frequent occurrence. A persistence in questioning and testing the memory and power of comprehension, would usually manifest any deficiency. This is a feature not invariably recollected at the time, and the ordinary casual questions put during the examination can be answered by the most obtuse, thus it often happens that the deficiency is not discovered until the memory and comprehension are exercised at drill. No doubt there are difficulties connected with the subject, or the unfortunate results would be less frequent; this cannot always be attributable to want of care. Dis-

ordered intellect, by which some form of moral insanity is referred to, is of vastly less frequency than incapacity, to which attention will be especially directed.

Premising that an inability to comprehend, acquire, and retain knowledge sufficient for the requisite attainment of a soldiers's duties, is the appropriate definition for the disability under consideration, any one reflecting for a moment will easily understand the necessity of these attributes in one who has to thoroughly learn the manual and platoon exercise, the perfect use of fire-arms, and the various details in the changes of position required in manœuvering, as well as the understanding and transmitting orders on all occasions. On the other hand, it does not follow because sufficient intelligence to acquire the easily comprehended duties of a man in the ranks is absolutely requisite, that one should seek as a necessity for anything more. How far it may be advisable to discharge all men evidencing an incapacity, is a different matter, but the admission of men whose intellect is much below mediocrity seems highly injudicious. Occasionally it happens that questioning recruits does not elicit conclusive information, as such an important event to an individual as his enlistment, appears capable of occasioning, in some instances, an excitement sufficient to stimulate answers that do not attract attention, though stupidity may be ordinarily characteristic. This idea suggests feasibility to me from a belief in

its observance, and from the circumstance of some such cause accounting for the approval of a portion of this class of men, for as was previously observed this cannot always be the effect of carelessness. Were we universally to reject men who answered queries vaguely and inappropriately, many a country lad in England, and more particularly in Ireland, capable of becoming a good soldier, would be lost to the service. Corroborative evidence, to some extent, is derivable from other sources; the expression of the countenance is often a good indication, so likewise is cranial irregularity, of the power of the understanding The most usual, as well as decisive irregularity, is actual deficiency in size.

I purpose, now, to briefly observe how far this can assist the elucidation of the subject; premising, however, that it will be in a limited measure, and altogether subsidiary. The descendants of the Caucasian race are supposed to be the most intellectual and successful in the cultivation of the mind, their cranial developement is said to be larger and more perfect than the Mongolian or Ethiopian. "The Caucasian skull is round and symmetrical, the posterior extremity bears to the anterior the proportion of about three to two," the forehead is high and wide, the lateral portions and occipital complete this tendency to roundness. A large head is considered more consonant with a high order of mental faculty than a very small one, yet it does not follow that such must be the case, or that a very

large head is more influential in the function of innervation than one of a medium size. It is generally believed by physiologists, that the grey neurine which forms the superficies and is disposed in other portions of the brain, is the source of nervous power. Now the extent of this grey neurine must depend on the size and regularity of the convolutions and involutions much more than on the size of the brain itself, which is chiefly produced by the amount of white substance, supposed to be merely the afferent, efferent, and communicating medium of volition. In man the extent of the convolutions and the depth of the sulci vastly exceed those of animals, in many of which they are not perceptible, in others rudimentary, and in all remarkably inferior; in the case of idiots and very old people they are likewise found usually less developed. Some animals have actually larger brains than man, others larger in proportion to their size; but as in these the extent of grey neurine differs but little from the actual magnitude, it is easily understood that the sulci and eminences affording so much a greater surface for the vascular and energetic tissue, man must be pre-eminently superior in the phenomena dependant on the functions of the brain. These conclusions are quite irrespective and irrelevant of the idea of individual faculties or their residence in certain convolutions, called organs. In a similar way, assuming a difference in the developement of the convolutions and sulci, it may to some extent be explicable that a large headed man may

be inferior in intellect to a smaller, though no doubt this is very far from comprehending that most inscrutable consideration. Nevertheless, it has been ascertained by extensive observation, that if the actual size of a man's head be less to any considerable amount than certain established measurements, proved to be the average of sane and intellectual individuals, there is often a deficiency of intellect. This is a fact well-worthy of attention, though by no means a conclusive point, inasmuch as a similar state of intellect is met with in full-sized, well-shaped heads, and sanity and intelligence are consonant with the most mis-shapen and even very small heads. Still this, though diminishing, is far from invalidating the consideration that it is exceptional to find men whose heads are much under the average standard possessing full integrity of mind.

Various plans have been suggested for measuring the head, Camper's and Blumenbach's suggestions are both imperfect for our purpose, and are more calculated for indicating peculiarities in shape than positive capacity. The simplest, easiest of application, and most accurate, is the measurement of the superficies, which exactly defines the desiderata and may be determined by passing a graduated tape from the root of the nose to the occipital protuberance, this space is found to be from $13\frac{3}{8}$ to $13\frac{7}{8}$ inches, from one ear to the other across the vertex from 11 to $12\frac{1}{4}$ inches, and the circumference of the head from 22 to $23\frac{1}{2}$

inches. It is obvious that these measurements will manifest a deviation caused by a narrow retreating forehead, a pyramidal shaped head, or any other deviation creating a diminution either general or partial ; and, as previously observed, if the proportions be much below the above, taken as the average on very particular investigation, a deficiency of intellect very often pertains ; yet there are extensive exceptions, rendering it of less decisive import even as corroborative evidence ; however measurement can be easily understood to be a valuable assistant. The instructions specify that the inspecting medical officer is invariably to ask the recruit a few short questions, such as, to what corps he belongs, what occupation he has previously followed, &c. &c. Were these and similar queries put, with the sole intention of testing the power of the mind, and the answers watched, this would usually be enough ; yet, did a very small head exist, it ought always to suggest the most scrutinizing inquiry by questioning. Still more does the matter appear to me important, when an inclination to dulness is remarked and indecision in answers is appreciable ; these circumstances, though not of themselves conclusive, if they co-exist with the diminution indicated, should cause the man to be rejected.

"4.—*Chronic Cutaneous affections, especially of the scalp.*"

Recruits suffering from this class of disease are not admissible. Yet I cannot dismiss the subject without a brief remark on eruptions in general, as

they are very commonly presented on various portions of the body and suggest some consideration. Although eruptions are most usually disqualifying, some few slight forms, with certain provisions, may admit of less exclusive estimation. It must suffice, without entering into an elaborate detail of that most extensive subject, to glance briefly and in general terms at the propriety of approval under any circumstances. I confess, I approach this question with the greatest diffidence, and having fully weighed the various features presenting themselves, can hardly come to a conclusion how to advise the examiners of recruits, situated in different positions, to act; and having concluded, am not satisfied that I judge rightly.

If a recruit be examined for a district, by either civil or military practitioner, and any eruption observed except scabies,* I would suggest his unqualified rejection; as if a man has to journey any distance to his regiment, eruptions may be suppressed, occasioning illness. Eruptions are sometimes esteemed differently by medical officers; and one might actually make a mistake, imagining a disease to be different from the reality, on a single examination. From any of these causes the recruit would, probably, be subsequently rejected. On the other hand, where recruits are enlisted for one's own regiment, a less restricted selection in trifling cases appears to be a just and advisable admission.

* Scabies is not considered a cause of rejection.

Reasoning thus, the advising of the extension of this limit is solely directed as a suggestion to medical officers examining men for their own regiments. Wherefore, always assuming that chronic, extensive, febrile, complicated or doubtful cases, are inadmissible; a fine robust lad, eligible in every other respect, presenting a slight eruption of the characters of the simple forms of urticaria, roseola, lichen varicella, acne, and possibly one or two others, ought not, in my opinion, to be necessarily rejected.

The idea that every eruption under the specified conditions, irrespective of character, is sufficient to cause disapproval, can hardly be esteemed a scientific or a practical conclusion; most usually no treatment whatever is necessary; thus is there not even a transgression of the *letter* of the instructions. The most important objection to this view, is the possibility of confounding such cases with secondary syphilitic eruptions (which are always to be considered a conclusive cause of disapproval), still, I think, such errors could very rarely occur, and where the least doubt existed, that circumstance alone should decisively militate against the individual.

I have offered the foregoing observations, conceiving that experience and discretion will discriminate between simple and complicated cases, as well as between the tedious and transitory appearances which occasionally occur in healthy men, sometimes almost ephemeral, at particular periods of the year, or from temporary causes or derangements.

A tumour may be situated in any position of the scalp, affording the characters of sarcomatous, vascular, or, adipose tissue; or, in fact, almost any species of tumour, capable of forming in other positions, may be developed in this situation. Tumours of the scalp seldom continue stationary; consequently, though benign, they may increase to such a size as to render removal necessary. With such a prospect alone it would be scarcely prudent to consider a man eligible having a tumour so placed.

"5.—*Severe injuries of the bones of the head.*"

The fingers are invariably to be applied to the head for the purpose of ascertaining if evidences of fracture of the skull, exfoliation, loss of substance, tumours, or other irregularities, exist. The effects of fracture, especially with depression, are often very formidable, occasionally exciting serious disabilities. Effects in various degrees may be produced on the sensorium, persistent, periodic, or casually excitable. Epileptic fits are sometimes a sequela of such injuries. We are all familiar with these results, yet instances of considerable evidences of injuries of the cranium are occasionally encountered without subsequent serious disturbance of the sensorium, especially when pressure on the brain has not been created,* but such instances are not of decisive value

* A soldier of the 31st Regiment, at the battle of Sobraon, received from a musket ball a fracture of the left parietal bone near the vertex, almost engaging the sagittal suture; a large piece of fractured and comminuted bone was removed, and the dura mater, apparently uninjured, was exposed to more than the size of a shilling. After the first few days he hardly complained of inconvenience. He was retained in hospital until

in enlistment. The chances of the reverse pertain, and in the few cases likely to be presented affording appearances of fractured cranium, it would not be justifiable to run the risk.

Cicatrices on the head and prominent parts of the face are to be looked for and should receive special attention. It does not appear that much importance has been heretofore attached to these marks as possible indications of epileptic fits. Any notice of the varieties and symptoms of a paroxysm, feigned or real, is altogether irrelevant to the intention of these remarks; nor is the subject calculated for further investigation than, as it happens, that this serious periodic disease sometimes exists in young lads who enlist, and that individuals so afflicted are quite inadmissible as soldiers for numerous reasons; hence all circumstances which can assist in discovering its prevalence are well deserving of observation.* Epileptics

some mechanical means of protecting the brain could be procured. However, about two months after the receipt of the wound, while riding in the bazaar, my attention was attracted by a crowd of natives round a drunken soldier; on going closer, I was astonished to recognize my friend, who had escaped from hospital, and was, about noon, in the month of April, drunk, without the least covering on his head, his hair shaved off, and a small portion of the dura mater exposed to the direct rays of an Indian sun, offering to fight any number of the assembled natives. He was, as soon as possible, conveyed back to the hospital; even from so great an exciting cause there did not follow the least ill effects.

* Nearly every experienced army medical officer has witnessed epileptic or other very similar convulsive seizures as happening to soldiers who have never previously been so influenced; such fits may occur once or twice or more frequently, and may not for a very long period or possibly never again appear, having produced only effects for the time being. The observance and recollection of such cases does not in the least diminish the serious objection to admitting epileptics into the army.

may be considered in two degrees, as the most concise means of clearly arranging and appreciating the subject, and a division adopted into confirmed epileptics and those who have had occasional fits at periods of different intervals between the attacks. But prior to these considerations, it may be well to ask the question—are there any distinctive characteristics anatomically arising, and externally appreciable, by which a man who has had fits is to be detected.

The attempt at a foundation on such premises could never be established, for the simple fact that though irregularities in the shape or size of the head are often observable in epileptics, and in such cases are most usually admitted to be intimately connected with the predisposing influence, still epileptic and other convulsive seizures are commonly known to occur in men in whom there are no anatomical derangements whatever; the presence of peculiarities in the shape or size of the cranium is to be remembered as possibly associated with this condition, and attract enquiry for further information, which may be possibly detected as effects either constitutionally or accidentally produced.

