

controlling the binocular rotation to correct, by extorting or turning templeward the vertical upper extremity of each eye. This is made clear by reference to Fig. 2. When the correct cylinders are properly placed the distortion at once disappears, and the removal of any need for binocular compensatory torsion accounts for the relief obtained.

To proceed with an inquiry into the reason for the effect of movement of the cylinders. If we rotate a convex cylinder whilst looking at a horizontal line we shall notice that within certain limits the line is moved in the same direction as we move the cylinder. It has already been shown that in the case under consideration the horizontal meridians are sloping down and in towards the nose, hence it is plain that if we rotate the cylinders inwards—i.e.,

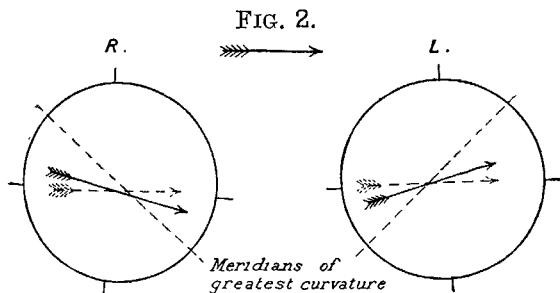
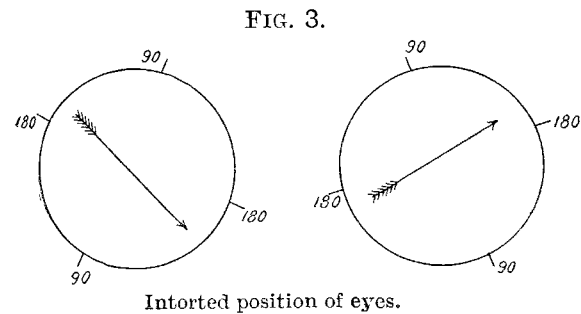


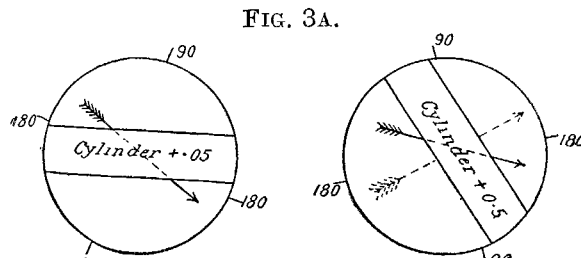
Image of an arrow undergoing torsion owing to uncorrected oblique hypermetropic astigmatism. Such would, unless corrected by binocular extortion, tend to form a crossed or scissor-like appearance instead of that of a single arrow.

towards 180°—we shall be moving the image of a horizontal line towards the direction in which the eyes lie; in other words, we shall be apparently lessening the sloping of the line as seen by the patient. In a similar manner we can see how movement of the cylinders towards the vertical will apparently increase the slope by moving the line away from the intorted position of the eye. (See Fig. 3.)

3. Having explained the positions asked in the first two questions, it only remains to account for the intorted position, and the reason is solely attributable to the faulty right glass. The left glass is, it will be noticed, but



Intorted position of eyes.

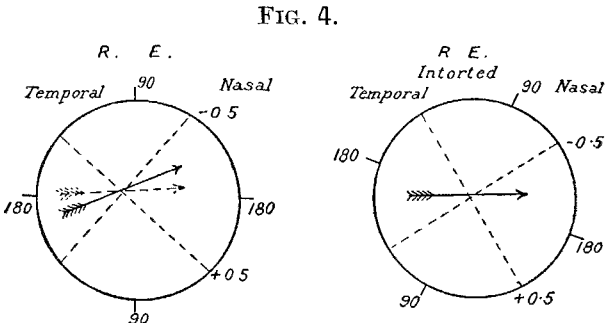


Effect of movement of cylinder away from vertical (left) and towards vertical (right).

slightly incorrect, and not sufficiently so to adversely affect one way or the other any torsion of this eye. Further, the fact that it was intorted at all arises from the urgent necessity for intortion which the right eye called upon the binocular centre which became expressed on both eyes.

It has already been pointed out that the glasses ordered had converted the right eye into one of mixed oblique astigmatism in which the myopic meridian was placed at 60° down and out. The rule of distortion for cases of oblique mixed astigmatism is that displacement of a horizontal line takes place towards the myopic meridian. Therefore in this case the image of a horizontally placed arrow (see Fig. 4) would be displaced downwards and outwards. Before this would correspond with the image

in the fellow eye the eye would have to rotate nasal-wards. This constant call for an intortional action would in time lead to fixed tendency of intortion—that is, a condition of spasm of intortion—and the continuance of the call



The displacement effect due to faulty glass before R. E. making it the subject of oblique mixed astigmatism and the manner of its correction by forced intortion.

upon the nervous energy would account for the neurasthenic symptoms complained of.

Thus are explained the position of the eyes, the reason why such existed, and how it was brought about. Its rectification in this case was extremely simple and its solution no less so; yet it is, unfortunately, not the case in very many of the instances one meets with in which the presence of a cylinder in one eye affects the torsional movements of its fellow.

