Myers' Heart Disease among Soldiers. — It will be remembered that a subscription was raised some years since for a bust of the late Mr. Alexander, to be placed in the Royal Victoria Hospital, Netley; and this object having been accomplished, it was determined to invest the surplus funds for the purpose of awarding a triennial prize for the best essay on some subject connected with military medicine, surgery, or hygiene. To the essay now before us this prize has just been awarded.

Mr. Myers treats his subject under four heads, namely, I, the prevalence of diseases of the heart in the army as compared with other classes; II, the particular forms of disease so prevalent; III, the causes of such disease; and IV, the remedies proposed.

In reference to the first question, namely, the prevalence of diseases of the heart among soldiers, it would be supposed at first sight that these diseases were more common in the civil population than among the military, inasmuch as the existence of such disease in a recruit would render him ineligible for military service; and moreover as the period of service is limited, disease of the heart, as a very common complication of old age, can be seldom observed in the soldier. Nevertheless it appears from the evidence of statistics that fatal disease of the heart is actually more prevalent among the military than among civilians, and that the death rate from this cause among the former would be greater than it now is if the soldiers with diseased heart were retained in the service instead of being discharged as is the rule. It is also a somewhat curious fact that although sailors, from the nature of their occupation, are apparently more exposed to the causes of heart disease than soldiers, yet the army loses more men than the navy from this affection.

The next question, the particular nature of the diseases found to prevail in the army, cannot be very satisfactorily answered by

1 On the Etiology and Prevalence of Diseases of the Heart among Soldiers. The "Alexander" Prize Essay. By Arthur B. R. Myers, Assistant-Surgeon, Coldstream Guards. Pp. 92. London, 1870.
the returns available, partly because the statements as to the
precise pathological lesion are not always verified by post-mortem
examination, and partly because some of the names assigned as
the causes of death (such as morbus cordis, carditis, and syncope)
are very vague. It may be stated in general terms that the
deaths from diseases of the circulatory system in the army may
be grouped under three heads, namely, valvular disease, hyper-
trophy, and aneurism.

The third point, namely, the causes of heart disease in the
soldier, is a very important one. Among the civil population,
as is well known, the causes of heart disease are principally
rheumatism and Bright's disease among the young and middle-
aged, and the degeneration of arterial coats in advanced life; but it appears that neither rheumatism nor Bright's disease are
particularly prevalent in the army, and the diseases incident to
old age are necessarily absent in the case of the soldier during
his period of service. The soldier ought therefore to suffer less
than the civilian from cardiac disease, whereas, as we have just
seen, he actually suffers more. It appears that, in consequence of
the opinion freely expressed in military circles that the cardiac
diseases in the army were really due to the same morbid in-
fluences which produced heart disease among civilians, all the
invalids suffering from cardiac disease in Netley Hospital were
lately collected together and examined by Dr. Parkes, when that
very competent observer found that out of the whole number,
which amounted to seventy, only two or three had any previous
history of disease, rheumatic, renal, syphilitic, or otherwise, and
he therefore expressed his unqualified opinion that the great
bulk of these cases could only be attributed to causes which do
not exist among the civil population.

Inasmuch, then, as diseases of the heart in the army must
arise from some cause peculiar to the soldier's life or habits,
Mr. Myers reviews the various circumstances which might be
supposed to have such a tendency, namely, service in India
and other hot climates, syphilis, and the abuse of alcohol and
tobacco; but he fails to find in any of these a satisfactory
explanation of the prevalence of cardiac affections. He then pro-
ceeds to notice the special causes of these affections in the soldier,
namely, the particular form of clothing which he wears, and
the amount and arrangement of his accoutrements when per-
forming exceptional or even ordinary duty. Mr. Myers draws
attention to the fact that in civil life, when any prolonged or
powerful exertion of the body is to be made, either by necessity
or for recreation, all constriction of dress is avoided, so as to
allow the chest and other parts of the body to expand freely,
or to allow the uncontrolled play of the muscles. The method
of equipping the soldier is guided by the very opposite principle, for he is clothed in a close-fitting tunic, his neck is constricted by a tight-fitting collar, his waistband is bound tightly below the chest, and the knapsack straps and the pouch belt add their share to the general compression.

