

ma is not confined to the extremities, as the ears, the face, and the tongue may also be affected (Monro).

Local asphyxia may or may not be attended by pain; often this is absent unless the cyanotic part is handled. The pain at times becomes neuralgic in character, or it may be continuous, and it varies from a slight discomfort to an intense agony. A patient of my own complained of irregular attacks of numbness for two years before the onset of the disease. In this case the pain was most agonizing from the very inception of the local syncope, which was in a few hours followed by local asphyxia, the appearance of the latter in no way mitigating the suffering.

There may be loss of motion, temperature sense, and tactile sense. Electrical sensibility may also be affected. Monro has collated some interesting cases showing that vaso-motor instability is certainly a marked feature of this condition. Calmette could readily induce an attack in the susceptible parts by putting cold water on any portion of the body. Raynaud, by using electricity on one hand, caused the disappearance of cyanosis from both, while Israel Sohn, by applying friction to the upper limbs, caused the disappearance of local asphyxia from all four extremities.

The character of the onset in local asphyxia is most erratic. Discoloration may precede or follow the pain, or the two may be associated. The development of the cyanosis may be very sudden; it may take the place of, precede, or follow the local syncope; its duration may be a few minutes, hours, or days; there is no regularity in the occurrence of the attacks. The pulse may be normal or absent. There is no fever, but occasionally there are depression, headache, insomnia, aphasia, convulsions, and even unconsciousness.

Patients who have long been subject to local asphyxia may suffer from changes in the skin called "tache" patches; these purple areas are very persistent, are unaffected by pressure, and are probably due to extravasated blood pigment in the deep layers of the skin (Monro). Local asphyxia, once having been developed, is very likely to recur; this liability is not, however, so great as in syncope. The Scotch verdict, "not proven" should be applied to those cases which are reported as cured.

The idea that a disturbed innervation might bear a causative relation to gangrene was entertained long before Raynaud wrote his now celebrated thesis. His contributions gave to the medical profession a new clinical concept, a disease with certain definite characteristics, viz., local syncope, local asphyxia, and symmetrical gangrene, a distinct morbid entity. For more than twenty years medical men regarded this disease as an idiopathic affection dependent upon a vaso-motor disturbance. Although the clinical entity described by Raynaud is generally accepted, it is now believed to be, in the majority of cases, merely a symptom (symptom complex) occurring in a great variety of diseases.

Symmetrical gangrene is the last and most important of this trinity of symptoms. Gangrene is usually associated with local asphyxia; in a very few instances local syncope and gangrene are combined; often the three classical symptoms are all present, while in about two per cent. of the cases gangrene occurs alone.

Raynaud emphasized its symmetrical nature, but it may occur unilaterally as well.

The parts most likely to be affected are the extremities and ears; the thumbs suffer less frequently than the fingers. The tip of the nose, the cheeks, lips, and chin may be affected. Desquamation of the epithelium may be the only evidence of the necrosis. Unfortunately this is but infrequent. The nails may fall off, but usually reappear. Raynaud describes a peculiar type of blister, a large bulla, of a deep brown color when dry, due to gangrene of the papillary layer of the derma. Necrosis may attack one or more of the phalanges of the digits, or a portion of the foot, or even the entire foot. In one of my cases both legs were gangrenous.

The attack may be so severe that spontaneous amputation of the extremities may occur. Recovery is slow, usually extending over months. If the gangrenous

process is limited to small necrotic areas, the only evidence of its existence, discoverable after recovery, will be the presence of a slight scar or scars, and the number of these is an index of the number of previous attacks. The gangrene is dry and the parts become mummified. It is usually accompanied by pain which, in grave cases, is most agonizing. The general health may suffer seriously through insomnia, pain, and suppurative processes. Fortunately, "Raynaud's phenomena" often occur for years without the presence of gangrene; indeed it may never supervene, but its appearance is always a matter of grave importance.

The prognosis of Raynaud's disease, considered as a pure neurosis, is, if children are excluded, always good. When associated with other morbid conditions it is that of the underlying disease. For example, a patient of my own died during a very severe attack of Raynaud's disease, gangrene and mummification being very pronounced, but death was evidently the result of a chronic Bright's disease, from which she had suffered for years.

Diagnosis is easy when the three typical stages are present. The occurrence of local syncope and local asphyxia, either separate or associated, constitutes what is known as "Raynaud's phenomena," but the additional element of gangrene is necessary to justify a diagnosis of Raynaud's disease. The age, the sensory, motor, and trophic symptoms, together with the symmetry of evolution, will usually enable one to form a correct conclusion. Gangrene due to old age, ergot, and trauma is wanting absolutely in etiological and clinical characteristics.

There is a consensus of opinion among authors that local syncope and local asphyxia are of vaso-motor origin. Local syncope is undoubtedly due to spasm of the arterioles; authorities are at variance as to whether the venules do or do not participate in this spasm. Local asphyxia is due to an isolated spasm of the smallest venules which impedes the outflow of the venous blood from the capillaries, thus producing stasis (Weiss). The seat of these disturbances is situated in the vaso-motor centre of the medulla oblongata, which regulates blood pressure through the innervation of the muscle fibres of the blood-vessels; and this centre, like any other, may be irritated reflexly or directly, and in each case, varying with the intensity of the irritation, will there be an increased tonus of the vaso-motor constrictors and a spasm of the vessels will result (Burdach).

The explanation of the occurrence of the gangrene is more plausible on the supposition of the existence of trophic nerves and a consequent perversion of trophic influence, than it is under Raynaud's theory of insufficient nutrition due to the occurrence of local syncope and local asphyxia.

We now come to the important question: Is Raynaud's disease to be regarded in all cases as merely a symptom complex of other morbid conditions, or may it occur at times as an uncomplicated neurosis? There can be no doubt that the proper conception would be to class it under both heads, with which the present tendency is in accord. In a majority of instances it is to be regarded purely as a symptom, while in rare and exceptional cases it is, without doubt, a genuine neurosis.

Raynaud's disease offers an excellent example of pernicious habit on the part of the vaso-motor system. The therapeutic problem is how to overcome its morbid paroxysmal manifestations, and, above all, to prevent by proper hygiene and appropriate treatment the tendency to recurrence. If the attack is severe and occurs in winter, and especially if the patient is debilitated and advanced in years, a change to a warm climate is advisable. The effort should always be made, during the interval between the attacks, to build up the general and nervous strength, for by this alone can the paroxysmal tendencies be retarded and possibly overcome. Everything that favors a seizure, especially undue exposure to cold, must be carefully avoided. Appropriate clothing, suitable to the season, should be worn, constriction of the circulation guarded against, and the water used in washing ought to be at blood heat.

