Elliott's, being perforated, permits the ordinary tones of the voice to be heard, it can be cleaned, and is the best apparatus that I have seen.

I am, &c.,

H. J. Fletcher,
Lieutenant-Colonel, R.A.M.C.

March 11th, 1907.

RESPIRATION AND DISEASE.

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

SIR,—The perusal of Major Fowler's most interesting article on "Auto-Intoxication and Liver Inadequacy," which appeared in last month's issue of our Journal, has led me to write these few lines on a subject of no less importance. The absurd manner in which the majority of soldiers carry out their respiratory functions is, I am sure, an important agent in the production of many of their ailments.

It is clear that if the respiratory act is performed in a faulty manner, not only is respiratory exchange imperfectly carried out, but the abnormal air pressure to which the pulmonary cells are thereby subjected finally brings about their destruction. In normal respiration the thorax is expanded and contracted solely by the action of the muscles situated below the level of the clavicles. This mechanism ensures the adequate potency of the airway and the noiseless flow of air to and from the lungs, and under the circumstances the intrapulmonary air pressure is never less than that of the surrounding atmosphere, and never greater than that found in the correct production of speech and song. Critical observation will reveal the fact that these conditions, of such vital importance to the health of the pulmonary cells, are not present in the ordinary recruit, for, during even the most moderate form of exercise, during conversation, or when trying to take a deep breath, he sucks in the air by raising the shoulders and contracting the muscles of the neck, in other words, a more or less extraordinary effort, suggesting respiratory failure, has been made. The inevitable "sniff" or "gasp" which accompanies this act, plainly shows that the airway has been narrowed; the consequence of this is, of course, to temporarily lower the air pressure in the respiratory tract and produce a transient flushing of the vessels. Each expiration is also noticeable as an audible act, due to the partial closure of the glottis reflexly, brought about by the strain placed upon the muscles of the neck in holding up the thorax; this, combined with the fact that the upper chest sinks in at a greater rate than the lower, owing to the inability of the cervical and other muscles to nicely regulate expiration, brings about a harmful increase of intrapulmonary pressure. That these two factors sooner or later impair the vitality of the lung tissues is certain, and the onset of pulmonary and other affections becomes merely a question of time.

It can be readily understood when this harmful type of respiration remains uncorrected, loss of mobility in the comparatively little used...
Correspondence

parts of the thoracic cage must increase year by year, and when it is borne in mind that the greater number of recruits are departures from the physiological type of the human animal, to allow such beings to indulge in physical exercises of even the most elementary sort, before giving them instruction in the most advantageous methods of breathing during exercise and at other times, is to hasten the onset of that premature senility with which they are already threatened.

It may be of interest to note that this more or less shallow, audible, jerky and uncontrolled method of breathing is known to teachers as the clavicular or superior costal mechanism. Varying as it does in degree it is, of course, always found combined with a greater or lesser amount of the so-called lower costal or abdominal types, the two latter sometimes known as the high fixed chest methods of breathing, being very rightly recognised by them as the only correct ways of working the bellows.

In conclusion, I would add that by a properly directed form of diaphragmatic drill, a wonderful degree of restoration towards physiological conditions can be brought about even after early adult life. Not only can the "wind" be vastly improved thereby, but also the general health, for it should ever be remembered that the proper use of the thorax ensures the well-being of the lungs and is of great assistance to the adequate performance of the duties of the heart and other organs, the mechanical kneading to which the abdominal viscera are subjected being particularly beneficial in promoting hepatic and intestinal activity. In short, that great factor in disease, auto-intoxication, could hardly exist were a correct method of breathing to become more general.

Chatham, March 12th, 1907.

R. F. E. Austin, Major, R.A.M.C.

THE "ALLIES" OF ENTERIC FEVER IN INDIA.

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

Sir,—Lieutenant-Colonel C. H. Melville, in his rejoinder to the above article by Lieutenant-Colonel S. Glenn Allen, R.A.M.C., in the February number of the Journal, relative to the "Thornhill system of trenching," has made the following statement: "I admit that there are Stations in India, Quetta, for instance, where the Thornhill system is difficult to carry out, if not impracticable, owing to difficulties with regard to procuring suitable soil. In such places biological installations should be set up. Quetta is the most ghastly commentary on the 'deep burial' system that one could wish to see. It was instituted there on the recommendation of a committee, of which I was a member, in 1898, as a temporary expedient. It has been continued as a permanent system, and I think one visit to the Sahibzada pits would be sufficient to convict any believer in deep burial of the error of his ways." As this assertion would lead your readers to believe that no effort had since been made to introduce a