Manchester.

ON THE TREATMENT OF CARBUNCLES, BOILS, STAPHYLOCOCCIC INFECTIONS, AND CERTAIN STREPTO- COCCIC INFECTIONS

BY THE INTERNAL ADMINISTRATION OF LARGE
DOSES OF DILUTE SULPHURIC ACID B.P.

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IN response to the wish expressed in the concluding paragraph of Mr. F. S. D. Hogg's letter in THE LANCET of Feb. 22nd (p. 562) we have pleasure in sending for publication results obtained by the administration of acid. sulph. dil. B.P. in cases of staphylococcic and some streptococcic infections. It must be clearly understood that this article only deals with the clinical side of the subject, as this aspect presented itself to us first. As regards the experimental investigation, we may say that it is now being followed up, and it may be dealt with in a further communication. We have used this remedy in such cases as those set forth below for many years with uniform success. From letters we have received from medical men in different parts of the country it appears that they have experienced the same satisfactory results.

As will be seen, the treatment consists in administering internally dilute sulphuric acid B.P. in 20 or 30-minim doses, each dose diluted with 2 oz. of water, every four hours.

In the case of carbuncle treated by this drug in large doses (small doses are not of the slightest use), changes are observed to take place in the following order. First, within 24 hours the infiltrated area of tissue becomes strictly circumscribed; then the slough is observed to soften; during the next few days pus is freely discharged, and the whole affected area shrinks and healthy granulation tissue forms, filling up the cavity until the part is healed. The cicatrization takes place in a comparatively short time from the commencement of the treatment, the period varying, of course, with the size of the lesion.

The only external application is a dressing of carbolised vaseline (1 in 20).

Naturally in cases of what would appear to be streptococcic infection, such as those resulting from abrasions, or

punctures by bones of high game, or inoculation by decomposing animal matter, the patient showing early symptoms of septicaemia, a somewhat different though favourable course obtains; the high temperature is quickly reduced and the pain and swelling and malaise gradually subside, the patient progressing uninterruptedly towards convalescence. Where the lymphatics are inflamed and the glands enlarged and painful these conditions in a few days also disappear.

The following cases are taken from our notes:—

CASE 1.—The patient, aged 49 years, while away on a holiday in Wales, developed a very small painful spot on the left side of the back of the neck, just at the posterior edge of the sterno-mastoid, which was thought at the time to be due to a mosquito bite or sting. This spot rapidly increased in size during the succeeding four days until it resulted in a carbuncle. The patient then returned to London by order of the local medical attendant, and came under our care. We at once administered acid. sulph. dil. in 20-minim doses diluted with a wine-glassful of water; this was continued every four hours and the carbuncle dressed with carbolised vaseline (1 in 20). No other treatment was used, and in 19 days from the commencement of the treatment the patient was absolutely well.

CASE 2.—The patient, aged 29 years, apparently in a healthy condition, accidentally pricked the index finger of the right hand on Oct. 9th, 1911, whilst dressing a rabbit which was seemingly in a perfectly fresh state, and which was afterwards eaten by the family for dinner. On the evening of the same day the finger began to throb and grew painful, and during the night the pain continued and kept the patient awake. All the next day and night it was poulticed. The patient now began to feel ill, and the swelling and pain extended to the elbow. On the 11th, two days after the puncture and just before we took the case in hand, a severe rigor had occurred. On visiting her the temperature was found to be 104.5° F., and the patient seemed very weak and ill; the whole forearm and hand were extremely swollen and painful, red lines marking the course of the lymphatics as far as the elbow, with swollen glands and also some tenderness and swelling in the axilla. We at once administered 20-minim doses of the acid. sulph. dil. B.P. in a wine-glassful of water, and the dose was repeated every four hours through that day and the following night. On the morning of the 12th the temperature had fallen to 102° and the pain was much less. The doses were continued with strict regularity every four hours, and on the morning of the 13th the temperature had fallen to 100°, the pain was still less, and there was a considerable diminution of the swelling. This treatment was continued, and on the 14th the temperature was normal, the swelling and pain had subsided, and only a little stiffness remained, and this also subsided on the 17th, when we left her well. As regards outward application, the whole arm and hand were simply wrapped in cotton-wool and supported in a broad sling.

CASE 3.—The patient, aged 43 years, had pricked the index finger of her right hand while drawing a "high" partridge. Four or five days had elapsed before the case was seen by us, when the whole hand and arm right up to the shoulder was found to be oedematous, livid in colour, and intensely painful. There was a high temperature—104° F.—and great restlessness and depression. The patient was sent to bed, but could not sleep on account of intense pain. The limb was wrapped in cotton-wool and carefully supported on pillows, and acid. sulph. dil. was given in 30-minim doses every four hours. Within 20 hours or so (by the time the patient was seen next day) the pain began to subside and the temperature to fall, and at the end of the fourth day of treatment the swelling began also to lessen, and the patient continued to improve steadily until at the end of three weeks she was convalescent as far as the arm was concerned, but the treatment was continued in 20-minim doses with a little quinine sulphate (2 grains) for a further week, when the patient was then in her normal state of health.