If the attack is at all pronounced, it would be best for the patient to remain indoors in a uniform temperature. A mixed diet is the most suitable. Great caution should be employed in the use of stimulants, as the liability on the part of the neurotic to acquire a taste for alcoholics must never be lost sight of. If the patient has been at all subject to malarial influences quinine is the remedy *par excellence*; in any event it is a drug of unquestioned value. Opium has been greatly lauded; its chief efficacy, however, lies in its power to alleviate pain, to promote sleep, and thus to conserve the strength of the patient. Should the severity of the symptoms demand morphine, it ought never to be given hypodermically at the seat of pain, as the resulting irritation may cause gangrene. Nitrite of amyl and nitroglycerin should be given a trial. The use of thyroid extract is spoken highly of by Short. Iron, arsenic, nux vomica, strychnine, cod-liver oil, and malt are all useful drugs and potential aids in the process of rebuilding.

Spinal galvanization is perhaps one of the most efficient remedies. The negative pole should remain stationary over the sacrum, while the positive is slowly moved up and down the entire length of the spine, care being taken not to interrupt the current. The current strength should not exceed fifteen milliamperes; séances should be daily, lasting not over five minutes; if the room is suitably warm, it would be advantageous to vary the spinal treatment by applying the positive electrode directly over the affected area. Galvanization of the cervical sympathetic is recommended. Static electricity is an agent of no mean value, general franklinization being the method employed, together with a local application of the static spray. This form of the current is much more easily applied than faradism, and is in every way as effective.

Massage, general and local, has in certain cases proved very efficacious, but great care must be exercised in its application, as the devitalized skin is liable to ulcerate if roughly handled. Should the immediate area affected be too sensitive to allow of its use, the adjacent parts may be treated. Warm fomentations have been found useful. A fifty-per-cent. alcoholic solution of menthol applied to the members involved, which should then be wrapped in cotton and covered with oiled silk, is to be recommended. It is of first importance that the extremities affected be kept carefully wrapped in flannel. I have known this simple precaution to be of more value than all medication.

The treatment of the gangrene is a purely surgical matter. Sufficient time, however, should be allowed for the demarcation line clearly to show itself, as the actual gangrene may include but a small part of the affected extremities.

Much will depend upon the tact and resourcefulness of the physician, and with all his remedies he must not forget the therapeutic value of hope. C. Eugene Riggs.

REACTION OF DEGENERATION (De R) is the term applied to certain changes in electrical excitability, produced by a lesion of the spino-peripheral neuron in any part of its course (the anterior horns of the spinal cord, or the cerebral motor nuclei, the motor roots of the nerves, or the peripheral nerves). When the anatomical lesion is profound complete De R is the result. Partial De R is found in less severe lesions. The nerves and muscles exhibit different reactions to the current. In complete De R, within a few days after the onset of the primary disease, the nerve exhibits a gradual diminution of reaction to the faradic and galvanic currents, and within from one to two weeks its irritability is entirely lost. The muscles supplied by the nerve react differently to the two currents. Their faradic excitability gradually diminishes with the corresponding loss of nerve excitability. The galvanic excitability, on the other hand, presents very peculiar changes. These are best seen when an electrode (preferably a large one) is placed upon an indifferent spot, and the other small electrode is placed directly over the muscle to be tested. Normally, it is

found that the muscle responds most promptly to the closure of the cathode (CaCl), then to the opening or closing of the anode (AnO or AnCl), and finally to the opening of the cathode (CaO). The contraction of the healthy muscle is quick, lightning-like. In complete De R the response of the muscle is slow and, on passing the electrode over the belly of the muscle, one set of fibres contracts after the other. This slowness is the most constant feature of the De R and in itself suffices for the diagnosis. In addition, the diseased muscle reacts to an unusually mild current. This is seen very well, for example, in Bell's palsy by placing one electrode upon the chin, when it will be found that the paralyzed chin muscles react to a current which is utterly inadequate to produce a response in the unparalyzed muscles. Complete De R is also attended by the so-called reversal of the formula. It is found that contraction (C) is obtained most readily on AnCl. CaCO also increases relatively and may be greater than AnCO. As the disease progresses and the electrical excitability is gradually lost, AnCl with very strong currents may furnish the last evidence of the all but extinct muscular vitality. This is sometimes found even after the muscle has been completely paralyzed for a year or more.

In partial De R the excitability of the nerves may be merely lessened, the muscles may still react to the faradic current, but the contraction to the galvanic current is slow and perhaps shows some changes from the normal formula. If recovery takes place there is a gradual inverse return to the normal conditions. Leopold Putzel.

RECRUITS, EXAMINATION OF.—The army of the United States is ordinarily recruited by voluntary enlistment; in time of war enlistment may be compulsory, under Enrollment Acts.

The Recruiting Service is under the direction of the adjutant-general of the army, and is organized into two branches: the general, for infantry and artillery, and the mounted, for cavalry.

THE LEGAL REQUIREMENTS FOR ENLISTMENT.—Any male person above the age of sixteen and under the age of thirty years, effective, able-bodied, and free from disease, of good character, who does not appear to be of intemperate habits, and who has a competent knowledge of the English language, may be enlisted, due attention being given to the restrictions in this article concerning minors. This regulation, in so far as it relates to age, does not apply to soldiers who may re-enlist, nor to those who have served honestly and faithfully a previous enlistment in the army. Applicants for enlistment are required to furnish such evidence of good character as they can obtain. With a view to determine their fitness and aptitude for the service, and to give them an opportunity to secure testimonials, as well as for the inquiry and deliberation contemplated by the Second Article of War, they may be retained and provided for at rendezvous, for a period not to exceed six days, after having signed the declaration of intention to enlist and passed the medical examination. Men so retained are known as *recruits on probation*. The enlistment papers of any such recruit who may be unfit or undesirable for the service, or who may not desire to remain in the service, will not be completed. The enlistment papers of recruits who are accepted and duly sworn will bear the date on which the enlistment is completed by administering the oath (A. R., Art. 1xxi., 908). . . . The major-general commanding the army is of opinion that if satisfactory evidence of good character, habits, and condition cannot be furnished by the recruit, or be otherwise obtained, the presumption should be against him and he should not be accepted; and, further, that these views are concurred in by the Secretary of War and should govern in all cases (G. O., No. 1, Headquarters Recruiting Service, 1890).