The subject of heart disease in the army, as caused by the peculiar dress and accoutrement of the soldier, has been brought before the notice of the Government in the report of a committee appointed for the purpose in 1864, and in this document the morbid effects caused by the constrictions just referred to are pointed out, but it does not appear that any steps have yet been taken to remedy the existing evils.

The same committee stated that the special disease from which the young soldier suffers is not disease of the valves, but an extreme excitability of the heart, combined with some but not great enlargement; and Dr. Myers, believing that this irritable condition of the heart might be demonstrated by the sphygmograph, examined, by the aid of this instrument, the radial pulse of a large number of young soldiers, some of whom were suffering from the affection and others who were predisposed to it, and he found in all a common feature, namely, a greater or less dicrotism present in each case. This dicrotism of the pulse is believed by Mr. Myers to be due to the abnormally excitable condition of the heart, the blood being thereby propelled with an unwonted force, and then, returning with unnatural abruptness on the closed valves of the aorta, giving a second shock to the column of blood to such an extent as can be made apparent to the eye by means of the sphygmograph. Mr. Myers gives a series of tracings taken by himself by means of this instrument, in which the dicrotic condition of the pulse is made visible.

Mr. Myers then proceeds to prove that organic disease of the heart is actually more frequent in the army than in the civil population, for although, as he candidly admits, the diagnosis of heart disease made among soldiers during life is not always to be implicitly relied upon, yet the records of the post-mortem examinations at Netley Hospital conclusively show the prevalence and fatality of these diseases, and they show moreover that while mitral valve disease is proportionately more common among the civil population, aortic disease is more prevalent in the army. He also shows that aneurism is of very frequent and disproportionate occurrence in the army. Mr. Myers, to quote his own words, concludes from his researches "that it is an undeniable fact that disease of the heart is more prevalent in the army than in the civil population; that its three main causes, as generally understood, namely, rheumatism, Bright's disease, and violent manual labours, apply more to the latter than to the former;
that syphilis, whatever may be its effects on the heart, directly or indirectly, by attacking both classes to nearly the same extent, must produce a relatively equal deteriorating effect; that disease of the mitral is more common than disease of the aortic valves in the civil population, and aortic more than mitral in the army; and, consequently, that there must be something specially associated with the life of the soldier to produce this marked difference; that though the heat and malarious diseases of India and of other countries in which our army has to serve may not, according to statistics, produce a greater ratio of heart disease than this more healthy climate of Great Britain, it is probable that such is their tendency, as well as to develop more rapidly disease, the foundation of which has been laid in the young soldier before he leaves his own country; that the very frequent functional derangement of the heart of the young soldier can be readily detected by the sphygmograph before it is otherwise recognisable, and therefore that this instrument might be made of great use in directing attention to an abnormal condition, which, amenable to treatment at first, is only the precursor, if neglected, of diseases that, though capable of being kept within certain limits, cannot be cured; that there is one special cause of heart disease in our army now clearly laid down by those who have most studied the subject, namely, the prejudicial constriction of the uniform and accoutrements—this producing such obstruction to the circulation, that either directly or indirectly, as by aneurism and disease of the aortic coats, &c., the heart is abnormally strained, and frequently passes into a state of functional derangement and ultimately of organic disease,” pp. 81 and 82.

The important question of the measures which ought to be taken to check heart disease in the army is discussed by Mr. Myers, at considerable length and with much judgment; and while it is admitted that little can be done in the way of cure, yet very much good may result from measures of prevention. A more loose style of dress should be worn by the soldier, especially when he is on active duty; the training of recruits should extend over a longer period than is now devoted to the purpose; the age of admission into the army should be limited to twenty instead of eighteen as at present; and the weight of the accoutrements, when on the march or on drill, should be diminished.

These and other suggestions of a similar nature are made by Mr. Myers for the prevention of heart disease in the army, and the whole essay is worthy of attentive perusal, more especially by those who direct our military establishments both at home and abroad.