CASE 4.—The patient, aged 45 years, a short, thick-set, plethoric man, a gross eater accustomed to take plenty of beer and stimulants generally, but who took also plenty of violent outdoor exercise—e.g., sports—came under treatment on May 16th on account of a tense and diffuse red swelling of the left upper lip and left ala of the nose, and extending to the left eye, the lids of which were very swollen and quite closed. He said it was extremely painful, and he attributed it to poisoning by an insect. On examination there were seen to be three small apertures disclosing a hard grey slough, such as one gets in carbuncles. The temperature was high when he was first seen. This patient was at once sent to bed and put on the acid. sulph. dil. treatment (in this case 30 minims in a wineglassful of water every four hours), and after the first 24 hours the spread of the inflammation was arrested and the grey slough in each aperture began to soften down into pus which discharged itself in increasing quantity through the three openings, and the swelling began to subside; the temperature went steadily down, and on June 10th—i.e., in 25 days—the patient was quite well. The only other remedy applied was carbolised vaseline (1 in 20) on lint as a dressing. For at least the first 10 days the patient was only allowed light diet, and as an aperient magnesium sulphate was given in drachm doses in 10 oz. of water fasting.

We have treated in the same way in the past a very large number of similar, as well as of milder, cases—e.g., blind boils, which are aborted and completely disappear. Recurrent crops of boils and pimples in different parts of the body and severe cases of acne have yielded readily. In one case in particular, where the patient developed recurrent crops of boils, the drinking water was found to be taken from a very foul cistern with dead animal and vegetable matter covering the bottom.

This remedy proving so effectual in such classes of cases as we have mentioned, we were naturally led to try its effect on other conditions where pyogenic organisms were responsible for some of the symptoms observed. Cases of bronchiectasis and pulmonary tuberculosis, where there is so often

a staphylococcic infection, we have found to be benefited; the sputum becomes less purulent and much less in quantity, and in tuberculous cases the fluctuations of temperature are less.

From the above it seems evident that this remedy has a wide sphere of usefulness, and experiment and observation alone will show in the future how far the many lesions caused by pyogenic organisms can be successfully treated in this way.

THE TREATMENT OF PULMONARY TUBERCULOSIS.

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II.¹—A PRELIMINARY NOTE ON TREATMENT WITH TUBERCULIN.

IN my previous article, dealing with the work of the King Edward VII. Sanatorium during the four years July, 1907, to July, 1911, I have attempted to estimate the degree of success which attended the treatment of 1030 patients during this period. As a means of testing the value of the treatment in force at the Sanatorium during this period—a period during which tuberculin was not used—I considered two factors only—namely, (1) the disappearance or non-disappearance of tubercle bacilli from the sputum; and (2) the condition of the patients treated, on successive anniversaries of their discharge from the Sanatorium up to the present date. I emphasised the fact that information on these two heads gives us undisputable evidence as to the immediate and permanent value of any method of treatment of pulmonary tuberculosis. Admittedly, there are factors in addition to the two I have selected which furnish us with evidence as to the value of various forms of treatment, such as, for instance, variation in physical signs, general well-being, capacity for work, &c. However, in a preliminary notice such as this there is no scope for taking a large survey of the subject. I shall, then, follow as closely as possible the lines of my first paper.

For the evidence of after-histories, the ultimate test for any treatment, we must wait for a year or two. There remains the valuable test of efficiency—namely, the disappearance or persistence of tubercle bacilli in the sputum. We are now in a position to apply this test and to compare the value of sanatorium treatment alone and of sanatorium treatment with tuberculin as a means of clearing the sputum of bacilli.

Method of Examining the Sputum employed by Dr. J. A. D. Radcliffe, Pathologist at the King Edward VII. Sanatorium.

The sputum coughed up immediately on waking is received into a sterilised Petri dish. These Petri dishes, before being used a second time, are, after being washed and sterilised, filled with concentrated sulphuric acid for 24 hours and again washed. New slides and cover-slips are invariably used for all examinations. The risk of fallacy arising from imperfectly cleaned apparatus is thus reduced to a minimum. From the specimen of sputum thus obtained films are prepared and stained in the ordinary way. If the examinations of these films prove negative the sedimentation method of Ellermann and Erlandsen is used. This method has been found by Dr. Radcliffe to be more efficient than the anti-formin method. Should this sedimentation method give a negative result further sputum examinations are made in the same way for three or four weeks, and, subsequently, once a month, until the patient is discharged.

Disappearance of Tubercle Bacilli on Sanatorium Treatment Alone, and on Sanatorium Treatment with Tuberculin.

In making a comparison between the tuberculin-treated and the non-tuberculin-treated cases there is one source of fallacy which must be taken into consideration—namely, that of varying length of treatment. It is clearly unsatisfactory to compare a case treated for eight weeks with another who was treated for 40 weeks or more. To get over this difficulty I have subdivided my three clinical groups into subdivisions depending upon the number of weeks'

¹ Article I. was published in THE LANCET of March 8th, 1913, p. 679.