These rules and articles shall be read to every enlisted man at the time of, or within six days after, his enlistment, and he shall thereupon take an oath or affirmation in the following form: "I, A. B., do solemnly swear (or

affirm) that I will bear true faith and allegiance to the United States of America; that I will serve them honestly and faithfully against all their enemies whomsoever, and that I will obey the orders of the President of the United States and the orders of the officers appointed over me, according to the Rules and Articles of War." This oath may be taken before any commissioned officer of the army (Article of War).

Every officer who knowingly enlists or musters into the military service any minor over the age of sixteen years without the written consent of his parents or guardians, or any minor under the age of sixteen, or any insane or intoxicated persons, or any deserter from the military or naval service of the United States, or any person who has been convicted of any infamous criminal offence, shall, upon conviction, be dismissed from the service, or suffer such other punishment as a court-martial may direct (Article of War).

Under a recent act of Congress fraudulent enlistment is declared a military offence, and is punishable by court-martial under the Sixty-second Article of War; the provisions of this law are fully explained to every applicant presenting himself for enlistment with the information that any person procuring his enlistment on or after the 35th day of September, 1892, by false representations or other fraudulent means, will render himself liable to trial and punishment by court-martial. "Fraudulent enlistment" is defined by the law officers of the department as "an enlistment procured by means of a wilful misrepresentation in regard to a qualification or disqualification for enlistment, or by an intentional concealment of a disqualification which had the effect of causing the enlistment of a man not qualified to be a soldier, and who but for such false representation or concealment would have been rejected."

The regulations above quoted sketch in outline the requirements for admission to the enlisted branch of the military service and the duties of officers in connection therewith. For the recruiting officer an essential to success is a knowledge of men and their character, and for the medical officer a painstaking application of professional skill. The duty is a most important one, and in its faithful and thorough performance these officers share a grave responsibility. The influence of their judgment and discretion is felt throughout the entire military establishment, the efficiency of which depends in great measure upon the sound mental and physical condition and the intelligence of its enlisted force. From the varied classes and conditions of men presenting themselves for enlistment they are to eliminate not only those who are defective physically and mentally, but those who are defective morally, and if this duty be performed carelessly or indifferently, men will be admitted to the service with defects which will soon render them unfit for duty, or with moral obliquities that will induce malingering and desertion.

RE-ENLISTMENTS.—Soldiers who are unable to pass the required examination *in all respects* will not be re-enlisted without special authority from the adjutant-general's office, and then only for their former commands; application for such authority should be recommended only when it is shown that any existing defects will not prevent the full discharge of duty as a soldier, and that a continuance in service will be a positive benefit to the army.

Soldiers discharged as privates upon expiration of term of service and failing to re-enlist within one month, will not be again enlisted after they have passed the age of thirty-five years, unless for some good reason in the interest of the public service, and then only for their former commands upon special authority from the adjutant-general's office.

This limitation as to age will not apply to a soldier discharged as a *non-commissioned officer with excellent character*, and desiring again to enlist for assignment to a former command (not already full), either at the station thereof, or at a recruiting depot, provided he passes the required examination and furnishes satisfactory evidence in regard to character and habits since discharge.

Soldiers who have been discharged with good character under the provisions of law may be again enlisted without special authority after a period of two months from date of discharge, upon passing the required examination and furnishing satisfactory evidence in regard to character and habits since discharge, provided such enlistment is not barred by any of the above provisions.

Soldiers discharged before expiration of term of service for any other cause will not be again enlisted without special authority from the adjutant-general's office.

These restrictions, which are intended more particularly to govern re-enlistments for the line of the army, need not necessarily be applied to the hospital corps; the approval of the surgeon-general will be sufficient warrant for the re-enlistment of soldiers into that corps.

The position of a medical officer at a recruiting rendezvous is an advisory one (as a medico-military expert) to the recruiting officer; unlike the medical examiner in life insurance, he, in addition to his strictly professional inspection of an applicant for enlistment, must express an opinion upon his *aptitude*, both mentally and physically, for the military service. In times past, this latter duty was restricted entirely to the recruiting officer, who was also the sole judge of height, weight, and chest measurements; but experience has demonstrated the importance of professional skill in the formation of an opinion as to the general efficiency of a man for the military service, and it is now quite as much the province of the medical officer to decide upon the military aptitude of a recruit, as upon his freedom from grosser physical defects. Of course, his decisions are conveyed as opinions to the recruiting officer, who alone is legally authorized to make an enlistment.

In entering upon these duties, the medical officer should bear in mind the important fact that upon "the faithfulness and thoroughness" with which they are performed depends in a great measure the health of the army, its mental and physical efficiency, and especially its mobility; carelessness or inattention on his part may permit the admission to its ranks of men who soon find their way into the hospital, whose undiscovered diseases may be transmitted to innocent comrades, or whose defects may furnish groundwork for the demoralizing practice of malingering; examinations made in a perfunctory manner will surely result in the unwitting acceptance of men whose mental and physical defects are only too clearly displayed in the company organization, and whose enforced discharge from the service will bring discredit upon the professional skill of the examiner, and undeserved censure upon the recruiting officer with whom he has been associated; he should reflect that, in the sudden emergencies which our troops are so frequently required to meet on the frontier, *able-bodied* soldiers are indispensable to success, or to the saving of life and property from destruction; and that with an army so small as ours, in time of peace, every man enlisted must be relied upon to endure all the hardship of which a physically perfect human being is capable. Nor is this less a necessity in time of war with troops of the line, when celerity of movement and ability to endure great privations, as lack of food and inclemency of weather, are imperatively demanded in the manipulation of armies under the modern science of war.

"The experience of all nations has demonstrated the uselessness of attempting to conduct military operations to advantage unless the rigid scrutiny of the surgeon has been exerted to exclude such men as were subjects of, or predisposed to, disease, or were unfitted to sustain the continued fatigue and exposure of the march."

There are, however, conditions of the service in time of war which warrant a departure from this standard in some respects, and the acceptance of recruits with defects which, in time of peace, would be positive disqualifications; farther on, reference will be made, under the appropriate headings, to these deviations from the peace standard.