The appearance of a man subject to frequent attacks of epilepsy, generally speaking, bears traces of ill health; the features become enlarged and coarse, the eyelids swollen, lips thick, pupils dilated, and cheeks pale. Dr. Hector Gavin remarks, "to the attentive observer, the true epileptic is a man

quite different from every other. It is rare to find in him any trace of hilarity, spirit, or vivacity. Nature, or rather the disease, has imposed upon his face a character which seems to be composed of sadness, shame, timidity, and stupidity." It is to be recollected these are the evidences of confirmed epilepsy, and, as such, not likely often to be presented in a man about to enlist; however, the admission of men with modifications of these appearances has occurred, thereby requiring an examiner to be upon his guard. The examination of books on this malady, or the experience of medical men, does not elucidate the discovery of individuals who have only occasionally had fits, and in whom accidental causes might renew the disease or establish its permanency. In fact, the opinion of Mr. Marshall, and others, is that there are no positive symptoms by which one can usually decide in such cases. These are especially the instances we are called upon to discover, and no indications seem so determinate when unequivocally found, or at least so likely to assist, as cicatrices the result of falls.

I have frequently examined soldiers subject to occasional convulsive seizures, and in many instances without being able to detect a single valuable evidence beyond such marks; true, they may not always exist; but, when observable, they should be well considered, and in instances where suspicion is in the least excited, the most careful scrutiny is incumbent.

Private B. A., — Regiment, has lately had three epileptic seizures, on two occasions when on guard. About a year before he had a fit of a similar nature while on sentry, and was accidentally discovered by a civilian. On carefully examining his head, countenance, and body, no reason can be discovered why he is epileptic; he is a good-looking smart soldier, twenty years of age; he denies ever having had a fit prior to enlistment, or to the occasion first referred to. His sister was subject to epilepsy. His fits are not on all occasions true epilepsy; they sometimes present the characters of epileptic vertigo; they are unquestionably genuine; which opinion has been formed by myself and corroborated by another. Were he to appear before a medical officer for examination on enlistment, the only possible guide appreciable for suspecting epilepsy, is the presence of three cicatrices on the head and two on the face; all of which have been received while in the service; one of those situated on the eyebrow is very large and the most recent.

"6.—*Impaired vision, inflammatory affections of the eyelids, immobility, or irregularity of the iris, fistula lachrymalis, &c. &c.*"

Deformity or irregularity of the appendages of the eyes is visible almost immediately, their importance is then to be determined. An encysted tumour may be situated in any part of the lids, superficial or beneath the muscles. If of any size or likely to

require interference for removal, it is inadmissible. Whether ptosis is to be accounted a disability, must depend on its origin and amount; if it does not result from paralysis, and is not so extensive as to impair vision, it could only be regarded as slightly disfiguring, and therefore obtain no importance. Ophthalmia tarsi, trichiasis, districhiasis, entropium, ectropium, or any affection calculated either to injure the eyeball or subject it too much to external influences, are disqualifying. Enlargement of the lachrymal glands, affections of the puncta, lachrymal ducts, sac, or nasal ducts, are likewise causes of rejection, as they are at all times troublesome, may be obstinate and end in various derangements, affecting the constitution or the organ of vision, or occasioning at least stillicidium lachrymarum. Conjunctival inflammation, though of slight degree, may degenerate to serious mischief. Uncertainty invests the most experienced in pronouncing the result of any case, and the well-known contagious nature of ophthalmia is to me, I admit, a source of grave apprehension; such as can be fully appreciated, in relation to soldiers, only by those who have served in a regiment that has seriously suffered from this affection. Sometimes a few vessels only are observed ramifying upon the visceral layer of the conjunctiva; in these cases, if the lids are everted, very often a granular condition will be discovered; an invariable disqualification. Slight redness of the conjunctiva is sometimes temporarily excited by

casual irritation or a night's debauch prior to enlistment; such an appearance is easily distinguished, and never ought to be confounded with inflammation. Cloudiness or specks in the cornea have received the several names, nebula, leucoma, and albugo. Nebula is generally understood as a diffused opacity or haziness situated superficially, and might be the result of slight injury or ophthalmia; in healthy subjects absorption commonly takes place. Leucoma is the opacity caused by a cicatrix, the absorption of which is always very doubtful. Albugo is a deposit of lymph in the deep layers of the cornea; the absorption of this, likewise, must never induce speculation in a recruit. Were any one of these opacities situated in the axis of vision, impairing the sight of even one eye, it is a decisive cause of rejection. If recent, small, and in a healthy young man, probably absorption would occur. Nevertheless, it might not; and were accident or disease hereafter to injure the sight in the sound eye, the discharge of the soldier would most likely be requisite. A soldier having impaired vision of one eye, or having totally lost it, provided the sight is perfect in the other, is by the fifteenth article of the Pensioning Regulations, to be retained in the service; yet a recruit, similarly situated, is obviously ineligible. Affections of the eyes, or serious results of disease, so evident as not to be overlooked, such as staphyloma, onyx, hypopium, injuries to the iris, synechia, &c., need no special remark. The only

diseases of the internal structures of the eye liable to be presented, at the same time likely to deceive, may be enumerated as amaurosis and cataract. Amaurosis is an unquestionable disability; yet, I believe, very rarely indeed is this disease presented in a young lad, eligible in other respects, offering himself for a soldier. The size of the pupil, the probable immobility of the iris, and the limited power of vision, would usually excite suspicion, when a more accurate examination would be likely to reveal it.

Cataract, on the contrary, is by no means so rarely met with. Without reference to origin, density, position, or amount, if the least haziness is detectable at the bottom of the eye the individual is unsuited for duties requiring the sense of vision for the destruction of others, for his own preservation, and all the minutiæ incidental to a soldier's occupation. Incipient or slight cataract can be easily overlooked; we have always a very powerful assistant in the actual amount of a man's vision, a test that must be borne in mind as of necessary application in every examination. This, and perception of the opacity of the lens, are the only decisive guides; as to immobility of the iris, if the disease be incipient, unless accompanied by amaurosis or synechia, motion may be almost as perfect as in a healthy organ. Did the least suspicion exist, the pupil could be quickly dilated with belladonna or atropine, and the examination accurately prosecuted. Most usually a defect in the clearness of the lens, if present, will be de-

tected. If with these aids the imagined change be not rendered evident, and if the accuracy of vision at various distances be perfect, one might reasonably conclude that a cataract did not exist.

"7.—*Deafness, copious discharge from the ears.*"

This prohibition is to be understood in the fullest sense. The examiner is always to be satisfied of the accuracy of hearing in both ears, and the freedom from all mucopurulent or other discharge beyond the ordinary ceruminous secretion, it matters not whether coming from the ossicula or merely from the lining membrane of the auditory canal. Cases might occur in which the use of a speculum would determine a doubt, yet it is in the treatment or invaliding of soldiers that the inestimable value of this aid for rendering apparent morbid changes in the colour or structure of the membrana tympani, or meatus auditorious externus, is so useful.

Any affection of the nose, except polypus, creating a disability, would not be likely to escape observation. Ozena, disease of the bones, or polypus, may be enumerated as those most likely to occur; the two former are easily recognized by the discharge, fetor, and other evidences; the latter, however, might be so situated as not to be observed. I believe polypus ought not to be a questionable disability; there is often difficulty of cure; they grow repeatedly after extraction, are occasionally distressing, and their number not always determinable. When polypus is

suspected, the assistance of a speculum will usually determine the matter at once.

"8.—*Loss of many teeth, or the teeth generally unsound.*"

I am aware this is a most disputed point: different medical officers forming their own estimate of the extent intended to be implied. Yet it appears that such variety of opinion is hardly admissible, as by adhering even to the letter of the instruction, considerable latitude is allowed, and were a specification to a very confined limit intended, doubtless such would have been expressed. Having said thus much, it must at the same time be acknowledged, that the objections to unsound teeth are numerous and valid when judiciously applied. Many have stated that the loss of the incisors of either jaw incapacitate a soldier from effectually biting off the ends of cartridges when loading. This is unquestionably the case, as some force is requisite to tear the strong paper of which they are constructed; an act that could not be quickly accomplished if deficiency or decay of the incisors was extensive. A serious objection is likewise constituted in the fact that general unsoundness or loss of many teeth is commonly an indication of a delicate constitution, symptomatic of depraved health, or occasionally of the strumous diathesis; sometimes of the abuse of mercury, or the effect of mineral acids. The teeth are a most important provision in nature for the perfection of digestion; they serve as appreciable distinc-

tions in classifying the animal kingdom; their peculiar shape, arrangement, and density differing, and evidencing not only the nature of the food, but how essential in some is accurate mastication to the accomplishment of digestion. The loss of many molars and bicuspids must tend to the production of dyspepsia, thereby alone injuring the general health or assisting the train of causes producing disease of organs where there pertains any peculiar idiosyncracy of constitution. Decayed teeth often create excessive suffering from head and tooth-ache; abscesses form in the gums, necrosis is sometimes induced, ulcers form on the tongue, and occasionally violent inflammation is produced in this organ and adjacent tissues. Decayed stumps are often most difficult of extraction, and the circumstance of men coming frequently to hospital on account of any of the very painful results of decayed teeth, which may admit of only tardy or temporary relief, should assist in deeming this a decided disability when extensive. Nevertheless, the fact of a recruit being otherwise eligible always deserves consideration, as mitigating the degree of many equivocal objections.

In the case of enlarged tonsils, certain contingencies are to be recollected; the estimation of which will cause this common affection to be regarded in a serious light. The difficulty of reducing the size of these glands when chronically enlarged, at times the impossibility is constantly experienced. An individual so situated is frequently subject to inflam-

mation and increase of their size from exposure; they are likewise very often associated with a strumous habit.

Were cicatrices discoverable on the palate, or back of pharynx, they would indicate ulcers, most likely syphilitic or mercurial at some period, and the possibility of their re-appearance or of the occurrence of other symptoms elsewhere at a future time, more particularly if taken in connection with the slightest evidence of delicate health.

"9.—*Impediment of speech.*"

An impediment of speech sufficient to incapacitate a soldier challenging on sentry, or repeating the orders delivered to him on his post, can be generally discovered without much trouble or ingenuity. To detect simulation is often a point of great difficulty, but to discover concealment of the disability by questioning, if persisted in, is not usually hard of accomplishment.

"10.—*Want of due capacity of the chest, or any other indication of liability to pulmonic disease.*"

Deformities of the chest are always important, and when remarkable most usually indicate a weak constitution, the effect of rachitis, curvature of the spine, some injury, or the sequent of disease of the contents of the thorax. In any case they suggest great caution, as the importance of the contained viscera to sustain life under exercise requiring physical power or resistance to fatigue, admit of no com-

pression curtailing the limit of any viscus, or impeding its complete action. Want of capacity is constantly congenital, and if of sufficient amount to be designated a malformation is referable to a weak constitution, as they are most commonly co-existent. Malformations usually consist of flatness of the ribs, laterally, with projection of the sternum in front, and sometimes curvature of the spine, or the lesser modification of simple chicken breast, which is a prominence of the sternum with a contracted chest. The mis-shape is occasionally the reverse of this, presenting a depression of the sternum to a degree sufficient to compress the viscera, and possibly an inversion of the anterior convexity of the ribs. A variety of mis-shape very commonly encountered is a flat thorax with diminished antero posterior diameter. Any of these deviations, when excessive, are rarely consonant with a healthy and robust frame, (though emaciation is not always an accompaniment), and the predisposition to disease in chests so shaped is very generally drawn.

When deformities of the chest are the result of any organic disease of the contained structures, likely to be met in a man offering himself for enlistment, I believe by far the most common is contraction of one side after an absorbed pleuritic effusion. This may vary from scarcely perceptible flatness to an amount which produces falling of the shoulder and a crooked figure. Extensive dilatation of one or both sides of the chest

from vesicular emphysema of the lungs, or flatness or depression of a portion of one side of the thorax from tubercular deposit are most improbable contingencies to be observed in such men. Projection over the cardiac region consequent on dilatation or hypertrophy of the heart is equally improbable. In all instances where these irregularities are extensive, the individuals should be rejected, and when even slight, though not associated with a delicate appearance, they ought to be approved with great caution.

Before the examination of the chest is deemed concluded, I would submit that in all cases observation be directed to the condition of its contents, as considerable muscularity and the appearance of health can be associated with different organic lesions of the lungs and heart; this is a fact indisputable, and familiar to all conversant with thoracic disease and pathological research. Without exploration of the chest itself, who can tell that a man, seen for the first time, without knowing anything whatever of his previous history, in whom disease has not produced any apparent constitutional derangement, or muscular tenuity, sufficient to attract attention? Who can tell that rheumatism has not left an indelible alteration in the structure of the heart? The mitral or aortic valves may, at that moment, be yielding an abnormal bruit, or pericardiac adhesions, by irregular action, &c., may be laying the foundation of hypertrophy, or this disease may actually be pre-

sent. Chronic bronchitis may exist, or even that protean disease consumption may have sown its deadly seeds.

