negative, but owing to the facts that leishmanial bodies had been found before, and that clinically the condition was characteristic and active, the injections were proceeded with. Besides the finding of the leishmanial bodies, the diagnosis was supported by the fact that the case originated in Central America, and assumed the form characteristic of the disease in those regions (*oreja de los chileros*). See descriptions by H. Seidelin (*Yellow Fever Bulletin*, vol. ii, No. 9, 1912), quoted by Julian Arce, Dermal Leishmaniasis of Peru (*Boletín de la Sociedad Geográfica de Lima*, xxxiii, 1916), and Rodríguez Arjona (*Rev. Med. de Yucatan*, vol. x, April-May, 1915), quoted in *Tropical Diseases Bulletin*, vol. vii, No. 2, 1916. No signs of any implication of the mucous membrane of the nose or mouth could be detected. The Wassermann reaction was negative.

Table showing Number and Results of Intravenous Injections of Antimonium Tartaratum.

Date.				Date.			
Aug. 12, 1918	...	...	gr. 1	Oct. 28, 1918	...	...	gr. 2
" 15 "	...	...	gr. 1	" 31 "	...	...	gr. 2
" 19 "	...	...	gr. 1	Nov. 4 "	...	...	gr. 2
" 22 "	...	...	gr. 1	" 7 "	...	...	gr. 2
" 26 "	...	...	gr. 1	" 11 "	...	...	gr. 2
" 29 "	...	...	gr. 1	" 14 "	...	...	gr. 2
Intermission.				" 18 "	...	...	gr. 2
				" 21 "	...	...	gr. 2
				" 25 "	...	...	gr. 2
				" 28 "	...	...	gr. 2
Second Course.				Dec. 2 "	...	...	gr. 2
Oct. 3, 1918	...	...	gr. 1	" 5 "	...	...	gr. 2½
" 7 "	...	...	gr. 1	" 9 "	...	...	gr. 2½
" 10 "	...	...	gr. 1½	" 12 "	...	...	gr. 2½
" 14 "	...	...	gr. 1½	" 16 "	...	...	gr. 2½
" 17 "	...	...	gr. 1½				
" 21 "	...	...	gr. 1½				
" 24 "	...	...	gr. 2	Total	...	...	gr. 47

Remarks.—There was a slight rigor after the first dose on August 12th. On August 29th the ear looked better and was much drier. On October 3rd, at the commencement of the second course, the improvement was maintained; there was no sign of spread. All signs of inflammation had gone by October 14th. There was a rigor after the injection on November 4th; on the 18th the ear looked as if it were cured.

The injections were given by the late Dr. Cockin and myself. The tartar emetic was dissolved in 2 oz. of normal saline, sterilized, and run into the vein as near as possible at body temperature. The intermission in the course was due to the illness of Dr. Cockin and to my absence from London. It was not intended for any curative or other reasons. The injections were well borne, and, apart from a rigor twice, probably due to the solution being a little cold, there were no untoward symptoms.

The effect upon the lesion was striking; a very distinct improvement was noticeable on August 29th after the fifth injection. For all practical purposes the ear was cured on November 18th, but to make certain the injections were carried on for another month, to December 16th; a total of 47 grains in all having then been given.

Since that date I have examined the condition from time to time and no signs of any recrudescence have appeared. On January 2nd, 1919, the ear looked perfectly well, the margins were fibrosed, he could stand the part being pinched, and could sleep on it, a thing he could not do before. I saw him again on February 17th, when the part was still well; on March 6th it was evidently quite cured. All the mucous membranes are healthy.

ANTIMONY TARTRATE IN BILHARZIOSIS AND TACHYCARDIA.

BY

J. B. CHRISTOPHERSON, M.A., M.D.,

F.R.C.P., F.R.C.S.

DIRECTOR OF THE CIVIL HOSPITALS OF KHARTOUM AND
OMDURMAN, SUDAN.

I HAVE been told that, in some cases which have undergone courses of treatment by the intravenous injection of antimony tartrate, "tachycardia" was noticed; this suggested that antimony tartrate for bilharziosis was a dangerous remedy because it produced cardiac symptoms.

Sweeping general statements such as this are often made by people who have not given the remedy a real trial. They are inclined to attribute any unexpected symptom which occurs in the course of treatment and after to the action of the drug. Many mistakes are made in medicine by such hasty conclusions.

I have always advised that antimony tartrate should be given in both bilharziosis and leishmaniasis with circumspection, and with due appreciation of the fact that it is

a powerful agent for good or evil, according to the skill and acumen of the operator; but nevertheless it may be administered safely by the circumspect* doctor in his out-patient clinic with sure effect in the ordinary uncomplicated case of bilharziosis.

Tachycardia, or rapid heart (accelerated beat), is quite common amongst Egyptians, as is well known to doctors who do insurance work, and I have no doubt that some of the cases treated with antimony tartrate have tachycardia. But this symptom is not due altogether to the remedy.