In time of peace every enlisted man is presumed to be wholly efficient, and fit for duty at all times; he who to-

day is nursing the sick in hospital may to-morrow be in his place in a company, or a member of the garrison guard; in time of war men *may* be enlisted who cannot be strictly classed as "fighting men," but who may be equally effective as soldiers in other departments; a man with a hernia, which is kept in place by a truss that is well-fitting, is in every way able to cook for a company, although not fitted to wear a cartridge belt and do active duty in the field; so, also, the loss of certain members—fingers or toes—would not necessarily disqualify a man from guarding a hospital, or driving a team, and thus taking the place of an able-bodied soldier whose services are more urgently needed at the front. For this reason it has been the custom in all armies to relax in certain particulars their peace regulations, and diminish their list of disabilities in time of war, holding to service many men who in time of peace would have been rejected.

Properly to conduct his examinations the medical officer should have plenty of light, air, and time, and good floors.

The room in which the examinations are made should be well lighted and ventilated, not less than forty feet long and twenty feet wide, with a well-laid, solid floor; its furniture should consist of a fixed measuring rod and slide, good platform scales, steel tape measure, vision test cards, and a set of test wools for determining color blindness; in one corner there should be a bed arranged after the fashion of an operating table, upon which applicants can be placed for the examination of suspected strictures, and heights verified, if necessary, by horizontal measurement, etc.; the instruments required are a set of steel sounds, a Cammann's stethoscope, an ophthalmoscope, a set of Snellen's test types, an astigmatic chart, the necessary apparatus for a rough analysis of the urine in cases of suspected lesions of the kidney, and the appliances for immediate vaccination after acceptance of the recruit.

There should also be adjoining the examination room, one fitted with bath-tubs, and liberally supplied with soap and towels, where every applicant for enlistment (who must be carefully and thoroughly washed before examination) can perform his ablutions under the supervision of the recruiting sergeant.

The recruiting officer should always be present at the examinations, and, for obvious reasons, all other persons excepting the recruiting sergeant should be excluded from the room.

A very considerable and important part of the examination can be made before the applicant is stripped, during which defects may be discovered that will render further procedure unnecessary; he should be closely questioned as to his personal and family history, his previous service in military or naval life, his habits, his health in the past, and the receipt of injuries or wounds, or any surgical operations which may have been performed upon him. The examiner, during this questioning, can form an opinion as to the knowledge of the English language possessed by the applicant, his age, intelligence, and general fitness, both as to physique and morale, for the duties of a soldier.

A thorough and satisfactory examination can be made only by pursuing a systematic course, without the adoption of which the most expert examiner will omit important points, and, probably, lose sight even of glaring defects. To accomplish this the War Department, upon the recommendation of the writer, adopted a "form" for the examination of recruits, which contains a series of questions, to be answered by the applicant, and recorded by the inspecting or examining officer. These forms are furnished by the adjutant-general of the army to all recruiting rendezvous.

When the applicant is ready for the inspection of the surgeon, let him take the position of a soldier in the best lighted part of the room; then examine him in the following order after the methods elsewhere set forth.

1. Inspect his general physique, skin, scalp, and cranium, ears, eyes, nose, mouth, face, neck, and chest.

2. The arms should be extended above the head, the backs of the hands being together, and the applicant be

required to cough vigorously; any form of hernia may now be discovered by the eye and finger.

3. The man should be required to take a long step forward with the right foot, and bend the knee, the hands remaining extended above the head; this exposes the genital organs, and varicocele or other defects in the scrotum may be recognized by the hand.

4. The arms should now be brought to the sides, and the man required to separate his buttocks with his hands, bending forward at the same time; this exposes the anus.

5. Examine the heart.

6. The elbows should be brought firmly to the sides of the body, and the forearms extended to the front, palms of the hands uppermost. Extend and flex each finger separately; bring the points of the thumbs to the base of the little fingers; extend and flex the hands upon the wrists; rotate the hands so that the finger-nails will first be up and then down; move the hands from side to side; flex the forearms on the arms *sharply*, striking the shoulders with the fists; extend the arms outward, at right angles with the body, and flex the forearm upon the arm until the thumbs rest on the points of the shoulders; while in this position raise and lower the arms, bringing them sharply to the sides at each motion; let the arms hang loosely by the side; swing the right arm in a circle rapidly from the shoulder, first to the front and then to the rear; swing the left arm in the same manner, extend the arms fully to the front, keeping the palms of the hands together; observe carefully the elbows; carry the arms quickly back as far as possible, keeping the thumbs up, and at the same time raise the body on the toes.

7. Extend the legs alternately, resting the heel upon the floor; move all the toes; raise the heel from the floor, moving the foot up and down, then from side to side; present the sole of the foot for inspection; bend the knee and strike the shoulder with it, bending the body slightly forward at the same time; throw the leg out to the side as high as possible, keeping the body squarely to the front; take the military position "to kneel firing," first on one knee, then on the other; get down on both knees; squat sharply several times in succession; hop the length of the room on the toes, first of one foot and then of the other; take a standing jump as far as possible; jump up and strike the buttocks with the heels.

8. Auscultate the lungs.

9. Test the hearing.

10. Test the vision, and for color blindness.

11. Vaccinate the applicant, if accepted.

Mr. Marshall, in his excellent treatise on the examination of recruits, arranges the causes on account of which recruits are rejected under three headings:

First. "Diseases or deformities which a medical officer from his professional knowledge and acquaintance with the duties of soldiers considers are infirmities which disqualify men for service in the army."

Second. "Slight blemishes which do not disqualify a man for the army, but which an unwilling soldier may exaggerate, and allege that he is thereby rendered unfit for military duty."

Third. "Unimportant deviations from symmetry, or slight variations from the usual form or condition of the body; technical or nominal blemishes which do not incapacitate a man for the army, or in the slightest degree impair his efficiency."

Experienced surgeons will reject all recruits whose defects fall under the first two headings, from a conviction that they render the men unfit or ineligible for the army; but those under the third heading are frequently rejected from fear of responsibility—a dread of official correspondence if objected to, and an ultimate damage to professional reputation.

In time of war cases coming under the first heading should be rigidly excluded, while those coming under the second and third headings should be as rigidly held to service.

THE GENERAL EXAMINATION.—*Competent knowledge of the English language* is defined by the War Department as the ability of the applicant to "speak fluently, converse

intelligently, and fully understand the orders and instructions given in that language."

It would seem almost superfluous to refer to this matter, the importance of which is self-evident, were it not for the fact that so large a number of foreigners have been enlisted, who were *utterly ignorant* of our language, whose blunders and mistakes have caused annoyances and impediments to the public service, and whose efficiency as soldiers has been thereby seriously impaired. It is of paramount importance that the soldier should be able clearly to understand the orders which are given to him, and to ascertain this fact beyond a doubt is one of the first duties required of the medical officer. Exception to this rule is made in the cases of skilled artisans and tailors, and more particular band musicians.