The diagnosis of thoracic disease is determined by the association of physical signs and symptoms; the collection and comparison of the greatest number of these features are the only certain grounds upon which the physician can ordinarily draw a conclusion. Let us reflect upon the position of a medical officer examining a recruit,—where is the possibility of comparison? Where are the group of symptoms affecting the individual relation of the diseased organ, or the phenomena of organic life? except whatever general effect may be produced on the outward appearance of the man, none; (and I am assuming instances where general effects are not very appreciable). If asked has he a pain, he will deny it; has he a cough, he will deny it; does he suffer from dyspnœa or palpitation, the answer will be the same; the pulse may declare nothing decisive; wherefore one is left without resources from symptoms or previous knowledge, and thrown altogether upon evidence derivable from the actual exploration of the organs themselves;* the object is to deceive, so that circumstances likely to militate against him are concealed. Fortunately, in the examination of recruits, a necessity for accurate diagnosis does not often

* It is probable that the spirometer might be of great advantage in determining the fitness of recruits. The possibility of testing the capacity of the lungs seems a valuable assistant.

exist; the detection of an abnormal state is most usually sufficient.

The ordinary respiratory murmur and the normal sounds of the heart, when interfered with by disease, are variously modified, and afford to the practical stethoscopist a means of ascertaining the integrity of these organs, which is still further assisted by the signs derivable from percussion. Affections engaging much extent of the mucous membrane of the lungs, or the parenchymatous tissues, or the fibro-serous membrane, are always detectable through the modifications manifested by auscultation, including phenomena in respiration, vocal resonance, and percussion. Auscultation, then, is almost the only resource for discovering the state of the organs within the thorax in the examination of recruits. I believe it will always be found sufficient, except in the invariable detection of incipient tubercular deposition; however, it occasionally happens that, in these cases, there is no previous history, no symptoms; the invasion is so gradual, the developement so insidious, that some time may elapse before appreciable features are manifested.

It would be out of place here to enter into a consideration of acoustic signs, and what phenomena, at the present day, meriting particular notice, are likely to be met in the field of observation contingent to the practice of a regimental medical officer. Periodicals and books on the practice of physic treat of the subject, and together with the various mono-

graphs, have hardly left a deficit in this fascinating study; fascinating it must be, when it is recollected what a mass of original and argumentative matter has been written since first Avenbrugger's neglected remarks on percussion were given to the world. When marks of medical treatment are perceptible, they point decidedly to an organ affected at some period, and suggest inquiry; yet it appears to me that recruits, even though free from such evidences, are not thoroughly inspected unless the chest is subjected in some degree, varying from circumstances, to exploration; and despite the extended range of a man's professional acquirements, he omits one of his greatest assistants, both as regards easy application and importance, if he neglects auscultation.

The forms of pulmonic disease most likely to be met with during the examination of recruits are certainly incipient disease or chronic forms, where the lesion is not an extensive organic change. Extensive results of permanent chronic disease are very seldom presented, yet by reference to the published opinions of the most experienced authorities on pulmonary affections, it may be understood that alterations in structure of a chronic character and permanent condition, particularly when they are the gradual products of disease, and originating in youth, are not always connected with an appearance of depraved general health; but the degree of the abnormal change must exercise an important influence in such an association.

Neither dilated bronchial tubes, nor vesicular emphysema, are states of the pulmonary structure that could often be presented; yet there are no reasons why such might not occasionally be the case. When dilated bronchial tubes are the sequelæ of pulmonary disease in youth, and of small amount, symptoms are by no means constantly severe, and deleterious effects, however certain, may not seriously arise until a more advanced period of life, should not the ordinary exciting causes have been much submitted to. Laennec says, "In cases even of the most extensive dilatation, the symptoms rarely indicate the severity of the disease; most commonly there is neither fever (at least continued) nor emaciation; and if the patient is not obliged to undergo severe bodily labour, he is scarcely sensible of any diminution of strength." Surgeons of the present day generally esteem dilated bronchial tubes a more serious disease and tending to more fatal effects than Laennec has described; still if this condition of a bronchial tube were limited, with the provisions previously specified, there does not appear any reason to render it impossible for a man so circumstanced to offer himself for enlistment. All medical officers who have served in the manufacturing districts and have been in the habit there of examining recruits, must be aware of the numerous instances and various forms of pulmonary diseases met with in such men.

Vesicular emphysema, or dilatation of the air

cells, must be included as a permanent chronic alteration of the structure, which, when prevailing to a limited extent, is occasionally seen in persons sufficiently robust not to attract any attention from appearances of ill health; and though, as previously remarked, not often likely to be discovered in recruits, the possibility is by no means equivocal. A little time back I witnessed this state in two young soldiers of the 31st Regiment, one died from subacute bronchitis, induced by some exposure, his disease becoming complicated with passive effusion into the serous cavities. The other, about a year after joining, was admitted into hospital; his general appearance, when dressed, was that of a robust man; he complained of cough with scanty expectoration and inability to endure the tightness of his belts and jacket buttoned, or the pressure of his leather stock. On stripping him, phenomena became much more apparent; the chest was greatly dilated, nearly forty inches round the upper part; the sterno-mastoid muscles, the pectorals, intercostals, and abdominals, were engaged in ordinary respiration. Nevertheless, with this great muscular action, the motion of the thorax was diminished, the chest was clear on percussion, the respiratory murmur nearly everywhere very feeble, and in some places indistinct; as he was a well-grown man, and when free from an accession of bronchitis, to which he was very liable, displayed no very marked symptoms, he was retained under treatment for a lengthened period. Any excess of

duty, or the complication of even a slight attack of bronchitis, so completely compromised his efficiency that he was eventually discharged. I have no doubt that both these men suffered from dilated air cells on enlistment, when possibly the absence at the time of bronchitis renders it more easily understood how the diseased condition escaped detection.

Much more frequently than either of the disqualifying states just adverted to is the observance of the effects of pleuritis in the form of flattening or falling in of some portion of the chest. Although this has been previously alluded to when the causes and importance of the deformities of the chest were under consideration, I think some further remarks are here required. The degree of contractions of the chest, the sequelæ of pleuritis, is very various, and usually, ceteris paribus, directly connected with the severity of the attack. When occurring in youth the state of contraction is often removed, and when occurring in adult life is occasionally observed to produce little or no impediment to the exercise of arduous avocations. A man, at present in the 4th Light Dragoons, suffered from pleurisy with extensive effusion into the left side of the chest in the early months of 1851, he recovered with a contracted side; the left shoulder has dropped considerably, and the anterior portion of the ribs from their angles is much flattened; the respiratory murmur in this side is in every situation apparent but feeble; there is some comparative dulness on percussion.

This man has done all his duties as a dragroon since the summer of 1851. Those who are practically aware of the fatigue of riding without stirrups, &c., will bear me out in the conclusion that his lungs must be fully capable of supporting no trifling continued exertion. A fine young soldier, in the 31st Regiment, recovered from pleurisy with effusion of right side, the termination was incomplete expansion of the inferior half of right lung, with flattening of the ribs. Two years after the acute attack, this portion of the chest afforded a dull sound on percussion, and the respiratory murmur was very indistinct; for some time it was puerile in the remainder of the lung. He grew a stout healthy fellow, and on all occasions did his duty without complaint. Here are two instances where the other functions were sustained in health sufficient to endure fatigue by a pulmonary system, whose area for respiration was reduced by disease, but in which the disease ceased, leaving only a mechanical impediment to which the system gradually accommodated itself.

Such complete exemption from all ill consequences where contraction of the side results from pleurisy with effusion, is far less frequently met than an opposite condition, yet may be recognised as, under favourable circumstances, extenuating the total exclusion of every instance of small amount. Nevertheless, except where the presence of very undoubted characteristics of strength and health are fully apparent, it would assuredly be a dangerous

risk to approve a man with any degree of contraction of a portion of the chest, as it is to be recollected that this is a deformed condition, a sequece of disease where, without the opportunity of successive observation for some time, the determination of renewed integrity of the constitution is impossible, and the most usual result is an impaired state of health and predisposition to disease.

I have heretofore remarked upon these morbid states in the succession of the unlikelihood of their observance, and have stated the improbability of either dilated bronchial tubes or dilated air cells existing in recruits, and the much more frequent occurrence of contraction of the chest as a sequence of the absorption of pleuritic effusion. I will now advert to what I conceive to be the most common forms of pulmonary affections in such men;* I allude to bronchitis and incipient phthisis. Extensive acute disease is not likely ever to be observed in these cases, as the organs of respiration are so vascular and their perfection so necessary to life, that at the invasion of acute disease pyrexia and depression are so considerable as to preclude the likelihood of a man's conceiving the idea of enlistment even if able to present himself. Although I have, on very many occasions, detected chronic disease; with the exception of

* The small number of rejections classed under the head of Pulmonary Diseases in the Statistics of Recruiting is accounted for by the likelihood of their being frequently included under the classes "Want of due capacity or malformation of the chest," and "Marks of medical treatment.

incipient bronchitis, I have never met with the case of a man, with any acute pulmonary affection, offering himself for enlistment. As, however, such a case would be usually very evident, it requires no lengthened observation. It is not probable that an individual afflicted even with acute bronchitis of an extensive portion of both lungs would present himself, as it is manifest that such an amount of acute disease is usually accompanied by symptoms impossible to be concealed. Yet a less amount may be observed where the symptoms are not so prominent, and the slight nature of the febrile phenomena produce no inconvenience sufficient to occasion, in the commencement at least, a cessation of out-door employments. These cases, though possibly likely to yield to the ordinary means of treatment applicable in the less severe forms of sthenic bronchitis, are assuredly doubtful in two respects; they may be of uncertain duration, or increase to a more serious state. Wherefore the approval of a man so affected, is, in my belief, a dereliction of the intention of the instructions.

This affection may be present in a chronic form, engaging various portions of the mucous membrane of the lungs; it may be partial or more generally diffused, and is often more evident in some situations than others; even when generally prevailing in a mild degree, it may have existed for years, periodically decreasing, or almost totally disappearing and again recurring; these changes usually depend on

the liability to exposure during certain seasons of the year. The general health may be good, and very considerable muscular exertion may be undergone without appreciable dyspnœa; especially in the interval of freedom from a sub-acute attack, or in cases where the secretion in the bronchial tubes is of small amount. Although this may be the condition in youth, the disease seldom remains stationary; remissions become less marked, and permanent distressing symptoms at length supervene. When the bronchial tubes contain secretion, the perception of this condition, as a morbid state of the lungs, is easily recognizable by auscultation, though the actual diagnosis as regards complication may be more difficult. This is to military surgeons of secondary importance, since chronic bronchitis, unconnected with other associations, uncomplicated by phthisis, dilated bronchia, &c., ought to be as definitively objectionable in the enlistment of soldiers as a pleura full of fluid or a hepatized lung.

Dr. Williams remarks that phthisis "is the cause of nearly a third of the mortality in London, and not much less in Paris;" when it is borne in mind that the deaths in England, from all causes annually, are about one in fifty-one of the inhabitants, what a fearful malady this country is subject to, can be easily conjectured. I find in Mr. Marshall's book,* if those enumerated under the head "worn out" are ex-

* Marshall on the "Enlisting, the Discharging, and Pensioning of Soldiers."

cluded, from January, 1825, to October, 1828, that pulmonic affections formed about a fifth of those for which men were invalided at Chatham; and it is to be observed that this return included men discharged from regiments abroad and old soldiers. Did this return solely apply to home service, it would doubtless be found that these diseases bore a much greater proportion both as to the discharges and deaths, since Dr. Cheyne, in his letter to Dr. Renny, observes, "when the number of deaths in the army from phthisis is considered, which exceeds one-third of the whole (if we take into account those who die of consumption after they are invalided), I am persuaded that the mortality from that disease in Ireland is nearly one-half, &c." The same writer then gives a return of deaths that occurred in the army serving in Ireland from January, 1818, to October, 1826; the total is 2127, of these 888 are consumption alone. Statistics relative to the causes of discharge of men under three years' service are not at present available,* but I have no doubt that affections of the lungs absorb a large proportion.

