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.

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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
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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

after axillary inunction. I believe further trial of this remedy would show good results in cases of these infections.

I believe creosote to be particularly detrimental to the pneumococcus, the *Micrococcus catarrhalis*, and the influenza germ (whatever it is finally decided to be), and that creosote administered by axillary inunction enters the blood stream through the lymphatics, and is taken direct to the lung tissues by the pulmonary circulation, possibly taking a short cut into the blood stream by the lymphatic duct. Its diaphoretic action helps to relieve the hyperaemia of the lung tissues, and thereby removes the nidus for the pneumococcus which might be formed by an exudate; its antiseptic action is brought to bear directly on any germs that may have gained access to the air spaces of the lungs.

The action of creosote when administered by the mouth is, I believe, mainly that of a local antiseptic and sedative to the fauces, but its action is also felt by the upper air passages. Whatever its method of action, I can say that the methods of administration I have described have been successful in the vast majority of cases in my own hands, and will, I believe, prove equally so in the hands of others who may try them.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

APPARENT CURE OF A CASE OF TWO RODENT ULCERS IN THE SAME PATIENT.*

ON April 15th, 1918, Mrs. G., aged 57, was sent to me by Dr. Napier with two rodent ulcers. One was situated on the cheek below the centre of the right eye, the other was about $\frac{3}{4}$ inch from the first, and involved the outer portion of the right lower lid to its extreme edge. There was a history of about ten years during which these lesions had been slowly progressing, and at the time I saw the patient the diagnosis was quite beyond doubt, the lesions presenting the rolled edges of characteristic appearance, with ulcerated bases, typical of rodent ulcers of considerable standing. Following my usual routine I gave this patient a course of therapeutic x rays, concentrating them on to the ulcers, and protecting the surrounding skin with sheet lead. There was a cessation of the active ulceration and a general improvement of the lesions under this treatment. At the appropriate stage I followed up the x -ray treatment with an application of solid carbon dioxide snow, accompanied with considerable pressure, to each ulcer separately. A very brisk reaction ensued, so much swelling occurring that the patient was unable to see out of the eye on the affected side. This gradually went down and a violent inflammatory reaction supervened, which took three to four weeks to subside. The patient then went away and I did not see her until about a month ago, when some difficulty might have been encountered in locating the sites of the ulcers that formerly existed. A thin, supple scar took the place once occupied by the growths, which appeared to be cured. I cannot venture to say that recurrence may not take place, but experience teaches that if a rodent ulcer that has not been treated by other methods, or insufficiently treated by the means I mention, is subjected to the combined influence of therapeutic x rays and solid carbon dioxide snow, recurrence is rare. After previous treatments, however, a satisfactory result is more difficult to obtain.

In the early days of x rays, some seventeen years ago, I had a good opportunity in London of testing the action of therapeutic x rays alone upon rodent ulcers, and my experience was that improvement might be obtained up to a point short of a complete cure, but that they invariably got worse again and progressively became more intractable. The solid carbon dioxide treatment, however, supplied just that additional therapeutic measure that was necessary, and it is now possible to treat this disease in its earlier phases with a prospect of very good results.

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* Being a case shown at the meeting of the Witwatersrand Branch of the British Medical Association at Johannesburg, South Africa, on December 19th, 1918.

Reviews.

EQUILIBRIUM AND VERTIGO.

ALL who are concerned with diseases involving the labyrinth and the central tracts in connexion with it will find Dr. ISAAC H. JONES'S book on *Equilibrium and Vertigo*¹ of great service. The methods of testing for lesions are described in great detail, and the conclusions to be drawn from the results as to the nature and situation of such lesions, whether in the receptors themselves or in their central connexions, are discussed and clearly explained. The illustrative cases analysed by Dr. Fisher serve a further instructive purpose.

The work is copiously provided with excellent photographs, some of them stereoscopic. The latter, given separately as duplicates, will be useful in obtaining a better comprehension of the anatomy of the parts shown. There are numerous valuable diagrams of the tracts in the central nervous system which convey impulses from the labyrinth and bring into relation the various centres which take part in the complex and widespread reactions that result from stimulation or paralysis of the different parts of the mechanism.

The normal anatomy and physiology of the labyrinth are well described. It is interesting to note that the distinction between the static sense of position, obtained from the utricle and saccule, and that of sudden movement, obtained from the semicircular canals, is pointed out. The functions of the nerve centres and tracts, although their anatomy is given in great detail, receive comparatively little attention. No doubt the difficulties are great, but even hypothetical suggestions would be welcome. The description of the functions of the cerebellum is not quite up to date. The fundamental work of Dr. Gordon Holmes was probably not accessible to the author. Improvements in the Bárány turning chair, which plays so large a part in the various tests, are described. In the use of this chair for testing the vertical canals it would seem more appropriate to arrange it, if possible, so that movements could be made also in a vertical plane with the patient's head in normal relation to his body. When the neck is bent in order to bring the vertical canals into the horizontal position for the purpose of the test, it must not be forgotten that the stimulation of proprioceptors of the muscles and other parts of the neck plays a large part in reactions to movements of the head, as shown particularly by Magus and De Kleijn. A remark may be made with respect to the "caloric" test of Bárány. It would have been useful if some further explanation of the way in which the semicircular canals are stimulated by the cold douche in the auditory meatus were given.

The first part of the book describes how study of the labyrinth is of importance to the general practitioner, the neurologist, the surgeon, the ophthalmologist, and the otologist, as well as in relation to the testing of aviators. It is also shown that sea-sickness is due to movements of the endolymph. As regards the testing of aviators, it may be pointed out here that experience has indicated that the labyrinth does not play so preponderant a part in the appreciation of changes in direction of movement as might be supposed. It appears that differences of pressure on the skin, in the various situations in contact with the seat of the aeroplane, are of great importance.

The second part is devoted to the anatomy, physiology, and pathology of the labyrinth and its central connexions. The method of making systematic records of tests, as used by the author, is deserving of general consideration.

The way in which the book is got up is excellent, almost luxurious. Whether it might not have a wider circle of readers if somewhat more condensed is perhaps a matter of opinion, but it may be said to be indispensable to those who have to devote attention to the questions discussed. Although, of course, affections of the auditory apparatus are frequently associated with those of the labyrinth, they do not, strictly speaking, belong to the subject matter of a work dealing with the latter.

W. M. B.

¹ *Equilibrium and Vertigo*. By Isaac H. Jones, M.D. With an Analysis of Pathologic Cases by Lewis Fisher, M.D. London and Philadelphia: J. B. Lippincott Co. 1918. (Med. 8vo, pp. xv + 444; 130 figures. 21s. net.)