In time of war familiarity with the language is not so necessary, as foreigners are more likely to be assigned to regiments made up of their own countrymen, with officers who speak their language; they can also be made useful in the administrative departments of the army, taking the places of men better fitted for field service.

Age.—As has been already stated, the limits of age for enlistment in time of peace are, "not less than sixteen years, nor more than thirty-five years"; "minors under eighteen years will not be enlisted except for musicians, . . . and then only under authority from the superintendent."⁴

The regulations of the army require that when minors present themselves for enlistment, they shall be treated with great candor; the names and residences of their parents and guardians, if they have any, shall be ascertained, and notice sent to them of the minor's wish to enlist, that they may have an opportunity to make their objections or give their consent. When consent is given it must be in writing. All recruiting officers are enjoined to be very particular in ascertaining the true age of the recruit. If any doubt upon the point exists in the mind of the recruiting officer, he must not be satisfied with the oath of the applicant as the sole evidence of legal age, but if he cannot, in addition, furnish undoubted proof of the fact, he must be rejected.⁵

The maximum limit of age does not apply to soldiers who may re-enlist, or who have served honestly and faithfully a previous enlistment in the army.⁶

In time of war the limitations of age in compulsory enlistment, under the Enrolment Acts, are twenty and forty-five years; the question of minority between the twentieth and twenty-first years is not considered, except in voluntary enlistments, which are under the same restrictions as in time of peace.

The medical examiner must form his opinion of the age of an applicant from his personal observation of men and upon physiological grounds. It is a point about which the greatest amount of deceit is practised; concealment being attempted in voluntary enlistments with a view of getting into the service, and in compulsory enlistments with a view of exemption therefrom. He must, therefore, be always upon guard against imposition. Young men who would scorn to tell an untruth in other matters will lie about their age with the utmost effrontery, and old men will resort to every artifice to conceal theirs.

While the divisions of life into periods, by years of existence, are in a measure arbitrary, some men maturing at an earlier age than others, it is important to consider certain common evidences of maturity as fixing the period of legal majority, and furnishing a standard, indefinite though it may be, of eligibility for the military service. Among the most prominent of these evidences are the presence of the wisdom teeth, a plentiful supply of hair in the axillæ, and over the pubes, well-formed testicles, and complete corrugation of the scrotal skin. While these conditions are liable to variation in individuals, they may be regarded as common to most youth at maturity, although no one condition can be regarded as more frequently present than another. It has, however, been the experience of the writer to find a peculiarly smooth condition of the skin of the scrotum in every case of minority

examined by him. This may be due to lack of development of the dartos. Men of mature age do not display it, but it is very noticeable in minors. The general appearance and bearing of a young man will, in conjunction with physical peculiarities, give the surgeon a very fair idea of his age, and there are few possessed with sufficient hardihood to deny a firm and decidedly expressed opinion by an observant surgeon upon the subject. In those whose age exceeds the maximum there will probably be found presbyopia, the arcus senilis in one or both eyes, a wrinkled skin, especially about the outer angles of the eyes and on the forehead, gray hair, and a peculiar hardness of the nails of the fingers and toes.

HEIGHT, WEIGHT, AND CHEST MEASUREMENTS.—"The *minimum height* of a recruit is at present fixed at five feet four inches for all branches of the service, although recruiting officers are allowed to exercise their discretion as to the enlistment of desirable recruits (such as band musicians, school teachers, tailors, etc.) who may fall not more than one-fourth of an inch below the minimum standard of height; the *maximum height* for the cavalry service is five feet ten inches; that for infantry and artillery is governed by the maximum of weight, to which should be applied the rule for proportion in height."

"The *minimum weight* for all recruits is 128 pounds, except for the cavalry, in which enlistments may be made without regard to a minimum of weight, provided the chest measurement and chest mobility are satisfactory. The *maximum* for infantry and artillery is 190 pounds; for cavalry and light artillery, 165 pounds."

The standards of height and weight are, however, subject to change, instructions to that effect being issued from the adjutant-general's office "from time to time as the requirements of the service may dictate."

These standards are based upon results obtained by skilled observers who, after careful study and the examination of large numbers of men in civil and military life, have established the fact that there is an *average proportion* in healthy, fully developed men between the height, weight, chest measurement, and chest mobility which will admit of slight variations without indicating a departure from health. The rules of this proportion may be formulated as follows:

For each inch of height from 5 feet 4 inches to 5 feet 7 inches, inclusive, there should be calculated 2 pounds of weight. When the height exceeds 5 feet 7 inches, calculate 2 pounds of weight for the *whole number* of inches of height; add to this product 5 pounds of weight for each inch of difference between 5 feet 7 inches and the actual height; the sum will be the normal weight in pounds.

The *chest measurement at expiration* in men from 5 feet 4 inches to 5 feet 7 inches in height should exceed the half height about half an inch; in those from 5 feet 8 inches to 5 feet 10 inches it should *equal* the half height, while in those from 5 feet 11 inches upward it should be slightly *less* than the half height.

The *chest mobility*—*i.e.*, the difference between the measurement at inspiration and expiration—should be *at least* 2 inches in men below 5 feet 7 inches in height, and 2½ inches in those above that height.

The following table shows this concisely:

Height.	Weight. Allow for each inch of height.	Chest measurement.	Chest mobility.
5 feet 4 to 5 feet 7 inches.	2 pounds	Half height plus half inch.	2 inches.
5 feet 8 to 5 feet 10 inches.	2 pounds and 5 pounds additional for each inch over 5 feet 7 inches.	Half height.	2½ inches
5 feet 11 to		Slightly less than half height.	2½ inches

For example, a man who measures 5 feet 4 inches should weigh 128 pounds—*i.e.*, 5 feet 4 inches = 64 inches; 64 × 2 = 128, the normal weight. He should have a chest measurement of 32½ inches at expiration, being half

height; 32 inches plus ½ inch = 32½; the chest mobility should be about 2 inches.

A man who measures 5 feet 9 inches should weigh 148 pounds—*i.e.*, 5 feet 9 inches = 69 inches; 69 × 2 = 138; difference between 5 feet 9 inches and 5 feet 7 inches is 2; 2 × 5 = 10; 138 + 10 = 148, the normal weight in pounds. He should have a chest measurement of 34½ inches (his half height), and a chest mobility of at least 2½ inches.