Dr. Cheyne likewise strongly urges the propriety of mediate auscultation in the examination of recruits. The cases most liable to be overlooked, or affording the most serious difficulty in detection, are those in which tubercle in the first stage is being developed. Symptoms or signs may not be appre-

* These statistics are in course of preparation, and will be available for information very shortly.

ciable, and it requires practice, experience, and care, to detect the first recognizable indications in the incipient production of possibly a gradually advancing chronic disease. Here is experienced the value of accurate percussion, giving comparative or actual local results; here crepitus from irritation long before the existence of softened tubercle, is often discovered by the practical stethoscopist and recognised from peculiarity and localization, or tubercular deposition diagnosed by occasioning impediment to the vesicular murmur, modifying the amount, evenness, and rythm, or causing merely feeble respiration, or by producing changes in the vocal resonance, especially valuable in connexion with the left lung. There is no question, however, but that tubercular deposition may pertain to some degree when physical signs will not always manifest the mischief, much less declare an accurate diagnosis. Nevertheless, one of the causes of difficulty often consists not so much in the detection of actual abnormal signs in a lung as the precise specification of the disease; it is sometimes more a doubt in discrimination than an inability to discover a diseased condition.

The education that most medical men have received, and its practical application in large hospitals, will evidence to every thinking man the danger and uncertainty of these affections, and as he will have learned the means of investigation and induction, little more remains for me to add, than to strongly impress the facts, that the active duties of soldiers

require a respiratory system capable of sustaining animal heat under extensive vicissitudes of temperature, and of supporting the waste of great muscular exertion; wherefore, the free arterialization of the blood essentially necessary for these services is of serious importance. The well-known debilitating effects, mortality, and uncertainty of affections of the lungs, the impossibility of prophylactic measures, and the objection to soldiers spending their time in hospital, are all conclusive reasons for the necessity of the efficiency of these organs in this class of men. Thus the detection of any positive abnormal sign should be esteemed of serious consequence. Further remark is hardly necessary to strengthen so obvious a conclusion. Suppose a man presented himself in whose chest anteriorly mucous rales were detectable, were he young, robust, and healthy-looking, the presumption would be that they were caused by an attack possibly easily admitting of cure; yet who could state that such was the case? who could tell that they were not the commencement of bronchitis, that would in time engage the mucous membrane of every bronchial tube in the lungs, and lay the foundation for chronic bronchitis, dilated tubes, or Laennec's emphysema; this, on one examination, no one could veritably assert. Such, moreover, might be the first perceptible signs of phthisis, for in incipient disease the physical signs are common, there are none pathognomonic. Or it might be an affection eventually to lapse into consumption, for

despite Laennec's denial, phthisis so frequently succeeds to bronchitis, even in persons not hereditarily predisposed, that we must connect this affection with its occasional production, which probably Laennec would himself have admitted, had not his opposition to Broussais influenced his judgment. The subject of bronchitis would more than probably get well, still the chance remains that the amount of derangement sufficient to occasion mucous rales may tend to other serious disease, or lapse into chronic bronchitis; a serious disqualification to a soldier, likely to be continued and aggravated by night duty and ordinary exposure; and though never extending to more fatal structural change, a diseased pulmonary mucous system, endeavouring to sustain active exercise, will usually occasion the man's inefficiency. I might continue occupying more time and space than necessary connecting this or any sign indicative of deranged function with the several organic diseases of the lungs, but I conceive sufficient has already been remarked upon the subject.

Diseases of the heart are much less often met in recruits than affections of the lungs; this is dependant on the less frequency of the actual abnormal condition, and likewise upon its less frequent occurrence in youth than in a more advanced period of life, in proportion to similar conditions of the pulmonary organs at similar ages. Yet the prevalence of affections in this organ, in men offering themselves for recruits, is a fact familiar to army sur-

geons; and, I believe, in a proportion exceeding that shown by "the Statistics," as doubtless many bearing "marks of treatment" over the cardiac region were included under that head. The seriousness of affections of the heart in the class of men usually enlisted bears an extra gravity from the fact that functional derangements are met with in a proportion much less than in the mass of the population, as experienced in civil practice; irregularities are to be esteemed most usually as organic, and here is at once seen how great the importance of detection. The origin may be referred to many sources, as acute rheumatism, inflammatory affections of the lungs and pleura, fevers, hereditary predisposition, besides many others chiefly associated with more advanced age; frequently no period or source is assignable. Acute rheumatism, however, is the great connexion, and its general prevalence throughout the system, is often the cause of the absence of marks of treatment over the cardiac region, from the affection of the heart having escaped observation. It is generally stated that endocarditis, or pericarditis, or both conjoined, occurs in the majority of cases of acute rheumatism, and that the number of those so attacked whose hearts perfectly recover without any sequelæ remaining to lay the foundation of future aggravation is very small. The exact proportion would be difficult to determine, as years often elapse before symptoms and occasionally even signs are appreciable. And how almost certain are those symptoms

to increase where organic structural change has been produced, either connected with the valves or pericardium! Sooner or later they will appear, very rarely is there exemption; and when they do so, though gradually they completely incapacitate for active exertion. As they progress the dyspnœa palpitation and other effects are often followed by secondary diseases, all of which shorten life: such effects may speedily follow or be deferred for years. If valvular disease of the heart or pericardiac adhesions result from an acute inflammatory attack, irrespective of youth or other favourable circumstances, other structural derangements almost invariably follow. Hypertrophy, with dilatation or with some other abnormal condition, succeeds, and produces irreparable mischief.

From the foregoing remarks can be deduced the correctness of the observation previously made, that whenever marks of medical treatment are discovered over the cardiac region, the recruit should be rejected. Such marks point out that an affection of this organ has existed. The very great exception of perfect recovery, the difficulty where the pericardium alone has been engaged of determining that recovery is complete by physical signs or otherwise, the almost certainty of further derangement, in the form of structural change being induced where any morbid result remains, and the eventual unfitness of such a man for the duties of a soldier, all clearly verify the impropriety of passing such men when marks of

treatment in this situation pertain, even though signs of persistent disease are not appreciable. Thus then it may be truly said that it is only where marks of treatment are not observable that the cardiac region requires exploration.

Similar reasons to those offered with reference to pulmonic lesions preclude my entering into detailed remarks upon cardiac diseases further than to observe that disease, to an amount capable of interfering with even ordinary occupations, may exist in the heart and totally escape observation, unless auscultation be resorted to; and that disease, to an amount sufficient in time to produce similar effects and shorten life, may exist unknown even to the subject of it, and be utterly impossible of detection by a medical officer by any other means than auscultation. I happen, at present, to have an instance under my observation bearing out the latter assertion of the existence of a cardiac derangement of which the man affected is totally unconscious. J G., a soldier in the 4th Light Dragoons, in November, 1851, suffered from a very severe attack of acute rheumatism, in the course of which endo-carditis was developed. He recovered with a permanent bruit de soufflet accompanying the systole, of so loud and prolonged a character as completely to mask the second sound; yet this man is capable of performing the most active duties of a dragoon, without the smallest inconvenience. The great probability is, that urgent symptoms will eventually arise in this man, though for

years he may perform his duties. Still, even in this instance, were the hope of exemption from increasing effects more bright, exceptional cases are no arguments against the seriousness of admitting men with any form of abnormal condition of the heart into the service. Such instances likewise manifest that the effects and not the existence alone of diseases of important organs should subject soldiers to be invalided. Nevertheless, whenever organic diseases of the heart occur in regimental practice, the surgeon is almost invariably obliged to bring forward the subjects for discharge. I could adduce very many examples illustrative of this point, but the subject of invaliding soldiers is only admissible here as illustrating the importance of the question now under discussion; therefore, the following case, the most recent under my own observation, must suffice. A fine young soldier, aged 26, about three years ago, suffered from pleuro-pneumonia of the left side; the inflammation extended to the pericardium, as evidenced by frottement, &c. He apparently recovered, but, about two years after, decided symptoms of cardiac disease became apparent. The sequelæ of the acute attack were at first supposed to be adhesions of the pericardium, and most probably the diagnosis was correct; latterly however, hypertrophy with dilatation of the left ventricle, was diagnosed; he was very nervous and distressed, continued exertion produced violent palpitation, irregular action of the heart and bleeding at the nose, as well as dyspnœa.

The usual signs and symptoms were present on ordinary occasions; his muscular developement was not impaired. After many attempts were in vain made by treatment to mitigate his symptoms so as to enable his being retained in the service, he was invalided. By these two cases another element in the examination of recruits was illustrated, namely, the necessity of auscultation for the detection of derangements of the heart. In the first there are no marks of treatment, a bruit de soufflet is the only evidence. In the latter, were there not marks of cupping, the man's muscular appearance might easily have deceived.

Attention in diagnosis is not infrequently requisite to determine in another species of cases, in which too great caution may arise; where a medical officer, aware of the unfitness of the subjects of cardiac disease, may too cautiously decide, and deem symptoms and signs associable with perfect health as dependent on structural alteration in the heart. I allude to the effect sometimes produced on the impulse and motions of the heart by the power of mental emotions while undergoing examination. Many feelings conduce to produce these effects; the importance of the step of enlistment, anxiety, the irrevocable act, &c., to which may be added the muscular exertions usually undergone during the routine of the investigation. Some such influences seem capable occasionally of increasing the frequency and impulse of the heart's motions, and may lead to the idea of

hypertrophy or other form of morbus cordis, when it is a mere functional and temporary effect of a perfectly healthy organ. A reference to this possible cause of mistake is alone sufficient; as allowing the recruit to stand aside for a few minutes before completing his examination, will usually manifest the temporary nature of this functional defect.

"11.—*Debility of the hands or arms caused by palsy, old fractures, especially of the clavicle, contraction of a joint, mutilation, extenuation, deformity, ganglions, &c. &c.*"

The detection in these situations of imperfections, either malformations, or the effects of injury or disease, is, generally speaking, unattended with difficulty; they are usually mechanical in their effects, and as it is not probable that any affection of the hand or arm would be symptomatic *per se* of constitutional derangement, without other obvious concomitant characters, such disabilities are consequently local as to cause and position; being thereby so apparent as that one thoroughly informed in the duties of a soldier, unless from an accidental oversight, ought rarely to make a mistake, either from omission or in estimating the extent of incapacity. For the furtherance of the examination, the different motions of the various joints included in the upper extremities are to be rigorously investigated, and their components so inspected as to provide for every portion being

brought under observation. The above remarks, as connected with the feasibility of a definite criterion, must be qualified however in connexion with one relation, namely, the actual amount of mutilation of a finger or fingers that preclude a man's entering the service.

