2. The site of maximum intensity and the line of conduction of the murmur. These do not usually coincide with what is found with similar murmurs of organic origin.

3. The condition of the lungs. With doubtful apex murmurs evidence of pulmonary engorgement is strongly in favour of organic valve disease, as that condition is almost invariably absent in the reflux of anaemia.

4. The effect of change of position upon the sound. *It is essential to examine every case of suspected valve disease both in the standing and recumbent position.*

It may be stated with confidence that an opinion given in a doubtful case without observing this precaution is of no value. Functional and false murmurs often disappear when the patient is down, whilst an organic murmur, especially that of mitral stenosis, may be only audible in that position. A murmur which suddenly and completely disappears when the patient lies down, provided there is not at the same time any marked alteration in the pulse-rate, is almost certainly not due to organic disease of a valve.

5. It is important in all cases to auscultate the trachea. A murmur audible in the trachea may be due either (1) to the conduction of the murmur of aortic stenosis; or (2) to the impulse of an aneurysm; or (3) to the impulse of the heart causing an air wave in the bronchi and trachea, this latter being by far the most common cause of tracheal murmurs. Mitral murmurs are not audible in the trachea.

6. False murmurs often disappear completely when the breath is held.

7. The state of the pulse may at once negative a suspicion of organic disease founded on the presence of a murmur.

I am disposed to add that *it is essential to examine the heart of every recruit both in the standing and recumbent position.*

Experience gained in civil practice is not always applicable to military practice. The civilian, as a rule, stops when he feels that his work is overtaxing his strength; the soldier may be obliged to continue until he is ordered to halt or drops from exhaustion. Compensation which might have lasted for fifty years or more in civil life, may, in a soldier, be quickly destroyed by prolonged over-exertion.

I published many years ago in the *Clinical Society's Transactions* the case of a man with aortic stenosis and regurgitation and mitral regurgitation, changes due to an attack of acute rheumatism with endocarditis, which occurred when he was a boy aged 14, who had worked for fifty-five years as a turner in wood at a treadle lathe, without a day of illness, and in whom compensation was still well maintained. It does not, however, follow that it would have stood the stress of active service, at or about the age of 20, and still have lasted for such a long period.

A personal physical defect of which the soldier is unaware may be of little importance; but it may become of great importance when he has got to know of its existence.

Examiners of recruits who pass defects as of no importance, when all symptoms are absent, must be prepared to support their opinion when, at a later date, the defects are found to be unchanged but accompanied by many subjective symptoms.

TARTAR EMETIC IN KALA-AZAR.

BY

PERCIVAL MACKIE, M.D., M.R.C.P., F.R.C.S.,

MAJOR, I.M.S.; PATHOLOGIST AND SANITARY OFFICER, No. 12 MEERUT INDIAN GENERAL HOSPITAL, FRANCE.

My attention has been drawn to a letter on this subject from Lieutenant-Colonel Sir Leonard Rogers, I.M.S., in this JOURNAL for July 31st, 1915. I have had a little experience of the antimony treatment of leishmaniasis which I will now briefly refer to.

CASE I.

The first case was that of an officer in the XIIth Pioneers, who was stationed in Quetta. He first noticed the disease when he was in camp at Christmas time, and it began in a deep fissure in the mucous membrane of the lip which had been caused by the cold dry wind then prevailing. It increased rapidly, and when I saw it was the size of a pigeon egg, and was painful, ulcerating, and very unsightly. He had had various kinds of treatment, including the application of CO₂ snow, but

the condition was worse rather than better. He also had a cyst-like swelling deep in the cheek, which had no visible communication with either the mucous or skin surfaces. This was punctured, and yielded *Leishmania* in pure culture, and the exudate from the ulcerating lip also showed these parasites together with *Staphylococcus albus*. Treatment with intravenous injection of tartar emetic was begun on February 11th, 1915, and six injections were given at intervals of two days or three days, in doses of 4 to 6 c.cm. of a 1 per cent. solution in normal saline. The treatment was very successful so far as the cutaneous and subcutaneous part of the disease was concerned, but the mucous ulceration was more difficult to cure and healed only after several applications of carbon dioxide snow.

The officer was cured and shortly afterwards proceeded on active service.

There are three noteworthy points in this case:

1. The disease began in a fissure in the lip and apart from any exposure to insect infection.

2. The presence of a subcutaneous nodule due to *Leishmania* which had no discernible connexion with the outside surface. (Cases of this sort have been described, I think, in the Sudan.)

3. The good effect of antimony in rapidly sterilizing the cutaneous and subcutaneous lesion and its slower action on the mucous ulceration. (This has been noted by Terra.)

CASE II.

The second case of leishmaniasis which I treated with antimony injections was that of a native officer in the Gurkha Rifles. He seems to have contracted the disease in passing through an infected village in the Nepal Terai where he spent four days in returning from leave at the outbreak of war. It was an acute case of kala-azar with persistent high temperature, irritable heart, darkening of the skin and rapid emaciation. The spleen enlarged very rapidly, doubling its size in three weeks, and puncture revealed *Leishmania* in that particular state which indicates rapid division and a high state of vitality.

He was going downhill rapidly, so I commenced intravenous injection of antimony tartrate, and gave him doses increasing from 4 c.cm. to 7.5 c.cm. of a 1 per cent. solution on alternate days. The treatment was begun on May 23rd, 1915, and continued till I left Quetta on service about June 10th. The temperature shot up after the first two injections and fell rapidly to normal, and after the second injection he had no more fever and the spleen began to recede and the general symptoms to abate. Without going into details as to his condition, I can say that in two and a half years' experience of kala-azar, I have seen no such promising result from any drug or any line of treatment. When I left for Europe he was improving, but I have heard nothing of him since. His blood state, according to Arneth's system of differential counting, was as follows:

	May 22, 1915.	May 25, 1915.	May 29, 1915.	June 2, 1915.	June 8, 1915.
White cells, in thousands ...	0.9	1.0	1.0	1.7	2.7
Basophiles ...	—	—	—	—	—
Eosinophiles ...	—	0.5	1.0	—	1.0
Neutrophiles —					
Myelocytes ...	—	—	—	—	1.0
Juvenile ...	2.0	4.5	5.0	2.5	2.5
Rod-nucleate ...	21.0	17.5	12.0	8.0	12.0
Segmented nucleate ...	29.0	39.5	36.0	14.0	19.0
Lymphocytes ...	30.0	29.0	34.0	12.0	38.0
Large mononuclears ...	18.0	9.0	12.0	13.0	26.0

* Before the first antimony injection.

† Fifty per cent. of decapsulated mononuclears.

The study of the blood bears out the general tendency to improvement which was so marked from the clinical side.

During the last two years tartar emetic has been used successfully in the treatment of leishmaniasis by Machado and G. Vianna (1913), Terra (1913), Cardina (1914), Da Silva (1914), Lapa (1914), Di Cristina and Caronia (1915).

In my opinion the credit for first using antimony tartate in leishmanial infection belongs to the Brazilian workers, Machado and Vianna, who used it in 1913 for cutaneous lesions, and to Di Cristina and Caronia, who, previous to February, 1915, used it in the treatment of Mediterranean kala-azar.

The Director of the Bombay Bacteriological Laboratory kindly arranged to provide me with capsules of 1 per cent. solution of antimony tartate sterilized by filtration, and he would, no doubt, supply it to others on application.