It is not necessary that the applicant should conform *exactly* to the figures indicated in the rules, a variation of a few pounds from either side of the standard in the minimum, medium, and maximum weights, and of a fraction of an inch in chest measures being permissible if the applicant is otherwise in good health and desirable as a recruit. The rules are given to show what is regarded as a fair proportion, *but the weight must be at least 125 pounds* except when less is especially authorized by the superintendent or the adjutant-general.

In such cases the recruiting officer's reasons and the superintendent's order should be noted in full on the enlistment papers. Any *considerable* disproportion, however, of height over weight is cause for rejection; but a marked disproportion of weight over height does not reject unless the applicant is positively obese.

In order that an intelligent application of these rules and their variations may be made, the attention of recruiting officers is called to the manner in which a man's height is made up.

The chest, containing the heart and lungs, is the most important division of the body. It contains the vital machinery and represents the *staying power* of the man. It must, therefore, be ample. The function of the legs is to transport the body; they should be well formed and sufficient, but not unduly long, for length of limb at the expense of the chest is a disadvantage. A long-legged, long-necked man with a short chest is objectionable as a recruit.

The average height of a youth of eighteen years of age, a "growing lad," is a little over 5 feet 4 inches, and increases gradually until he reaches the age of twenty-five years—the stage of physical maturity or manhood—when his average height is between 5 feet 7 inches and 5 feet 8 inches.

During the growing period the framework and vital organs receive their proper development, and considerable departures from the given average of proportionate height to weight indicate an impairment of these organs which may, and probably will, develop into positive disease after exposure to the hardships incident to the life of a soldier; hence they are of greater significance in men of these heights than in taller men, who are presumably of greater age and more mature growth.

After twenty-five years of age, the body being fully developed, the excess of nutritive material over and above that required for its maintenance in health is deposited in the tissues as fat, and it will be found that a disproportion of weight over height occurs usually in adults or men in middle life. It is rare to meet in the recruiting rendezvous with *very fleshy young men*.

The following table is given for convenience of reference:

TABLE OF PHYSICAL PROPORTIONS FOR HEIGHT, WEIGHT, AND CHEST MEASUREMENT.

HEIGHT.		WEIGHT. Pounds.	CHEST MEASUREMENT.	
Feet.	Inches.		At expiration, inches.	Mobility, inches.
5½	64	128	32½	2
5⅝	65	130	33	2
5⅞	66	132	33½	2
5¾	67	134	34	2
5⅘	68	141	34	2½
5½	69	148	34½	2½
5⅝	70	155	35	2½
5⅞	71	162	35½	2½
6	72	169	35½	2½
6½	73	176	36½	2½

A deviation from the rules of physical proportions may be made in the examination of candidates for admission to the United States Military Academy at West Point, and for members of the graduating class, whenever this is deemed desirable by the Medical Examining Board.

Habits.—Drunkenness, or habits of intemperance, is the cause of a very large number of the rejections made at rendezvous. It is the vice of the army, as well as of most walks in civil life, and the medical examiner cannot be too careful in scrutinizing every applicant for evidences of this demoralizing habit. The regulations of the army are very emphatic on the point, declaring that every man shall be sober when enlisted, and that men *having the appearance* of being hard drinkers will be rejected, "though they may not at the time be intoxicated."⁷

Some recruiting officers go so far as to reject men on whom the smell of liquor can be detected at the time, and they are without doubt correct in their opinions and practice. It is a great mistake to "suspend a final decision . . . for a sufficient length of time to enable a man to recover from the effects of a mere temporary debauch," as is recommended by Tripler,⁸ as the man who will indulge in such debauchery *before* enlistment will be pretty sure to repeat it afterward; and such men are not wanted in the army. If a man has to resort to the stimulation of alcohol to "brace himself up" for the ordeal of the examination, it is a fair presumption that his habits as to the general use of stimulants will not bear much criticism. The evil wrought to the service by men having these habits is so great that it is far better to err, and run the risk of occasionally rejecting temperate men, than, by relaxing any vigilance, to enlist those who may eventually prove themselves sots.

While it is sometimes difficult to detect the habitual drunkard, and the medical examiner is forced to rely, to some extent, upon the man himself for such information as he may be willing to give, yet the long indulgence in habits of intemperance will almost surely be indicated by persistent redness of the eyes, tremulousness of the hands, attenuation of the muscles—particularly of the lower extremities,—sluggishness of the intellect, an eczematous eruption upon the face, and purple blotches upon the legs.⁹ Close and skilful questioning will often develop the facts connected with the antecedents of the applicant, and materially assist the examiner in forming his opinion of the case.

Masturbators and Sodomites are also to be looked for and rigidly excluded. In addition to the well-known general signs of physical prostration due to indulgence in masturbation, Howe, in his little work on "Excessive Venery,"¹⁰ says, "the local signs are sufficient for a diagnosis. . . . The penis is thinner and smaller than usual. It is often elongated, and cold to the touch at different points. The glans is much larger than the rest of the organ. . . . The veins of the integumental covering are dilated and varicose. In many patients the penis is bent laterally, and the inclination is generally toward the left side. . . . The scrotum is also relaxed and elongated, the testicles are small and soft; . . . sometimes they are extremely sensitive." The air of embarrassment which so often overtakes subjects of this vice, when closely questioned, will also lead to their detection.

Sodomy may be suspected if the anus is much dilated, or is infundibuliform in shape: "The absence of the radiating folds is considered one of the best medico-legal proofs of the vice."¹¹ Tidy says,¹² "a peculiar, funnel-like depression or hollow of the nates toward the anus, the anus gaping and the sphincter relaxed," are signs of the practice of this vice, to which greater or less importance may be attached as the circumstances of the case demand.

Mental Disorders.—*Insanity, idiocy, imbecility, and dementia* are disorders which will call for the closest scrutiny and observation by the medical examiner; their nature is such that a careful diagnosis in the limited time allotted to the examination of a recruit is rarely possible. The necessity, therefore, of an acquaintance with their

physiognomy is apparent. To one skilled in this means of diagnosis the detection of the less obscure grades is not a matter of great difficulty. The idiot, the imbecile, or the demented patient presents such well-marked characteristics that an error can hardly be made. It is in those unfortunate persons who are on the borderland of mental deficiency, and the insane, that the greatest difficulties of diagnosis may be expected. Unless an insane person betrays by action or speech some evidence of this disease, a correct diagnosis would be a matter of great difficulty, and no surgeon would be held responsible for accepting one who afterward manifested insanity. Should the examiner have reason to suppose that the applicant is deficient in mental capacity, or has not the aptitude to acquire readily a knowledge of his duties as a soldier, he should be rejected. It is much safer to take even an extreme view of such cases, and run the risk of an erroneous rejection, than to accept one about whom a suspicion of mental alienation can rest.