The easiest way to comprehend this question appears to me to divide the consideration into mutilations that bonâ fide incapacitate a man from performing the duties of a soldier, and into those which may not in a certain arrangement incapacitate, but which in all cases without this provision it would not be prudent to approve. These considerations again involve the question as to whether the recruit is to serve in cavalry or infantry; the importance of this last point is highly essential, inasmuch as I conceive no mutilation whatever could be admissible in a dragoon; though to a slight degree such is not necessarily altogether incompatible with the duties of an infantry soldier. To a cavalry soldier in action the right hand is his sole means of destruction, possibly of defence. To wield a sword, or use a lance, the grasp must be perfect; his life and value as a dragoon may depend on his strength and dexterity in the command of his weapon. It is likewise to be borne in mind, that reasons similar to those requiring complete integrity of certain fingers in an infantry soldier, hereafter to be mentioned, apply here. With reference to the left hand, if one reflects how completely the fingers and thumb

are employed by the reins, it can at once be seen that no defect in any could be sanctioned.*

Regarding infantry, in this particular, a less restricted limitation can undoubtedly be assigned, as the bonâ fide essential indispensable for actual duty, since it does not appear that the motions necessary in the manual and platoon exercise, need uncompromisingly the separate use of all the fingers. It is essentially necessary, however, in every branch of the service, that the thumb and index finger of each hand must be perfect, they are requisite for grasping an object with firmness in every use of the hands requiring manipulation, and the index finger of the right hand is indispensable for the trigger. On the subject of mutilations of the fingers, I beg to introduce the remarks of Mr. Marshall — "By the French code, a conscript is not to be exempted from service on account of a mutilation of a hand, unless he has lost a thumb or the fore finger of the right hand, or two other fingers of one hand. The loss of any finger of a hand should in general

* One side of the birdoon rein passes over the fore finger, between it and the thumb; the other passes round the outside of the little finger, the bite resting in the palm, except when a man rides on the birdooon; then one side of the rein passes between the little and ring finger of the right hand; an additional reason why the perfection of the right hand is necessary to a dragoon, as he may at any time have a horse he cannot ride on the bit. The bit reins pass, one side between the ring and little finger of the left hand, and the other round the outside of the little finger, the bite passing up the palm to be grasped by the thumb and fore-finger, thereby occasioning separately the use of the thumb and three fingers; the integrity of the middle is necessary in confining the reins, as likewise in completing the grasp of the carbine when firing from horseback.

cause a man to be rejected; and no man who has lost the last joint of the index finger of the right hand should be approved." Having consulted, by correspondence, some of the best authorities on military surgery, I am inclined to think a man ought never to be enlisted who is deficient of a finger removed from the metacarpal bone, inasmuch as such would most likely weaken the hand and occasion great awkwardness, unless the operation was performed at a very remote period; and the inflammation resulting from the injury or disease requiring amputation, or from the actual amputation, will usually be found to have caused adhesions, puckering, thickening, or etherwise mutilating the palmar fascia, muscles or tendons, which to a greater or less extent limit the power of the hand. These objections cannot be urged to so great a degree, in cases where the last or in some instances where possibly a portion of the second last phalanx has been removed from the middle, ring, or little finger of either hand.* This may have been resorted to in instances of injury or disease, and if the integrity in flexion, and extension of the remaining joints of the finger pertain, if there is but one mutilation, confined to one hand, such need not, in a good recruit, necessarily dis-

* The observations here made with respect to men who have suffered amputation of a portion of a finger, are only in reference to head-quarter recruits. Although entertaining a belief of the fitness of such men under the specified conditions, a Staff Surgeon might at any time think differently. Wherefore I would not recommend the passing of men who had lost a portion of a finger, if they were to undergo a second examination.

qualify; but the maiming of two fingers would be likely to weaken the hand, occasion awkwardness, interfering most probably with the accurate accomplishment of the manual and platoon. An objection has been urged to the approving of men under such circumstances, that a man may at any time plead an incapacity for service; the force of such a plea, in this case, could never hold good. If the integrity of the hand was established at enlistment, and the flexion and extension of the remainder of the maimed finger ascertained, no assertion of this nature could be maintained or believed; an inability might almost as appropriately be urged in a case where no evidence whatever existed. Still subjects having suffered the removal of a joint or other portion of a finger are not invariably fit for soldiers, as it frequently occurs that a stiff finger results after an operation. This is very likely to happen if disease has been the cause of amputation, but may result from the inflammation consequent upon injury or amputation; this complication would create an important difference; a completely stiff finger is a serious obstacle and ought to cause unfitness in a recruit, as being not only useless but in the way, materially interfering with the appliances of the hand. Contracted fingers are altogether objectionable; they unfit a man in nearly every relation to his duty, weakening the hand, causing awkwardness, and impeding him almost universally. I am aware that the fingers enumerated as admitting of amputation

to the amount specified are used in performing different motions, but they are chiefly used collectively; and I have ascertained that without almost perceptible discrepancy in instances of partial loss, provision can be substituted. It is likewise to be remembered that an infantry soldier having his firelock in both hands when at a charge, the loss of a portion of one finger could not be materially missed, thus differing essentially from a dragoon who is but a one-handed man in the use of his weapon.

Exostoses are occasionally observed on the metacarpal or phalangial bones; if large or numerous they are almost invariably constitutional, indicative of other affections.

Paralysis might be met in one or more fingers, the consequence generally of injury; this is disqualifying without exception. Paralysis, to a greater extent, engaging in any degree the arm, is almost certain to depend on general causes, consequently can very rarely be met at the examination of recruits.

Cicatrices from burns, cuts, and other injuries, sometimes exist in the palms of the hands, they produce various amounts of mischief, often a shortened or semiflex condition, interfering considerably with the utility of the member.

A disease is described by Dupuytren, Liston, Chelius, and others, consisting of contraction, more or less, of one or more fingers, especially the ring or little finger, dependant on some chronic inflammatory action of the palmar fascia, binding down

the flexor tendons. Did this affection not produce very great contraction it might escape detection, under a cursory examination; yet it should always disqualify, since it usually ends in the complete contraction of the finger or fingers upon the palm.

Dislocations of the carpus, metacarpus, or phalanges, are all easy of discovery, and their extent of interference with motion, or permanent injury, detectable at once.

Sprains, or the effects of other injuries of the wrists may be presented; the swelling and stiffness usually attending such accidents or effects point out their nature and amount. No condition occasioning weakness, or other important derangement of these joints, should be sanctioned in a recruit.

Ganglions have been so placed and of such size as to interfere or render probable the presumption of interference with the motions of the wrist or hand; yet, in the class of men suitable for soldiers, when these tumours occur they are in this situation often of trifling consequence; nevertheless, did ganglions exist in the least degree, suggesting the above effect or probability, they must be viewed as directed by the letter of the instructions.

Traces of fractures may be occasionally detected in any situation of the bones of the upper extremities, and ought always to be deemed of serious importance, as often occasioning an actual incapacity; or affording ground for alleging a disability when duty becomes irksome; as in such a case there is an

appreciable source of possible interference to muscular action or assignable cause of pain, real or fictitious. It would be a matter of the greatest difficulty, in every instance, to discriminate between a true and false disability, or unmask the simulator. Fracture may have occurred without the least evidence remaining. In general if a fracture be well united and the limb of a natural size, the motions in all respects uninfluenced; as far as this is concerned, the individual's fitness can hardly be considered compromised. Our attention is especially directed to fracture of the clavicles, which should always cause disapproval, as the straps of the knapsack pass over the bones, and may press upon the callus or seat of union, or induce alleged uneasiness.

Partial anchylosis or stiffness of the elbow or shoulder, wasting or flattening of the deltoid, or any other contingency militating against the complete exercise of the functions of the joints, are inadmissible. It is immaterial whether the disability be occasioned by the slight sequelæ of disease or injury, or a mere contusion, the effect fully ascertained, from whatever cause arising, is alone sufficient to determine rejection.

With reference to extenuation and deformity, in almost every man, the arm chiefly exercised is larger than the other. Mr. Marshall says, "in the majority of examples," to the extent of a third of an inch, without any material inferiority of power in the smaller one; no doubt the difference frequently exceeds this. When the inferiority in size amounts

to extenuation, this is assignable either to deformity from faulty developement, or else to want of use, occasioned most likely by some disease or injury of the extremity, precluding or limiting motion. Such result is usually very evident, so much so as to be visible generally without measurement, which, if resorted to, will always afford a considerably greater deficiency than that specified as commonly pertaining in healthy men, but could not be accurately defined. What is comprehended by deformity is easily understood, and in any situation must be accounted serious; in the upper extremities this pertains most usually as crooked or shortened limbs. Should one arm be found shorter than the other, or both disproportionably shorter than usual, or any other symmetrical derangement likely to create an inefficiency, the man ought to be rejected.

"12.—*An unnatural excurvature or incurvature of the spine.*"

If a skeleton be examined, it may be remarked that there are three natural antero-posterior curvatures of the spine. In the cervical region the convexity is anterior, in the dorsal the concavity, and in the lumbar region again the convexity. If any lateral projection prevails it is abnormal. Several deviations from the natural condition, even in recruits to a disqualifying extent, are frequently seen.

Potts' curvature may be dismissed in a few words, as any detectable amount, after the most favourable termination, is inadmissible in a soldier. The forms

of distortion of the spine usually determined as unconnected with actual disease of the column and referable to various causes, therefore only remain for remark. With reference to the amount and origin, as well as in some respects to the direction of the convexity of the irregularity, they require a careful observance. If much deformity is occasioned, as a crooked position, with one shoulder habitually higher than the other, even without the more remarkable distortions, the man is, independent of cause or a robust appearance, unfit for a soldier.

In the skeletons of healthy individuals, a lateral yielding of the spine is usually observable; it is said that the convexity of the curve is generally to the side of the body that has been most exercised, as the subject may have been right or left handed. A trifling increase of this very common deviation to the degree of a slight lateral curvature, not producing a crooked figure or an unsightly difference in the level of the shoulders, when occurring as often seen with a habit of perfect health, ought not to be esteemed a disability.

A form of curvature similar to the lateral in its perfect freedom from any disease of the vertebræ, and presenting a posterior convexity usually in the lower cervical and dorsal vertebræ, is often discovered.* Round shouldered, and persons having an habitual stoop, are afflicted with modifications of this affection. The observations of Mr. Marshall on this state are accurate and worthy of recollection,

* This seems an excess of the natural curvature.

" Stooping or round shouldered men are particularly objectionable as recruits, even although they may possess sound health and great muscular power."*

The origin of these distortions is assignable most usually either to particular employments or delicate health at some period; rachitis, a short leg, and other causes, are also occasionally the attributable influences. The positions maintained continually by clerks, &c., favour their developement. Certain occupations which occasion the exertion of one side of the body more than the other, by increasing the power of the muscles of one side, cause the balance of antagonism to be thereby overcome, and the spine slightly yields. In the class of young men who offer themselves for enlistment, the origin is generally assignable to either of the last two causes, so that if the effect be not disfiguring it is of less importance than when the consequence of previous delicate health. It is not to be forgotten that, in these cases especially, the presence of robust health should be clearly ascertained.

" 13.—*Hernia, or a tendency to that disability from preternatural enlargement of the abdominal ring.*"

Hernia is not an infrequent cause of discharge in cavalry and infantry. This cannot be wondered at when we consider the general exciting causes of this disease, its prevalence amongst all classes, and the duties of soldiers. There are most likely a few ruptured men in every regiment, yet I conceive it

* This, of course, only applies when the irregularity is extensive.

reflects credit on the examining officers that the numbers are not greater.—One of the commonly recognised *exciting* causes of oblique inguinal hernia is undue exertion of the muscular boundaries of the abdomen, or rather of those muscles whose contractions diminish the cavity, assisted doubtless by other causes. Such influences produce the disease either as the result of a single or a few excessive exertions, or, as is most frequently the case, the yielding is more chronic, the progression gradual.

The duties of soldiers, especially in the cavalry, where any tendency to laxity exists, encourages the progressive extension and yielding of the tissues which usually resist the descent of ruptures. When equable pressure and resistance are maintained by the parieties and viscera, as long as the equilibrium is every where established, the integrity of the limits and contents is intact; but when the tissue of the parieties yields, either from undue exertion or from the predisposing effects of weakness in the resisting structure, the result must be a hernia. In cavalry, the frequent necessity of forced respiration and the consequent opposing application of the abdominal muscles, daily required when riding fast, as well as sudden or continuous exertion, occasioning excessive muscular power, appear capable in many instances of developing a predisposition, or creating the disease. Dragoons ride for hours together with and without stirrups, they cannot rise in their saddles; the constant bumping thus occasioned, as well as

the wearying strain on the lower part of the abdomen, tends to the production of rupture; this is frequently undergone with the pressure of a sword and sabertash, weighing over six pounds, pendant from the waist and influencing downwards. Cavalry soldiers constantly attribute their ruptures to riding horses with very rough action, but they especially lay stress on the effect of working in the saddle for hours continuously.

The duties of infantry soldiers also subject them to the exciting causes of hernia. Standing for a length of time on parade, marches and light infantry drill while sustaining the weight of knapsack, &c., both from the amount of exertion necessitated by this employment, and the limited thoracic motion caused by the restriction of the straps of the knapsack interfering with respiration, tend to this disability.

Nevertheless, the employments of soldiers in either branch of the service cannot, as exciting causes, be esteemed as extensively preponderating over the ordinary occupations of civilians in the same class of life. Yet, if the degree of care that is taken to prevent the admission of men with evidences of this affection into the army, and other circumstances be considered, it must be admitted that these influences prevail to a somewhat greater extent.

Athough many soldiers, the subjects of rupture, remain in the army and perform their duties, it is unnecessary to advance arguments to medical officers

for the purpose of pointing out the grave objections that exist to the admission of recruits into the service, in whom it can be determined that rupture prevails or even a decided predisposition to this disease, which is not infrequently fatal to life, and which usually compromises the efficiency of a soldier.