The patients referred to above were Egyptian army soldiers. I am told that tachycardia is a common cause for the rejection of recruits for the Egyptian army, so possibly the tachycardia had nothing to do with the antimony tartrate; indeed, it was first noticed some weeks after they had been discharged from hospital, and other possible causes of rapid heart had not, in this particular instance, been investigated. Many soldiers are excessive cigarette smokers; some of them have hypertrophy of the left ventricle, with a certain amount of heart strain, owing to military exercises. Here are two explanations which might account for the tachycardia, and they should be, in my opinion, excluded before antimony is blamed. Now I come to a third possible cause. The Egyptian soldier is—though big and muscular—sallow-skinned and anaemic, and this condition is due to the parasites he harbours in his intestines and elsewhere. *Schistosomum haematobium* is only one of the most common of them. *Ankylostoma duodenale* is equally common. *Amoeba dysenteriae*, *Taenia nana* and other tapeworms, *Ascaris lumbricoides*, threadworms, *Heterophyes heterophyes*, *Lambliia intestinalis* and other flagellates, bacteria, and micro-organisms—any, some, or all together may be present in the bowel of the Egyptian—and more than these. The Egyptian soldier is no exception; he is infested with intestinal parasites.

Until intestinal parasites are looked for systematically and as a routine practice in hospitals, the list of obscure fevers, undiagnosed diseases, puzzling anaemias, mysterious enlargements of organs, such as Egyptian splenomegaly, will remain as long as ever, and will be a stumbling-block to medical men who write about them, label them with local names, or call them after their own or somebody else's name. "Simple fevers," "continued" or otherwise, are, in my opinion, frequently due to intestinal parasites—to intestinal sepsis in other words.

The bearing of these remarks on the treatment of bilharziosis by the intravenous injection of antimony tartrate is that symptoms such as tachycardia arising in the course of treatment by the drug may be due not to antimony tartrate at all, or at most only secondary to it; they may be due to a totally different cause—to other parasites for instance—although at the same time bilharzia may be present. The faeces should always be examined in hospital cases for parasites whilst antimony treatment is on its trial, and in private practice also if circumstances render it desirable. It should be borne in mind that in Egypt the intestine is infested with parasites, and it is best to get rid of these before commencing the treatment of bilharzia by antimony tartrate.

Mr. Newlove, pathological assistant at the Khartoum Civil Hospital, has often found in the faeces of Egyptians literally hundreds of *Taenia nana*, the small tapeworm which is so common an inhabitant of the Egyptian intestine. Thymol is no good, nor eucalyptus, but *Filix mas*, given on an empty intestine, will nearly always settle it. It may be that in order to cure an Egyptian of all his parasites, a series of courses of treatment is necessary—emetine for *Amoeba histolytica*; thymol for ankylostomes; *Filix mas* for *Taenia nana* and other tapeworms; then antimony tartrate for bilharziosis; and, at intervals, laxatives (white mixture), enemas, intestinal antiseptics such as bismuth for the micro-organisms, and lavage for lamblia (flagellate) and rectal parasites.

The faeces should be examined and the usual methods used to rid him of his parasites other than bilharzia, but there should be no abuse of the antimony treatment until those sources of trouble have been investigated in cases of bilharziosis.

Incidentally I may emphasize the necessity of the routine examination of the faeces in hospitals in tropical

*Circumspect = cautious and attentive.

countries. However irksome and unpleasant, such examinations are absolutely necessary for the diagnosis and treatment of tropical diseases.

A helminthologist should be part of the establishment of every hospital in the tropics, and he should be there to assist the doctors to carry out their own examinations. Few doctors know enough about the examination of faeces by microscope to make their knowledge of any practical value; how can they, since they never practise it? I would go so far as to say that a doctor who cannot himself intelligently examine faeces and translate into practical values what he sees should not be doing medical work in the tropics. A whole volume of medicine remains unknown to him. He is groping in the dark.

A NOTE ON THE VARIETY AND LATENCY OF ORGANISMS ON MISSILES IN THE TISSUES.

BY
MAJOR F. C. PYBUS, CAPTAIN H. J. SLADE,
R.A.M.C.(T.), R.A.M.C.(T.),

AND
P. C. W. LAWS, L.M.S.S.A.,

FIRST NORTHERN GENERAL HOSPITAL, NEWCASTLE-ON-TYNE.

It is well known that organisms may remain in certain cavities and tissues of the body. Perhaps the best recognized examples of this persistence are the presence of the enteric bacillus in the gall bladder and the staphylococcus in the bones, months or years after the initial infection has died down. A similar condition has frequently been noted in war wounds, both of the bones and soft tissues; after varying periods of quiescence a "flare up" occurs and acute symptoms again supervene. This recrudescence of activity has also been noted to occur with foreign bodies lying apparently quiescent in the tissues.