Physique.—While a decision of cases under this heading does not always fall within the province of the medical examiner, his opinion is entitled to great weight with the recruiting officer. His knowledge of anatomy and the proper proportions of the human frame, as well as his familiarity with physiognomy, eminently qualify him to form a correct opinion as to the general appearance, both physical and moral, of the applicant, and his fitness for the duties of a soldier, in cases in which no technical disability exists or can be discovered by a non-professional man. His experience with the effects of disease, bad habits, food, and living upon the constitution will enable him to judge as to future efficiency, although there may be no direct evidence in the case before him that the applicant has ever been subjected to such hardships.

There is probably no one class of men which furnishes such large numbers to the hospitals, the guard-house, and the list of deserters as this, designated indifferently by military men as "poor physique," "feeble constitution," or "general unfitness."

The leading characteristics of a good physique may be briefly enumerated: "A tolerably just proportion between the different parts of the trunk and members; a well-shaped head, thick hair, a countenance expressive of health, with a lively eye, skin not too white, lips red, teeth white and in good condition, voice strong, skin firm, chest well formed, belly lank, parts of generation well developed, limbs muscular, feet arched and of a moderate length, hands large."¹³ The gait should be sprightly and springy, speech prompt and clear, and manner cheerful. The medical examiner should endeavor to judge from the eyes, from the whole expression of the countenance, from the conformation of the limbs, which of the candidates are capable of making the best soldiers; there are as certain and as well understood indications for judging of the soldierly qualities of men as there are for ascertaining the value of a horse or a hunting-dog.¹⁴ All lank, slight, puny men, with contracted figures, whose development is, as it were, arrested, should be set aside. The reverse of the characteristics of a good constitution, already enumerated, will indicate infirm health or a weakly habit of body: loose, flabby, white skin; long cylindrical neck; long, flat feet; very fair complexion, fine hair; wan, sallow countenance, etc.

Under our present system of recruiting in large cities a very objectionable description of men present themselves for enlistment, whose health has suffered from debauchery of various kinds. They are tramps; men who wander about over the face of the country, too lazy to work and too vicious to live in a well-regulated community—a set of Ishmaelites who seek service in the army as the easiest method of getting food, clothing, and shelter, but without the slightest design of performing any more duty than they are compelled to. They generally appear as winter approaches, driven by inclement weather to seek an asylum until the opening of spring. No more undesirable or unfit class of men come before a recruiting officer. They are seldom, after enlistment, out of the guard-house or hospital, and the company to which they belong

is fortunate if, when they take their flight in the spring, they do not carry away with them all the available cash, or articles of value, upon which they can lay their hands. Another class of men, having neither apparent disease nor well-characterized physical or moral defect, are equally objectionable; there is a "something" about them which satisfies an expert that they will make either indifferent or bad soldiers, for which reason they should be rejected. The power of recognizing these two classes of men is a talent which is greatly improved by practice, and which the medical examiner should cultivate to the highest degree, persistently rejecting all about whose ultimate efficiency he has the slightest doubt.

Even in *time of war*, when the urgency for men may be ever so great, there should be no deviation from the general rule as to men of this stamp and character, who, if once admitted will serve only to encumber the army either by their shiftlessness or by their viciousness. An army, in whatever strait it may be, is vastly better without than with them.

GENERAL INTELLIGENCE.—A higher degree of intelligence is now expected from the soldier than was the case in the earlier days of the republic. Promotion is open to him, and he is encouraged in every way to improve himself; libraries are established to which he has ready access; reading-rooms, with liberal supplies of newspapers, are prepared for him, and schools are organized in which he has opportunities for study. "It is worthy of notice that much of the advantage to be derived from modern improvements in the mode of educating, training, dieting, and clothing the soldier depends upon his capability of appreciating the objects with which they have been introduced,"¹⁴ and while it is impossible to formulate any specific standard of intelligence by which his eligibility is to be judged, such a direction can be given to the questions necessarily asked during the physical examination as will enable the medical officer to form a very good opinion of his general intelligence, and afford an opportunity to exclude men w/o, while they may not be exactly idiotic, are "a sort of demi-simpleton."

The remarkable strides which have been made during the past quarter of a century in the science and art of war; the superior mechanism of the rifle now in use; the attention that is paid to target practice, and the efforts that are made to instruct the soldier in the management and care of his weapon and ammunition, tend to make his profession both instructive and interesting, and justify the expectation that men of better tastes and habits than those obtained in the past will, in the future, be attracted to the profession of arms.

It is well stated by Dr. Crawford, in the article from which quotation has been made, that the criminal and invalidating statistics of the army leave no doubt as to the frequent enlistment of the fatuous and imbecile, as well as the criminally vicious, and that if the development of the head, and the symmetry of its proportions were as carefully examined and as dogmatically insisted upon as is customary in determining the form, development, and symmetry of other organs and regions, a proportion, at least, of such men might be excluded from the service.

SPECIAL EXAMINATIONS.—*The Cerebro-spinal System.*—*Epilepsy, chorea, stuttering or stammering, all forms of paralysis, tabes dorsalis, neuralgia, disqualify.*

It is not to be expected that the medical examiner will make a diagnosis of all the different forms and phases of this class of diseases. It is sufficient for practical purposes that he should recognize such general symptoms as are indicative of grave lesions of the system, and should satisfy himself of the incapacity of the applicant for military duty; in their later stages the manifestations are so well pronounced that it is hardly possible for errors of diagnosis to occur; but the earlier symptoms are in many instances obscure, requiring close observation for their detection. The personal appearance, facial expression, and gait will often betray the existence of many forms of nervous disorder, for which reason the medical examiner should require each applicant, after being stripped, to approach him from a distance, and if necessary, walk

about the room, during which time he can thoroughly scan his person, observing particularly any deviations from the normal conditions. By this means the halting gait of paralysis of the lower extremities, or the shuffling unsteady step of tabes may be detected. A careful examination of the spine should be made by pressure upon the spinous processes from the cervical to the lumbar vertebrae, and any tenderness or pain manifested by flinching made mental note of. Unsteadiness of the hands and arms should suggest a suspicion of tabes dorsalis, and the simple tests of standing or walking while blindfolded, the tendon reflex, and the tactile sense, should be made with care.