Hernia, as a general rule, is gradually progressive in origin. Soldiers can rarely specify the exact period of being ruptured, they usually say its appearance was gradual about a certain time; the peritoneum, the fascia propria, the transversalis fascia, the margin of the internal oblique, and the cremaster muscle, all yield in their turn as they are met by the sack and its contents, some to descend, others to be displaced; yet, when this change is incipient, it may happen that no examiner could discover it. Were a decided laxity of the rings or canal when the individual coughed, detectable by sight or manipulation, he should be rejected. It seems more than probable that there, very frequently, pertains a weakness of tissues sufficient to predispose to rupture, independently of any want of apposition of the sides of the internal ring. Were even an evident enlarged condition of the external ring detected by manipulation, disapproval would no doubt be justifiable, as the presumption might be usually fairly drawn of the association with some similar condition of the canal or inner ring, the first to be overcome; also an anterior resistance being removed, of course the posterior

obstructions are weakened. A protrusion, if small, may not be perceptible until it presents in the groin, having escaped from under the inferior margin of the internal oblique and occupied the canal, or even passed through the external abdominal ring. Nevertheless, in the great majority of cases, deviations are detectable; wherefore a strict examination of the hypogastric and inguinal regions is, in every instance, requisite. Femoral hernia is much less frequently encountered than inguinal, but is equally inadmissible. Ventral herniæ are usually small, and may be of little consequence. Umbilical ruptures may also be trifling; still they frequently occasion derangements of the bowels, and are generally prone to gradual increase; from these, and other reasons, I would not pass a man so affected into the army.

"14.—*A varicose state of the veins of the scrotum or spermatic chord, sarcocele, hydrocele, hemorrhoids, fistula in perineo.*

A varicose condition of the veins of the scrotum is not often met with, and is usually associated with other affections, which, however slight, seriously add to its importance; if extensive, it should generally be inadmissible as tending to increase, and allowing but unsatisfactory means of treatment.

Varix of the spermatic chord is commonly seen *per se*, often of small amount. It is said to be sometimes "much more evident at one period than

at another*;" hence, if it exists in a minor degree, engaging a portion of the veins of the chord, it may escape detection during the time of the examination. When observable, it can hardly be mistaken. I have frequently seen this affection in soldiers, when of small amount, continue for years without occasioning any inconvenience; nay more, if a number of men in the ranks be examined, a considerable proportion will be found to have enlarged veins of the chord, who on enlistment were free from this affection; and unquestionably it is a disease very rarely requiring treatment in soldiers. Yet the admission into the service of the subjects of varicocele is a question for careful reflection, and most certainly should obtain only conditional approval. In two respects it suggests consideration; in the first as to the very great frequency of the observance of some degree of this condition in recruits, and the loss to the service that would accrue, were all such excluded. And in the second, how far or under what circumstances it disqualifies a soldier. The first question seems to me to sufficiently establish its claim to reflection, from the fact of its recognition; all medical officers who have been in the habit of examining recruits, must be aware how very frequently they have detected varix of the chord. The fact of the so frequent prevalence of this condition in soldiers, and of its being so very rarely a matter of complaint, or

* Depending probably on whether the man had been taking exercise, or on the contracted or relaxed state of the scrotum.

requiring treatment, is a valuable practical answer to opinions based upon any other foundation than experience; but here it is to be recollected, that from the strict examination recruits undergo, and in obedience to the positive wording of the instructions, it is very probable that extensive states of this condition seldom prevail in men when passed into the service. From the number and variety of the serious operations that have been suggested for this disease, by surgeons in private practice in all parts of the world, there can be no doubt but that extensive degrees present serious features; that when this state is extensive there must be great obstruction to the local circulation; the disease, moreover, sometimes extends to the testis and affords a varicose mass, destroying its functions, producing enlargement of the neighbouring parts, most inconvenient from its locality.

The conclusion I would wish to draw, is, that in cases where the veins of the chord are only slightly engaged, and that the general characters of vigorous health are manifest, in otherwise eligible recruits, this common deviation should not produce disapproval, which experience does not warrant. But that when the degree of varicocele is greater, where the veins are in the condition of a large plexus, affording the feel as if of a collection of worms, I believe the admission into the service of men so afflicted, to be attended with considerable hazard; and that in instances where the testis is engaged, whether for cavalry or infantry, the subjects are

unfit. There is a vastly greater prevalence of varicocele of the left than of the right chord. Most writers upon the subject have remarked this peculiarity, and attribute it generally to the difference of the anatomical arrangement of the left from the right side, occasioning in the former more impediment to the return of the blood into the vena cava ascendens.

Affections of the testicles from the pendent position of these organs and their great liability to inflammation, synchronous with gonorrhœa, or its sudden disappearance, or from injury, are not infrequently discovered, and are, unless of trifling amount, to cause rejection, as their nature may be uncertain, and they constitute a liability to secondary inflammations, which may tend to more serious complaints. Sarcocele seems here intended to imply all increase in size of these glands.

Absence of the testicles from the scrotum, atrophy, or imperfect developement, are other conditions requiring mention. It occasionally happens that one or both testicles are not to be found in the scrotum, and nearly always the absence is dependent on congenital mal-position of these organs; they have not descended, and are retained either in the abdomen or arrested in their transit in the inguinal canal or immediately below the external ring. When placed in the inguinal canal, or just external to it, no possible question could arise against the invariable rule of rejecting such men, as

the obvious liability to injury, and in case of inflammation, the constriction that must result are, exclusive of other reasons, sufficient to establish these positions of the testes inadmissible in a soldier.

The position of one or both testes in the abdomen is, however, free from these objections, and medical officers differ as to whether a man so formed is fit for a soldier. The virility of such men may be little, if in any way impaired. Men so constituted have been admitted into the army, and instances, I dare say, could be produced of their perfect efficiency; yet, I believe, there are grave objections to their enlistment. The testicles may possibly descend at any time, the active duties of infantry or cavalry soldiers render the possibility more likely; if the descent did happen, a rupture must likewise appear. The testes are very liable to inflammation from gonorrhœa, occasionally also from syphilis, venereal excitement, &c; if such occurred in the undescended organs, the treatment would be most unsatisfactory, and even the diagnosis might occasion some difficulty. Sir Astley Cooper remarks, that in these unnatural situations, the testes are prone to disease of a malignant character. Another objection would prevail in the circumstance, that a man so formed, would be the constant object of the ridicule of his comrades. This mal-position can be rarely witnessed in recruits, wherefore but little could be lost to the service by their rejection, and their admission would, in all cases, at least provide a hazard.

Distinct atrophy of both testes, to any amount, is an uncommon occurrence, and must depend, I conceive, upon some depraved state of the constitution; wherefore it ought to constitute unfitness. Atrophy of a testicle is said to arise from injuries, inflammatory affections, particularly in strumous habits, from diseases and obstructions in the chord, from excessive venery, &c. I am aware that great diversity of opinion prevails as to the disqualifying effect of partial atrophy of one testicle, and regret that I have no experience to offer on the subject; but I have obtained the opinion of some experienced medical officers, which certainly appears to me to comprehend the question; which is, that if a recruit was otherwise eligible, no strumous taint or disease of the chord appreciable, and the other testis normal, he should be judged fit.

I have, not infrequently, met in young men a condition of both and occasionally of one testis which may be designated a tardy developement, in which the full size of the testes is late in being established. The maturity of puberty is occasionally found slower in some young growing lads than in others; when the diminution is not excessive and there is no undue size of the breasts, and the voice is natural, there is little doubt but virility, in such cases, will be established; the question of fitness is then more connected with the sufficiency of robustness and the general appearances of health.

Hydrocele is in all cases disqualifying; it is often

seen in conjunction with enlargement of the testis, is usually a chronic disease, in soldiers nearly always progressive, often requiring surgical interference, and the result not always satisfactory.

If hœmorrhoids are complicated with hepatic, pulmonary or other affections, no observations are requisite to confirm the unfitness of the individual. When they are of any amount either in the congested or flaccid state, even though complication is not recognizable, a similar estimation should attach to them. But the stoutest and healthiest looking men are sometimes, on examination, found the subjects of one or two small hœmorrhoidal tumours external to the sphincter, a temporary production of trivial consequence, which, in my belief, ought not to cause rejection.

Fistulæ in ano and perineo are carefully to be looked for, especially the former, as a fistula may be situated in a fold of the nates, or skin, very small, and not be otherwise detectable. Fistula, in either of these situations, should cause rejection.

"15.—*Debility of the feet or legs caused by varicose veins, old fractures, malformation (flat feet, &c.), palsy or lameness, contraction, mutilation, extenuation, enlargement, unequal length, bunions, overlaying or supernumerary toes, ganglions, &c. &c.*"

There are many divisions of varicose veins established, all based upon the degree of structural change rather than the extent. As occurring in the

inferior extremities, the internal and external saphena veins almost exclusively require attention, as here or in their branches morbid deviations are usually found. Tall men and men of weak habit are said to be by much the most liable, yet all sizes and conditions are occasionally the subjects of varicose veins. Standing and walking must be chiefly considered as the exciting cause to soldiers, a varicose condition being very common in infantry, but much less so in cavalry. The commencement is usually by a dilatation of a vein or veins, is gradual in its increase, and, if extensive, becomes a most formidable injury to a soldier. As no prophylactic is possible, the constant exercise of the limbs nearly always increases the disease, producing pains in the limbs, swelling of the feet and legs, and varicose ulcers No one would think of passing a man having tortuous, elongated, or sacculated veins. The chief difficulty appears to consist in the amount of structural change, which ought to constitute unsoundness in a recruit. Dilated veins alone are not accounted true varix, and are seen in robust well proportioned men of trifling degree and importance; yet, I am inclined to think, if this condition was found engaging much of the superficial circulation in the main trunks of the veins, or their communicating or subsidiary branches, it should cause disapproval in an infantry recruit; the limit might be somewhat more extended for cavalry. However, it is not to be forgotten, that for no arm of the service

is a man with varicose veins to be approved. The ordinary exercise used during the examination is generally sufficient, but instances occur where it is necessary to enjoin greater exertion before the disability becomes fully apparent. By directing a recruit to stand upon his toes, the contraction of the gastrocnemii and solœi often render dilated or tortuous veins prominent.

Traces of fracture in the inferior extremities are to be esteemed almost invariably disqualifying; some of the remarks on this subject connected with the upper extremities are likewise applicable here; the power of alleging a disability is not to be lost sight of. The perfect integrity of the legs is so essential to a soldier as never to justify the passing of a man where the possibility of defect admits of a doubt.

Knock-knee requires more than a mere enumeration, since, with the exception of flat feet, it is the most common deformity connected with the lower extremities; in addition to which, I conceive, when the yielding at the knees is at all extensive, or even when in a minor degree it is connected with a slight frame, small muscle, or a habit of body in which the characteristics of a vigorous constitution are not fully apparent, that men so characterized are very ineligible recruits. Knock-knee appears, in some instances, to be hereditary; but is much more usually a condition arising in youth, when its developement is nearly always preceded and accom-

panied, for a time at least, by debility. This habit, however, is frequently grown out of, and mal-positions of the knees are encountered with extremely muscular frames. Three lateral deviations are commonly seen, and present distinctive characters worthy of recognition; which may be described as an inclination inwards of one knee, or both, or an inclination inwards of one and an outward direction of the other. Very severe forms could never be presented, as the obvious unfitness of such men is so apparent that no soldier would enlist them; still the different inclinations of the knees are met in various degrees. As a general rule, when pertaining only in one knee, the inclination is not usually important When knock-knee is at all extensive, the individual could rarely be a strong or active walker, since the position of the limbs and the undue amount of motion in progression creates oscillation and loss of power. In the act of walking, one foot is separated from the other more than is natural; the weight of the body presses intermediately at the knee, nearly in the centre of a long limb, which, instead of being fixed as in the normal state, except in flexion and extension, at once yields on the inside, the weight being somewhat thrown on the internal lateral ligament. This condition is likewise highly disfiguring, and a soldier so formed could never look well in any branch of the service. When this mal-position prevails even in a minor degree, if in conjunction with a frame of equivocal appearance of

strength, it shows that debility, the most probable original cause, has not been altogether removed, and becomes a direct evidence of previous delicate health; yet, if in this minor degree, and associated with robust health, it can only be objected to as slightly disfiguring; which, in an otherwise good recruit, cannot be admitted of disqualifying consequence.

Knock-knee is a mechanical effect, the immediate cause of which is elongation of the internal lateral and crucial ligaments, the chief opponents to lateral motion. Other consecutive changes are supposed in some cases to occur, so that when met at puberty this must be accounted a permanent deviation.

