

poise is essential for the due performance of the respiratory act. The more expanded the chest is held the nearer are the circumferential attachments of the diaphragm to the level of the central tendon, *i.e.*, the flatter is the diaphragm and the less is its inspiratory and expiratory power. It is worthy of note that when the back is flat and the spine is kept as extended as possible, the chest will naturally assume its proper position. It is perhaps needless to remark that proper or physiological breathing means neither more nor less than *silent, controlled, nasal respiration*; and as long as the breath is taken noiselessly through the nose it is immaterial whether the mechanism employed is that of the lower costal type or abdominal type. With no other types of respiration is it possible for inspiration and expiration to be complete, full and regular.

With regard to Major Smith's opinion that our Army gymnastic training is not harmful in any way, I can prove by spirometric tests that the gymnastic training in the Army makes chiefly for thoracic rigidity. It should be noted, however, that the Army system does not stand alone in this respect, for all illogical systems bring about the same result.

Le Pont,
Switzerland,
January 18th, 1907.

I am, &c.,
R. F. E. AUSTIN,
Major, R.A.M.C.

THE PREVENTION OF MALARIA IN INDIAN CANTONMENTS.

TO THE EDITOR OF THE "JOURNAL OF THE ROYAL ARMY MEDICAL CORPS."

DEAR SIR,—The means of preventing malaria in India at present in use may be said to be all directed to the treatment of the breeding places of mosquitoes. The success of this method depends upon the absolute elimination of Anopheles. This result is so difficult to obtain that a really marked and constant diminution in the incidence of malaria has never been obtained, either in India or elsewhere, when this method alone has been depended upon. This method of preventing malaria has the disadvantage of being very expensive if carried out with thoroughness. On the other hand, the protection of the individual and the segregation of persons known to be affected with malaria is infinitely more efficacious, and very much cheaper.

When it is remembered that a forgotten flower-pot or a single pocket of rock may form the breeding place for sufficient Anopheles to infect a regiment, it will be obvious that the most elaborate anti-malarial measures will be liable to be rendered useless through an oversight so trivial that it will be almost impossible to guard against it. When thirty or more men sleep in one room, it is not surprising that infection takes place from one to another, and an enormous malarial incidence is the result. The comparatively small malarial incidence among officers brings us to the appalling conclusion that the modern barrack-room is one of the most dangerous places in which a man can be compelled to sleep.

The means by which the individual may be protected from the bites of mosquitoes, and hence from malaria, are the following; (1) The use of wire gauze doors and windows in barrack-rooms; (2) electric fans or "punkahs"; (3) the disinfection of barrack-rooms by sulphur; (4) the use of mosquito nets; (5) prophylactic doses of quinine.

The first method is comparatively expensive; owing to the fact that some Anopheles will be sure to gain access to the room, and that some men must be assumed to be already infected, the result is unlikely to be a large diminution of the disease. The same remarks apply to the second method. In one station in which electric "punkahs" have been in use, a considerable increase in the admission-rate for malaria has taken place. The third method has been tried in India on a small scale, but the expense makes it prohibitive. It is unlikely to produce much effect, unless combined with the use of wire gauze doors. It is unnecessary to dwell upon the merits of the fourth method. It must be admitted that its application is attended with some difficulties in the case of soldiers. One objection which is often raised is that the men would be unable to stand the heat. This objection can be overcome by using a low net under the existing "punkahs," and by sleeping out of doors under a net during the hot weather. Another common objection is that unless a net be used with care it is worse than useless. This objection probably applies to every sanitary contrivance. The British troops in Sierra Leone have been provided with mosquito-nets, so the difficulties do not appear to be so insurmountable as one might suppose from Indian experience. The fifth method has been attempted both in India and in Africa without markedly affecting the incidence of malaria. However, the duration and severity of the attacks are probably lessened by this method.

The importance of that branch of sanitation known as anti-malarial measures cannot be over-rated, but it is necessary to bear in mind that unless the individual be also protected, preferably by means of nets, extensive operations and the expenditure of vast sums of money may be rendered useless by trivial circumstances, the difficulty of obviating which is so difficult and uncertain as to amount almost to an impossibility.

Jhansi,
December 27th, 1906.

I am, &c.,
ALFRED J. HULL,
Captain, R.A.M.C.

FAILURE IN REVACCINATION

TO THE EDITOR OF THE "JOURNAL OF THE ROYAL ARMY MEDICAL CORPS."

DEAR SIR,—May I suggest the possibility of "Failure" in a certain number of revaccinations being due to chemical antiseptics used to clean the scarifier? I have seen this instrument lying in a basin of 1 in 20 carbolic acid before use, and as the virus is somewhat readily destroyed