It seemed that useful information on this subject might be gained by systematic examination of missiles removed from the tissues. To achieve this, missiles apparently sterile, or at least giving no clinical indication of infection, were sent for bacteriological examination. The missiles were removed with the usual surgical precautions and were dropped into a sterile tube. In some cases they were shelled out of the fibrous tissue capsule in which they lodged, in others the foreign body was removed in the capsule, which was removed before culture. The missiles were extracted for varying reasons, either because they were subject to pressure or caused pressure on nerves, or interfered with movement. Forty-four specimens were sent for examination; nearly 50 per cent. were sterile.

Varieties of Organisms Present.

Number of examinations ...	44
Number sterile ...	21=50%
Number giving cultures ...	23=50%
Varieties of organisms:	
Staphylococcus ...	10%
Streptococcus (never in pure culture) ...	2%
Bacillus perfringens ...	1%
Tetanus bacilli ...	2%
Putrefactive bacilli ...	6%
Leptothrix ...	1%
Number of bullets (sterile) ...	4
" (with organisms) ...	11
Shell fragments (sterile) ...	16
" (with organisms) ...	11

Time of Latency.

Staphylococcus ...	3-4.5 months
Staphylococcus and putrefactive bacillus ...	7 "
Leptothrix ...	1 month
Gram-positive bacilli ...	3-15 months
Bacillus perfringens ...	7 "
Staphylococcus and diphtheroid bacillus ...	30 "
Streptococcus pyogenes and tetanus bacillus ...	6 "

Of twenty-three missiles from which cultures were obtained, the staphylococcus was present in ten cases. Putrefactive bacilli, in six cases, were next in the order of frequency. In two cases the tetanus bacillus or organisms of that type were found. The analysis shows that shell fragments, contrary to what might be expected, are more often sterile than bullets. The length of time the missile remained in the tissues varied from one to thirty months. This examination has shown that the *Bacillus perfringens* may survive a period of seven months. In

this case the bullet was removed from the tibia, where it was lying without causing any apparent lesion in the surrounding cancellous tissue, as visible from an x-ray plate. After removal no ill effects followed, and the wound healed by first intention. In a second case a fragment of shell was removed from the forearm; streptococci and the tetanus bacillus were found. The wound suppurated, and immediately on receipt of the bacteriological findings antitetanic serum was administered; no symptoms presented themselves.

From a surgical point of view the following conclusions may be drawn:

1. That most pyogenic organisms can persist in the tissues for periods up to at least thirty months.
2. That they may at any time give rise to inflammation, and that this is possible in at least 50 per cent. of cases.
3. That prophylactic measures before removal might be useful.
4. That if possible the missile be removed complete in its fibrous tissue capsule.
5. That if such be impossible, careful disinfection of the cavity be carried out.

We are indebted to Brevet Colonel T. Gowans, R.A.M.C.(T.), for permission to publish this paper.

INUNCTION OF CREOSOTE IN PNEUMONIA AND INFLUENZA.

BY
JOHN E. B. WELLS, M.R.C.S., L.R.C.P.,
MAJOR R.A.M.C.(T.).

I WAS led to try the axillary inunction of creosote in pneumonia and in influenza and some allied conditions by several circumstances. My father, the late J. R. Wells, F.R.C.S., used creosote in his prescription for coughs and colds with success. Sir Leonard Rogers, in 1895, described in the BRITISH MEDICAL JOURNAL the use of an axillary inunction of creosote in cases of malarial pyrexia. On referring to a standard textbook of physiology I found it stated that the inunction of creosote produced sweating and lowered the temperature, but was not used for that purpose. In 1898 I used the axillary inunction of creosote in a severe case of pneumonia. Within half an hour the patient sweated, and the temperature fell from 104° to below 100°; uninterrupted recovery followed. Since then I have made frequent use of this method with almost unvarying success; the results have been too constant to admit of the change in the patient's condition being merely a coincidence with the crisis occurring at the time of the administration of the treatment.

The method of administration is simple. For adults, 10 minims of pure creosote are gently rubbed into the right axilla with the finger. If necessary, which is very rarely the case, a second dose may be given, this time in the left axilla for fear of blistering. The patient must be dressed in woollen or flannel and placed between blankets so as to avoid a chill after the sweating. Only slight discomfort attends the treatment; a slight burning of the skin, which passes off in a day or two without vesication, is the only disagreeable effect. For children I have diluted the creosote with soap liniment, reducing the proportion of creosote according to the age of the patients. For infants, in place of the axillary inunction, I have at times substituted rubbing the back and front of the chest with a liniment containing creosote.

Practically all cases of influenza under my care have been treated by rest in bed (most of them a soldier's bed—that is, on the ground), plenty of fresh air, and the administration of creosote by the mouth. Half a minim of creosote shaken up with half an ounce of water is the simple mixture—the addition of half a minim of oil of peppermint makes it more palatable, but it is not very unpalatable without it. Very few cases treated in this way develop pneumonia. When signs of pneumonia developed the axillary inunction of creosote was nearly always followed by its abortion, or it was so modified that the patient recovered. When the pyrexia of influenza has gone, quinine or strychnine or both may be necessary.

Several cases of meningitis due to infection by *Micrococcus catarrhalis*, and one by meningococcus, recovered