Flatness of the soles of the feet or splay-foot, as designated in books, is a very common malformation or deformity among the lower orders in this country, and is associated with general debility, moderate strength, or great muscular power. This deformity is, in many ways, opposed to activity; it is a characteristic of a bad walker, and when extensive, never could be met in pedestrians, either as connected with quickness or endurance. Splay-foot is a subject of such serious importance, that every argument, consistent with brevity and the intention of these remarks, may, in my opinion, be justly introduced if assisting to establish the gravity of the question. Wherefore I purpose briefly to consider it in detail, as to the external or visible appearance, the interference with the mechanism of

progression, and finally as to the pathological conditions or anatomical deviations supposed to constitute the derangement. On looking from above downwards on a well-shaped foot placed upon the ground, there will seem to be afforded, in every direction, a series of arches anteriorly, posteriorly, and laterally; the foot is broadest near the toes, the malleoli are nearly on a plane or rather the external is on a plane a little lower than the internal, a hollow is remarkable on the inside, extending from the ball of the great toe to a line drawn from the posterior edge of the internal malleolus to the ground; under this arch the fingers can be passed until they meet the descent of the arch on the outside on a level with the remainder of the sole. The foot is constructed on the strongest possible principle for supporting weight; the formation is additionally perfected by the elasticity and beautiful arrangement of joints, affording collectively an amount of motion, which is very much limited in their individual connexions. Thus may be seen that strength is obtained in the greatest degree, and elasticity and motion are not only not sacrificed, but most admirably provided for, as a means of preventing concussions in daily avocations, often experienced by the unpleasant jar communicated when one descends from a height upon the heel. Again, this arch motion and elasticity assist progression by adapting the foot to surfaces and inequalities, and in a great degree perfect the power

of the lever. Contrast with this the appearance of a flat foot, the arch is lost, the internal malleolus projects and descends inwards on a much lower plane; there is a fulness on the inside of the foot, which rests upon the ground, and, in many cases, is convex inferiorly, descending to a plane lower than the rest of the sole. On the outside the external malleolus is higher, the prominence is flatter; sometimes there is a depression. On looking from before, the foot is widest at the tarsus and often pointed outwards. In ordinary walking, when taking a step, we poize the body on one foot, then bending the opposite foot upon the leg, the leg upon the thigh, and the latter on the pelvis, the whole is shortened and advanced, then the body is brought forward nearly perpendicularly.

In walking, the centre of gravity is between two lines running directly downwards, nearly from each acetabulum. If these lines are much separated or approximated, oscillation, loss of power and speed, must result; as can be easily determined by walking with the legs too far apart, or on a narrow plank, placing one foot close to or in front of the other. When a flat-footed man walks, these lines are not parallel, but tend to approximate, and would intersect if produced for a short distance, for which a remedy is usually attempted by eversion of the toes. The act of walking, as connected with the foot, is accomplished by a lever of the second order; the weight being between the power and the ful-

crum; the power situated at the os calcis, the weight at the ancle joint, and the fulcrum anteriorly; the prominence of the heel and the length of the arm of the lever causing the perfection and power of the mechanism. Thus the greater the distance, when proportional, between the os calcis and the portion of the sole applied to the earth, the better ceteris paribus will be the foot for progression. A splay-footed man, however, places his foot flat to the ground, then raises and advances it almost as he put it down; the motion of the ancle and knee-joints being greatly diminished. The weight and fulcrum both falling close to the power, there is no arm to the lever, the effect of which is seriously impaired. In addition to this, in flat-footed men, the os calcis is not usually prominent, still more shortening and weakening the lever. In extreme cases of flat foot, the individual commonly bends the knees in progression, thus endeavouring, by leaning forward, to artificially advance the fulcrum and compensate posteriorly by creating a more favourable angle for the power of the muscles attached to the os calcis.

The remote causes of this derangement are not clearly understood, they have been variously assigned and explained by different writers. A most concise description was published in Rust's Magazine, vol. V.; the original was a circular letter to the Prussian military physicians, by the chief of the military medical department. In Chelius's Surgery

the subject is likewise treated of both by the author and in Mr. South's notes. This deviation appears to be often congenital, yet it is frequently first apparent after the tenth year; and is most usually symptomatic of debility or a strumous diathesis. From the result of several investigations, the local change seems to resolve itself to a sinking of the arch of the foot, and an inclination inwards as well as downwards of the os calcis, astragalus, navicularis, and cuboides, as well as of the cuneiform bones. Another defect is seen in the elongation of the internal lateral, calceo-scaphoid and calceo-cuboid ligaments, together with a yielding of the planter fascia and tendon of the tibialis posticus, as it passes under to be inserted into the navicular bone. On this account the posterior aspect of the navicular bone sinks, and with it the anterior round surface and neck of the astragalus; which of these is primary or how they result is not determined. By these means the arch is completely depressed, and its elasticity destroyed; the strength and the function of progression are materially compromised; endurance and ease in pedestrianism, when the mal-formation is excessive, are altogether impossible. There are other formidable effects, such as "speedy fatigue in walking, swelling of the foot around the ancles, and soreness of the soles of the feet." From continued straining of the feet, even chronic inflammation of the ligaments and synovial membranes arise, by which not merely pain but also serous exudation among the tarsal bones takes place.

This derangement is of various grades in extent, when slight of course it is to be so esteemed; yet, when to an amount producing deformity, or compromising the power of progression, it is one of the most serious disabilities with which a soldier can be afflicted; causing those so formed to tire and fall out of the ranks on a line of march, though possessed of the most resisting spirit.

The mal-formation I have been considering must not be confounded with large broad feet, in which the arch and position of the malleoli are perfect; occasioned by spreading of the feet from some laxity of the metatarsal lateral ligaments, apparently often produced by continued walking exercise, also commonly met in men who have been accustomed to walk, when children, in bare feet. This is an anatomical arrangement for which a man ought never to be rejected and which is totally unconnected with splay-foot.

Any want of power or lameness could very rarely escape detection; even a peculiarity in the manner of walking is always observable, if the means of investigation recommended in the instructions are instituted.

The motions of the hip, knee, or ancle joints, may be interfered with partially or completely, in extension or flexion, in reference to the component parts of the joints, or the appliance of the muscles moving them. Such, when prevailing extensively, never could be presented in a recruit; in any degree it is inadmissible.

As nearly every mutilation connected with the lower extremities is disqualifying, this prohibition must be received almost literally. Mr. Marshall, and others, sanction the loss of one of the smaller toes as not being of much importance, and here restrict the admissability of mutilations in this situation; the correctness of this conclusion can scarcely be questioned, since the loss of two toes, or a great toe, would be likely to injure a foot, and in many instances leave cicatrices exposed; nor can I conceive that any circumstances ought to induce a less restricted limit.

Extenuation of both legs, or at least deficiency of muscular development, indicating weakness, is, I believe, more frequently encountered in the examination of recruits than a similar condition of one. Good muscular limbs are of material consequence to a soldier. An atrophied leg, from whatever cause, ought to constitute unfitness. Nevertheless, from extensive measurements, I am led to imagine that a difference in size of the right and left leg is very common; that the larger, though generally, is by no means constantly the right, even in men who are not left-legged. The accompanying return, carefully prepared of one hundred and forty measurements of the calves and ninety of the thighs of healthy dragoons in the ranks, to some extent will, I trust, serve as a criterion in estimating these differences. Though not prepared to advance these measurements as definite, still I would hesitate to

consider fit a man whose limbs afforded a disparity much exceeding the extremes.

Measurements showing the difference in size between the calves of the right and left legs of 140 *healthy men.*

Those whose right and left legs were similar.	Those in whom there was ¼ of an inch between the left and right.	Those ditto ½ an inch.	Those ditto ¾ of an inch.	Total.
82	31	19	8	140

Measurements showing the difference in size between the right and left thighs of 90 *healthy men.*

Those whose right & left thighs were similar.	Those in whom there was ¼ of an inch between the right & left thigh.	Those ditto ½ an inch.	Those ditto ¾ of an inch.	Those ditto 1 inch.	Total.
46	18	17	6	3	90

Enlargement of one or both legs, when disproportional, is at once recognizable. The lower portion of the legs, between the knee and the ankle, is the most usual situation for such an appearance. In men of lymphatic habit, an enlarged condition of the legs may be occasionally observed. Such a condition may arise from several sources, but whether from disease or congenital, when unequivocally present, it is an adequate cause of rejection.

Unequal length of the legs, when to any considerable degree, can invariably be detected by the occurrence of lameness in walking, On closely examining the man, a leaning to one side, with some slight curvature of the spine, is often apparent. A disparity

in length to such an amount, whether produced by accidental causes or pure obstructed developement, is frequently accompanied by diminished size and strength of the limb, rendering the man unfit for the army; however Mr. Marshall observes, a disparity in length is not of rare occurrence, and if the short extremity is not extenuated, and the difference between the length of the limbs is not more than half an inch, this should not be considered a disqualifying defect. I am aware a difference to such an amount is hardly appreciable, and if associated as he provides, could not be seriously objectionable.

Bunions are differently assigned as to the pathology by different persons; the fact is, they afford by no means a uniformity in this respect; as the affection is often confined to enlargement of the bursa, with a thickening of the cellular tissue, though the most usual condition is a partial luxation of the great toe, with eversion of the distal extremity; the proximal end of the first phalanx is directed inwards; there is often an enlargement of this part of the bone, and a similar condition occasionally exists of the distal extremity of the metatarsal bone. These various structural changes are in extreme cases found combined, and may be considered to constitute seriousness and to create distress, almost in the amount of combination. The exciting cause is most generally attributed to wearing tight or short shoes. When the affection in any form is produced, attempts at removal are most unsatisfactory,

the treatment is almost exclusively palliative. Marching, by occasioning friction and pressure, produces inflammation, which excites excessive torture. Thus any man having large bunions is unfit for a soldier.

Overlying, or supernumerary toes, on a march commonly become sore, consequent on the friction, completely disabling the soldier. The toes frequently have a bent distribution, the points being exceedingly turned down, the dorsum of each is projected anteriorly; this may likewise disqualify. The exclusiveness of these disabilities may be somewhat less comprehensive for cavalry, but if extensive are equally inadmissible

Ganglions are seldom met in connexion with the feet, except on the instep, in which situation I have known them create considerable annoyance.

"16.—*Ulcers, or unsound cicatrices of ulcers likely to break out afresh.*"

This prohibition can scarcely be received in too literal a sense, a breach of continuity sufficient to be denominated an ulcer, from the possible tediousness of cure, from the power the individual has of increasing it, if not wishing to be finally approved, and other obvious reasons, is inadmissible in a recruit. Extensive cicatrices, except from injury, are usually symptomatic of depraved general health, and cicatrices, though of limited degree, independent of cause, if in relation with unhealthy integument, or adherent to bone, as constantly seen with reference to the tibia, are adequate causes of rejection.

"17,—*Diseases, whether acute or chronic, for which medical treatment is required.*"

In the spirit at least upon all occasions this must be understood as the instructions dictate. Some latitude from the literal prohibition in slight cases might be allowed under the following condition. In the instance of a medical officer examining for his own regiment, was a fine well-made robust recruit brought before him, a trifling injury or affection which every man can estimate ought not to necessarily cause disapproval. Yet, I believe, was a medical officer examining a man, not for his own regiment, but for the service generally, he could hardly be too particular in conforming with the letter of the instructions upon this subject. Syphilis in any form, either as a primary or secondary disease, is an unqualified cause of rejection.

"18.—*Traces of corporal punishment are an unqualified cause of rejection.*"

Traces of flogging are, of late years, much less likely to be discovered than formerly, as fifty lashes comprise the extreme punishment within the power of a court martial to award. Very rarely can permanent marks remain from the severest infliction of such a sentence; five, six, and even seven hundred lashes are frequently recorded as having been inflicted without leaving any marks of punishment. Traces of the letter D should always be looked for, as it is sometimes erased. Instances have occurred

where men have been approved bearing unequivocal evidences of erasure of this mark. The letter D can rarely be removed without leaving some evidence. Any mark on the left side of the chest, in the usual situation of this stigma, ought to be viewed with great suspicion.

Recruits ought to be inspected in as large a room and in as good light as possible. The investigation cannot be fully prosecuted in a small or dark situation. No man, while intoxicated, should be examined. The medical officer, hospital sergeant, and recruit, should alone occupy the examination room.