Stammering may be congenital, due to habits contracted in childhood, to malformations of the vocal apparatus, or to organic lesions in the nervous system; by whatever cause it may have been produced, if it is sufficient in degree to interfere materially with ordinary conversation, the applicant should be rejected. Some care will be necessary in arriving at the degree of this affection, because the nervous excitement incident to the examination will of itself react upon the patient, whose embarrassment will increase his difficulty of speech. A little patience and kindness of manner will, however, soon reassure him, and the true extent of the difficulty be appreciated. *In time of war* attempts will often be made to simulate disorders of this class for the purpose of securing exemption from military duty. The different forms of paralysis and tabes can, by the exercise of some patience and care, be detected; indeed, it would require a man to be possessed of great self-control, shrewdness, and a considerable knowledge of the symptomatology of disease to simulate, with any reasonable prospect of success, any form of paralysis. Ocular evidence of a convulsion should always be obtained by the examiner before he is justified in exempting a man from military service on the ground of *epilepsy*. No statements, however well substantiated, should lead him to deviate from this rule. He should satisfy himself by the absolute loss of sensibility of the conjunctiva, the dilatation and immobility of the pupil, and the character of the convulsions, that the attack is one of true epilepsy before recommending the case for exemption. The pain of *neuralgia* may be simulated; but true neuralgia of sufficient intensity to disqualify can hardly exist without producing such decided constitutional effects as will be visible to the eye of the examiner.

Constitutional syphilis disqualifies.

The late forms of this disease, as gummata, rupia, periostitis, osteitis, caries, etc., are rarely brought to the notice of the examining surgeon, or if such cases should be presented, the cachexia will be so well marked that there can be but little difficulty in making a diagnosis. It is the early manifestations of the disease which he is to watch for with great care, particularly as men are often the subjects of syphilitic infection without being aware of its existence, and therefore truthfully disclaim any knowledge of a disability for the service on that account.

Careful examination should be made of the cervical, epitrochlear, and inguinal glands, as one of the earliest and most important manifestations of constitutional syphilis consists in their enlargement and induration. Otis, in his work on "Syphilis," states that this abnormal change extends, to a greater or less degree, throughout the entire lymphatic system. He describes the enlarged glands as varying in size from a small shot to a pigeon egg; as being hard, movable, and painless; those in the epitrochlear region being the most valuable in a diagnostic point of view, and rarely present before, or absent after, the tenth or twelfth week succeeding inoculation of syphilis, whether any roseola can be detected or not. Sometimes only one gland is enlarged, which may be above the trochlea, along the inner border of the biceps, and therefore difficult to find. There is variation, also, as to locality in the different cervical and inguinal glands that are enlarged, a patient search for which will generally be successful. The next evidence in order is the classical roseola, with its bright hue in the early stages, and its faucial inflammatory engorgement; the papular

eruption with its crop of papules along the upper border of the forehead, hard to the touch, and painless (the corona veneris of Ricord); the circle of white scales arranged about the base of the papules on the body (the collarette of Bielt); the coppery-colored stain left after the disappearance of this papular eruption; alopecia, and mucous patches. These, either alone or taken together, should be sufficient evidence of the existence of the disease in its earlier stages to warrant the examiner in rejecting the applicant. As the cicatrices of buboes are not evidences of the existence of syphilis, they should not be made a cause for rejection, although their presence should lead to careful examination for signs of the disease, as heretofore mentioned.

In time of war this disease (syphilis) is cause for rejection.

Cancer, in whatever form or stage of development, is a cause for rejection. The "pipe-smoker's cancer," epithelioma of the lip or tongue, and cancerous affections of the testicles, are the forms most likely to be seen among men desiring enlistment. As, however, the disease is one of middle or advanced age, it is very rarely met with at recruiting rendezvous, and is only mentioned in this place as one of a class of diseases which the surgeon may be called upon to reject.

The Skin.—*All chronic, contagious, and parasitic diseases of the skin; naevi; extensive, deep, and adherent cicatrices; chronic ulcers; vermin, and indecent tattooing, disqualify.*

Although vermin may be considered to be only temporary annoyances, it will be found, as a rule, that the men upon whom they take up a residence are undesirable by reason of filthy habits. The fecundity of vermin is so great, so many opportunities are afforded for their migration where numbers of men are associated together, and their presence is so disgusting, that, in time of peace, men infested with them should either be summarily rejected, or acceptance deferred until their persons are rid of the parasites. The most common form met with at recruiting stations is the crab louse (*pediculus pubis*). Of parasitic diseases *scabies, furus, tineo tonsurans, and sycoosis* are most frequently met with, and should be causes for rejection, or action should be deferred until a cure has been effected. *The tattooing of indecent devices* upon the skin, on any part of the body, is cause for rejection, upon the ground that a man who will voluntarily submit to such defacement is morally unfit to be a soldier. *The presence of cicatrices from cupping* should lead to a close examination of the internal organs in their vicinity, which may have been seriously damaged by disease, or are liable to become again affected after exposure to the hardships of a winter campaign. When *extensive adherent cicatrices* impede the free motions of the limbs, they are absolute causes for rejection; but when seated on other parts, as, for example, the head or trunk, they are not in themselves objections in a recruit; as indications, however, of constitutional cachexia they are important.¹⁵ *Cicatrices, non-adherent, white and smooth, resulting from an incised or lacerated wound, or a burn, and not involving much loss of substance or lesion of subjacent organs, are not causes for rejection. Chronic ulcers* are not likely to be found, except in persons of broken-down constitution. Those resulting from abrasions or slight wounds, in persons who do not present any evidence of constitutional disorder, have probably been kept active from some local cause, upon the removal of which they will heal; but those involving much loss of substance, with atrophy of a limb, with a general constitutional disorder, or with varicose veins, especially when located on the lower extremities, should disqualify; even when healed they are apt to open again, so soon as the soldier is exposed to any cause of irritation, such as long marching or inclement weather. The skin of the negro seems especially prone to ichthyosis, and to keloid growths at the seat of even trivial injuries; unless the affections are extensive, or the keloid growths so situated as to interfere with the motion of limbs, or otherwise impair the efficiency of an applicant, they should not be considered causes for rejection. *In time of war* exemption should be given only on account of