

who would resent and refuse the restrictions upon their liberty necessary for treatment. For this third group it is considered, for the protection of all concerned, that the safeguards of the existing law should still be maintained; in other words, the freedom of action in treatment which we should like to see made legally available would not include a power of detention.

I should like to return to the subject of help from general hospitals, for it is one I have cherished for a long time, and to which I have several times made public allusion elsewhere. I would reiterate that no substantial progress can be made in the early treatment of mental disorder, and that the barriers which so unfortunately segregate the treatment of mental disorders cannot be removed, until the general hospitals agree to abandon their practice of giving the "cold shoulder"—if I may use the expression—to every case in which the symptoms are predominantly mental. I would like to appeal strongly to those in authority and to ask them to consider whether the time has not now arrived when this old policy may properly, and with all-round advantage, be reversed. I am familiar with the history for this attitude, and realize there are certain inherent difficulties in coping with it, but am confident that with sympathy and a desire to adopt a change in policy on this matter they could be overcome. The financial one might be overcome if the Legislature would empower the local authorities to subsidize the maintenance of patients suffering from early mental disorder, in special wards in or associated with a general hospital, and would authorize local authorities alone or in combination either to subsidize the provision of these special departments or to establish special hospitals of their own—the former alternative by preference. I venture to think that it is both timely and opportune that this reference to general hospitals should be made at the West London Hospital, where some of my audience are carrying on so efficiently the work of relief.

It is highly desirable that adequate interest should be aroused in these matters, because the proper development of such facilities would naturally lead up to the establishment of psychiatric clinics, the absence of which in this country is a reflection at least upon our sympathy with the treatment of mental diseases. Their establishment would help to educate the public in matters of health, and certainly in respect of mental health. But besides that educational mission and besides their great therapeutic utility, they are urgently needed for the better education of medical practitioners and students, and for research in psychiatry. It is gratifying that at least three universities in this country have taken this matter into their serious consideration.

### THE CURE OF BILHARZIA DISEASE BY INTRAVENOUS INJECTIONS OF ANTIMONY TARTRATE;

THE PROPHYLACTIC ACTION OF THE DRUG.

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WITHOUT exception all the recent reports of cases so treated confirm the statement that antimony is a specific cure for bilharzia disease. In other words, antimony so used kills the parent worm in the tributaries of the portal vein of the patient and cures him of the disease.

But there is a wider interpretation of the formula "antimony cures bilharzia" than this, and it is the application of the larger meaning which makes the effect of the drug so complete—one might almost say wonderful.

In our paper in the *Journal of Tropical Medicine and Hygiene* of July 15th, 1919, pp. 129-144, we (J. R. Newlove and J. B. C.) show that the shells of the ova of *Bilharzia haematobia* and *mansoni* are permeable to water (they do not hatch out in urine without the addition of water), and that they are permeable also to chemicals such as formalin and potassic tartrate of antimony. The fact that bilharzia ova do not as a rule hatch out in undiluted urine and faeces indicates, it is true in negative manner, that the embryo within the ovum is

physiologically aware of the lack of favourable conditions of the medium in which the ovum is suspended, and therefore will not develop. The embryo in the ovum is "in touch" with the world without. This can only be explained satisfactorily on the assumption of permeability of the egg "shell."

The fact that the shell of the bilharzia ovum (*haematobia* and *mansoni*) is permeable to formalin, whilst that of ankylostomum is not, has a practical application, and is demonstrated in the ordinary method which we adopt at the Khartoum Civil Hospital for the examination of faeces for parasitic ova and worms; we find that after the addition to an ordinary stool of 1 oz. of 40 per cent. formalin, bilharzia ova in the stool are sterilized (will not hatch) whilst ankylostomum ova are unaffected and hatch out.

The permeability of the bilharzia shell to antimony has a still more far-reaching application.

If it is true, then my statement<sup>1</sup> that antimony not only kills first the parasite, *Schistosoma haematobia* and *mansoni*, *in situ*, but, later, kills the embryos in the ova deposited in the tissues, and that the patient is cured, not only of his bilharzia parasites, but that he ceases to be a bilharzia carrier and cannot propagate the disease, is a very important one, for it means nothing less than this, that we have in antimony a practical means of eliminating bilharzia as an endemic disease from Egypt and from those countries where it prevails, such as the Sudan and South Africa, or, at any rate, of converting an endemic disease of national importance into a sporadic disease of parochial importance only. For if we can stop the supply of infected ova to the intermediate host at its source by treating bilharzia patients with potassic antimonium tartrate then *Bullinus dybowskii*, *B. innesi*, *B. contortus*, and *Planorbis boissyi*, and other species of fresh-water molluscs which act as intermediate hosts for bilharziosis in Egypt, will cease to be infected, and they in their turn will be incapable of infecting the human host with bilharzia disease.

The fact that antimony given to a bilharzia patient kills the parent worms in the patient means benefit to one human being, but the fact that antimony also sterilizes the ova which have been deposited by the parent worms before death in bladder and rectum, renders the effect of antimony a hundredfold greater, for the benefit extends possibly to hundreds who might be infected by the patient, and it goes on acting all the time ova are being eliminated.

According to our own observations these deposited ova in some cases continue to be eliminated in batches for one or even two years after we may assume the parent worms have died (that is, after the completion of the course of injections).

There is another fact which suggests the permeability of the eggshell of bilharzia ova. After being deposited by the female parent worm in the bladder and the rectum the ova probably remain alive in the tissues for many months in a condition of suspended animation or development—they can only so remain alive on the assumption that the shells are permeable to the small exchange of nutriment required to keep "body and soul" together. Lying in the tissues when the injections are given, the very dilute solution of antimony in the blood slowly but surely penetrates the ova and attacks the embryos inside the shell and kills them.

If it is a fact that the deposited ova are sterilized and rendered harmless, it is a fact of the utmost importance, for in this event the patient cannot go on infecting fresh-water snails and through them other human beings, he ceases to be a bilharzia carrier and a danger to the community, and a direct means of offensive advance on bilharzia as a devastating disease is practicable in the shape of a frontal attack, and it is more than probable that by means of the prophylactic action of antimony (tartrate) bilharzia disease will be, practically speaking, banished from countries such as Egypt, where it is endemic and where it has so baneful an effect.

#### REFERENCE.

<sup>1</sup> *Lancet*, June 14th, 1919.

THE late Dr. J. Ewing Mears of Philadelphia bequeathed £20,000 to the Harvard University to be applied to the study of methods directed to the reform and cure of criminals and mentally deficient persons by surgical measures.