effect, not only on the temperature but also on the whole clinical picture.

The effect of salicylic acid in varying strengths was tested on the organisms which attack the intestinal tract as well as those responsible for inflammation, septicaemia, and tetanus. The ordinary agar was found to take up only to 0.5 per cent.; higher strengths than this caused liquefaction of the media—the very process which is useful in removing sloughs when the powder is freely dusted on the wound.

The strengths of the agar tubes were arranged from 0.5 down to 0.025 per cent. of salicylic acid. In these strengths it had no effect on the *B. coli communis* nor on the *B. pyocyaneus*. In 0.5 per cent. the *B. pyocyaneus* did not produce the typical greenish-blue tint in the media, but a faint reddish-brown colour; below 0.5 per cent. the colour was unchanged.

B. dysenteriae (Shiga), *B. typhosus*, *Staphylococcus aureus*, and *B. subtilis* were all absolutely prevented growing by the addition of salicylic acid to the media in strengths of 0.1, 0.2, 0.3, 0.4, and 0.5 per cent. They grew at 0.05 and 0.025 per cent.

Streptococcus pyogenes, *B. diphtheriae*, *B. pneumoniae* (blood serum agar used for this organism) were likewise prevented from growing by salicylic acid in strengths of 0.2, 0.3, 0.4, and 0.5 per cent.; but grew on strengths 0.1, 0.05, and 0.025 per cent.

An active culture of *B. tetani* was procured, and salicylic acid was mixed with glucose agar in the same strengths, but at 0.05 per cent. the medium became liquid, and would not solidify. Strict anaërobic precautions were observed. After a week's incubation it was found that the organism grew freely in strengths of 0.025, 0.05, and 0.1 per cent.; on the other hand, the organism was absolutely inhibited in strengths of 0.2, 0.3, and 0.4 per cent.

I strongly commend these experiments to the consideration of those engaged in the present campaign. In typhoid fever I suggest the use of 3 to 5-grain doses of salicylic acid given with milk, so as to be carried more quickly into the bowel, or in suspension with bismuth and mucilage. The effect of excessive dosage in normal individuals is a slight diarrhoea with dryness of the evacuations. In typhoid this would not give rise to any complication nor depression.

For wounds I would urge the use of salicylic acid as a first dressing on the field to be applied by the patient or his comrades. A convenient method would be pads of salicylic wool between layers of gauze, after the style of gamgee tissue. In hospitals it could be dusted on from an ordinary perforated container.

I have not had the opportunity of testing *in vitro* the various anaërobic organisms which have been so troublesome and conspicuous in the western war area, but my clinical experience there amply proved the value of salicylic acid in destroying these organisms.¹

Apart from its convenience and easy application, salicylic acid has special advantages over carbolic acid or iodine. The former is hardly reliable under 5 per cent., while 2 per cent. iodine, besides being painful, has a doubtful and unproved reputation, and may lead to sloughing in damaged tissues. Security is obtained by 0.5 per cent. salicylic acid, while antiseptics actually occurs at 0.2 per cent., or 1 in 500. The fresh serum, being alkaline, takes up the full dose of salicylic acid, so that the threshold of invasion is constantly bathed in a protecting antiseptic.

REFERENCE.

¹ BRITISH MEDICAL JOURNAL, November 7th and December 5th, 1914.

THE TREATMENT OF TRICHIASIS BY MEANS OF THE X RAYS.

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TRICHIASIS, or ingrowing eyelashes, is a most painful and distressing trouble of the eyelids, causing constant irritation, and frequently more or less severe ulceration, which at times leads to actual loss of vision, and even to destruction of the eyeball.

The treatment hitherto has consisted of (1) repeated epilation by forceps, an operation which requires to be repeated from time to time on account of the hairs being incompletely removed, and also on account of the normal

lining of the hair follicle being left in a healthy condition for the reproduction of a further crop of hairs; and (2) various operations which aim at a radical cure of the trouble, and consist of different methods of attempting the removal of the hair-bearing area of the eyelid; but they require the administration of an anaesthetic and skilled after-attention and surgical dressings, and, in the event of failure of complete relief, neither the surgeon nor the patient will readily make a second attempt.

A consideration of these conditions has led me to adopt a line of treatment, in a case which came under my care, consisting of the epilation of the ingrowing cilia by means of the x rays, with a result which is so satisfactory to the patient that she declares that she has not known such comfort for many years, the proof of the sincerity of the statement being demonstrated by the disappearance of the chronic inflammation of the orbit and the improvement in her general health and appearance.

The technique of the operation is simple but requires care, both with regard to the protection of the eye and surrounding parts from the rays and also in the delivery of the proper quantity and quality of the rays, as an underdosage will be labour in vain and an overdosage may lead to severe inflammation of the eyelid and subsequently to scarring and contraction of the tissues.

The method adopted by me was the close range method, which I employ in cases of tinea tonsurans. The eyeball was rendered anaesthetic by the introduction of a few drops of 2 per cent. solution of cocaine hydrochloride. A thin sheet of lead, suitably shaped and long enough to protect the lower lid by overlapping it, was enclosed in an envelope of several layers of indiarubber tissue, sealed smoothly by chloroform and introduced beneath the upper eyelid.

The upper lid was now closed and held in position by a piece of adhesive plaster placed upon the skin of the upper lid and fastened securely to the cheek. A thick sheet of lead-rubber, having an aperture suitably cut in it, was placed over the face, so as to protect the eyebrow and face generally from the x rays, and fastened by strips of plaster. The tube was now brought into position, so that the anticathode was 10.6 cm. from the skin of the upper lid. The exposure lasted five and a half minutes, the tube being of a medium hardness, such as is used for tinea tonsurans; the milliamperemeter registered 0.8. The pastille which was placed upon the lead-rubber protective sheet, and thus as near the irradiated skin surface as possible, showed a colour corresponding to Tint 5 on Dr. Hampson's disc, the dose received being therefore somewhat under the 1½ erythema dose of Sabouraud.

I saw the patient at the end of two weeks, when some of the cilia were beginning to fall. There was no inflammation of the eyelid and she had not experienced any inconvenience. At the end of three weeks the cilia were falling freely and were quite loose in their follicles, and at the end of four weeks they had nearly all fallen; the remaining few, which only needed to be lifted from their sockets, I removed with forceps. The eyeball by this time was wonderfully improved in condition, the inflammation had gone, and the chronic watery appearance had ceased.

A second full dose of x rays was now administered with the same protective precautions as upon the first occasion; this also did not produce any inconvenient symptoms.

From time to time I have removed one or two thin weak hairs which have appeared, but they came away quite easily and are now quite absent.

Whether it will be necessary at some future time to administer a further dose of the x rays time alone will show, but at present such a repetition does not need to be considered.

The first irradiation took place on August 5th, now more than four and a half months, a period which would give ample time for a regrowth of hairs had any been about to take place. The result of the treatment therefore appears to be very satisfactory.

IN a paper in the *Boston Medical and Surgical Journal* (February 4th) Dr. Orville F. Rogers, jun., analyses sixty-nine cases of children giving positive skin tuberculin reactions to von Pirquet's method. He concludes that the mortality among children up to the age of 10 who react to the von Pirquet test is much higher than that of normal children.