"VI. Every Recruit is to be undressed before inspection, in order to detect any blemishes, and his examination is to be conducted as follows:—

"VII. Upon entering the inspection room, the recruit is to walk across it several times pretty smartly, to shew whether he has the perfect use of his legs. He is then to be halted, and set up in the position of a soldier under-arms, with the knees about an inch apart, and examined both in front and rear from head to foot. Should no material defect be discovered, the recruit is next to perform, in imitation of the hospital sergeant, the following evolutions: to extend the arms at right angles with the trunk of the body, to touch the shoulders with the fingers, to place the backs of the hands together above the head—and in this position he is to cough, while the examiner's hand is applied to the rings of the external oblique muscles. The spermatic chord and testes are to be examined, and the

medical officer is to pass his hands over the bones of the legs. The recruit is then to stand upon one foot, and move the ankle joint of each extremity alternately; and if any doubt is entertained respecting the efficiency of this joint, or any part of the leg or foot, the recruit is to hop upon the suspected limb for a short period, and its size and aspect are to be compared with those of the corresponding joint or part of the opposite limb. He is next to kneel on one knee, then on the other, and subsequently on both knees. Then to stoop forward and place his hands on the ground, and while in this position it ought to be ascertained whether he be affected with hemorrhoids. He is then to extend his arms and hands forward for examination, and to bend and extend the fingers, and to rotate the forearm. The head is next to be examined, including the scalp, ears, eyes, nose, and mouth; the faculties of hearing and distinct enunciation are to be ascertained. In regard to the mental faculties, the inspecting medical officer should invariably ask the recruit a few short questions, such as to what corps he belongs, what occupation he had previously followed, &c. &c., with a view to ascertain the condition of the intellect."

It is impossible to point out an elementary feature connected with the examination of recruits, that needs more constantly to be remembered than the assistance derivable from a *system* in investigation. The recruit should be inspected according to a determinate routine and never deviated from, since if an alteration is made it leads to frequent changes and occasionally no doubt to omissions; and though a medical officer may be anxious and intelligent, a disability may escape detection from

the circumstance of passing over, during the examination, the actual objectionable point. If step by step the same system is always pursued, the non-observance of a disability can seldom occur. I feel confident that to changing the routine, altering the arrangement and precedence of the steps of the investigation of the various organs and regions, is attributable occasionally the approval of men unfit for the service. Likewise, as sometimes happens, the judging of fine-looking recruits by their *tout ensemble*, (who from their general prepossessing appearance induce a more than usual cursory examination,) overlooking fatal faults in particular situations, would by this arrangement be avoided.

"VIII. The next point is to learn whether a recruit has had small pox or been vaccinated.

"IX. When a recruit is approved, the attestation is to be filled up and signed by the inspecting medical officer.

"X. Under the head "Remarks and Observations" in the Register for Recruits, all incidental facts of importance are to be recorded, including the causes for which recruits are rejected, blemishes, peculiar marks, &c.

"XI. Should a medical officer, or private medical practitioner, intermediately approve of a recruit who has a trivial blemish, such as a slight cicatrix on the leg, the surgeon of the corps to which the man belongs is to be duly apprised thereof; and if he detects a recruit previously examined simulating disabilities, he is to inform the surgeon of the fact, by attaching a slip of paper to the man's attestation. District surgeons are also directed to conform with this rule."

The vigilance of an examining medical officer is nearly exclusively directed towards the detection and estimation of real derangements, but it is never to be forgotten that recruits occasionally feign disabilities, for the purpose of being rejected. The impulse of a moment, or some temporary influence, may cause a man to enlist; and reflection, or the persuasion of friends, or other associations, create feelings of regret, which induce attempts at deception, that might easily obtain the desired object, were a young medical officer not upon his guard. A recruit wishing to become a soldier always endeavours to conceal his defects, wherefore the representations of recruits, or their friends, or the most plausible allegations as to the existence of disabilities, should be received with the utmost scepticism; the object is palpably not out of consideration for the good of the service, it is solely to obtain the recruit's rejection. By the 56th clause of the Mutiny Act, a recruit cannot be attested sooner than twenty-four hours after his voluntary enlistment, and on his appearance before the magistrate, he can obtain his acquittal by paying the sum of twenty shillings; wherefore any attempt at feigning a disability is the less excusable, as his engagement was voluntary, and a legal means of acquittal is attainable by the payment of this penalty. Epileptic fits or an impaired condition of some function are the disabilities usually alleged, or the imperfect use of some member is pretended, or in fact any disability may be feigned

that circumstances or feasibility suggest. A recruit's indecision, or over acting, or other obvious mistake, produces discrepancies which render his object apparent, and the integrity of the situation or function stated to be deranged is generally easily discovered. Such attempts at imposition could rarely deceive an experienced medical officer, and, except at the head quarters of recruiting districts, are unfrequently practised. To place a young medical officer upon his guard in this respect, and to remark that such imposition should never be allowed to succeed, appear to me to comprise the main elementary features that can be matured by experience alone.

"XII. The signature of a medical officer to an attestation will be considered tantamount to a declaration that he had personally examined the recruit in question according to the routine above directed, and that the man had no blemish except that affixed to the attestation."

Whenever a district recruit is passed who labours under a slight deviation from the absolute letter of the instructions, which on careful consideration is deemed unimportant, such should always be entered in the attestation, as indicating to any future examiner, that it has not been overlooked. And here are addressed the only remarks to those whose standing places them in the position of final approver that I have assumed to suggest. That it is to be recollected that the fitness of a recruit is a matter of opinion; that the original approver of a recruit is probably a thinking and scientifically educated man,

entitled to the full courtesy usually prevailing between professional men. Although it is not for a moment arrogated that a man unfit for a soldier, is out of courtesy to any one, ever to be finally approved, still a medical officer's recorded opinion of a trifling defect is always deserving of consideration. The recent judicious circulars* repeating the order rendering the opinion of staff surgeons conclusive in the approval of recruits must further the adoption of this spirit.

"XIII. The certificate of surgeons, or assistant surgeons of regiments, when they approve of recruits for the corps to which they themselves belong, is considered final.

"XIV. Recruits intermediately approved by a regimental medical officer, or by a medical officer on the staff under the rank of a staff surgeon, or by a private practitioner, are to be re-examined by a district staff surgeon, or by a medical officer of the regiment to which they belong. Should a district surgeon consider an intermediately approved recruit ineligible for the service, the man in question is to be reported to the inspecting field officer, for the purpose of being brought before a board of medical officers, whose decision in regard to his eligibility or ineligibility shall be final. Whenever a medical board cannot be assembled, a reference shall be made by order of the director general to any army medical officer whom he may appoint, or he will, on the reports received, decide upon the case himself.

"XV. A similar course will be adopted with respect to intermediately approved recruits who may be deemed in-

* Vide Circulars dated 21st November, 1851, and 10th July, 1852.

eligible by a regimental medical officer of the corps to which the recruits belong.*

"XVI. The certificate of a district staff surgeon, as to the fitness of a recruit, will be deemed a final approval, in as far as respects medical examination, except in the case of recruits for the Honourable East India Company's Service. 'A recruit, passed by a district staff surgeon, as fit, shall not, on arrival at his regiment, be discharged for any medical cause, unless expressly sanctioned by the adjutant general.'

"XVII. To entitle any one who secures a deserter to the usual reward, a certificate of his fitness for the service must be produced to the magistrate who commits him. In the examination of a deserter, it is to be borne in mind by medical officers that he is already in the service, and consequently should not be pronounced unfit for military duty, unless he suffers under a serious disability, such as would render it necessary to discharge a soldier from the army.

"XVIII. Every recruit who has not passed through small pox, or the vaccine disease, is, if possible, to be vaccinated by the inspecting medical officer; and if the exigencies of the service will not permit this being done, the circumstance is to be reported to the surgeon of the corps to which the man belongs."

With reference to the books required to be kept, and the returns necessary to be transmitted, in regard to this branch of the duty of a medical officer, I beg to refer to the Regulations for the Management of Army Hospitals.

* Vide Forms of Return, Nos. 1 and 2, pages 48 and 49, of the "Regulations for the Management of Army Hospitals."

Statistics of Recruiting in the Districts of Great Britain and Ireland, during nine years, from the year commencing the 31st March, 1843, to the year ending the 31st March, 1852, condensed from the Annual Returns, compiled by order of the Director General.

During the year ending the 31st March, 1844:

TOTAL NUMBER OF RECRUITS

Medically inspected	17,540
„ rejected	6,026
Found fit	11,514

During the year ending the 31st March, 1845:

TOTAL NUMBER OF RECRUITS

Medically inspected	13,370
„ rejected	4,146
Found fit	9,224

During the year ending the 31st March, 1846:

TOTAL NUMBER OF RECRUITS

Medically inspected	16,563
„ rejected	5,143
Found fit	11,420

During the year ending the 31st March, 1847:

TOTAL NUMBER OF RECRUITS

Medically inspected	27,093
,, rejected	7,760
Found fit	19,333

During the year ending the 31st March, 1848:

TOTAL NUMBER OF RECRUITS

Medically inspected	19,745
,, rejected	6,451
Found fit	13,294

During the year ending the 31st March, 1849:

TOTAL NUMBER OF RECRUITS

Medically inspected	16,181
,, rejected	6,121
Found fit	10,060

During the year ending the 31st March, 1850:

TOTAL NUMBER OF RECRUITS

Medically inspected	12,907
,, rejected	5,040
Found fit	7,867

During the year ending the 31st March, 1851:

TOTAL NUMBER OF RECRUITS

Medically inspected	11,791
,, rejected	4,411
Found fit	7,380

During the year ending the 31st March, 1852:

TOTAL NUMBER OF RECRUITS

Medically inspected	14,607
,, rejected	5,338
Found fit	9,269

Making a total of 149,797 recruits medically inspected in nine years, of which number 99,361 were found fit for service, and 50,436 rejected; giving an average of over 11,000 men approved yearly. Of these 30,531 have been approved in Ireland, 14,703 in Scotland, and the remaining 54,127 in England, in which last are included recruits from Wales and natives of Foreign Countries.

A Table showing the Native Countries of the Recruits Inspected.

England	66,606
Ireland	56,847
Scotland	24,453
Wales	1,171
Foreign Countries	253

A Table showing the Causes of Rejection in Classes.

1	Weak Intellect	158
2	Unsound Health, Marks of Treatment, as Cupping, Leeching, Setons, Issues, Blistering, &c.	4089
3	Muscular Tenuity, want of sufficient physical power	4571
4	Affections of the Eyes	2833
5	Loss or Decay of Teeth	1999
6	Deformity of the Spine	2149
7	Want of due capacity or malformation of the Chest	3715
8	Defective condition of the superior Extremities, from Fracture, Contraction, Mutilation, Luxation, &c. &c.	2158
9	Hernia, Inguinal, Femoral, Umbilical	1686
10	Tendency to Rupture from laxity of the Groins	2538
11	Varicose state of the Veins of the Spermatic Chord	3514
12	Diseases or Injury of the Testicles	894
13	Varicose state of the Veins of the Lower Extremities	5866
14	Defective condition of the Inferior Extremities, from Fracture, Contraction, Luxation, Malformation, or Injury of Feet, Ankles, &c. &c.	5510
15	Cicatrices, Ulcers, Wounds, and Chronic Diseases of the Skin	3410
16	Tendency to Consumption or other Pulmonary Diseases	585
17	Diseases of the Heart...	847
18	Impaired Hearing or Deafness	358
19	Impediment of Speech	254
20	Syphilis	1069
21	Marks of Corporal Punishment...	304
22	Marked with the letter D	238
23	All other Causes	1691
	Total	50,436

A Table showing the relative frequency of the different varieties of Hernia.

Inguinal	1575
Femoral	42
Umbilical	66
Ventral	3
Total	1686

Of the cases of Inguinal Rupture were on the

Right side	749
Left side	603
Both sides	223
Total	1575

Of the cases of Femoral Rupture were on the

Right side	26
Left side	13
Both sides	3
Total	42

A Table of the Varicose state of the Veins of the Spermatic Chord on the

Right side	203
Left side	3072
Both sides	239
Total	3514

FINIS.

ERRATUM.

Page 2, line 3, for "exceeds twenty-nine millions," *read* "exceeds twenty-seven millions."

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