counting all cases of sarcomata in which the mixed toxins have been used, we find 38 cases with 9 cures.

The toxins prepared in the way last stated represent the present method of dealing with these cases. I am aware that Coley⁹ has treated several cases with blood serum obtained from animals inoculated with the two organisms under discussion, but I am informed by my friend Dr. Parker (Clifton) that Dr. Coley has told him that the results are unsatisfactory.

The following is a brief record of a case which I treated unsuccessfully in this way, the toxins being obtained from America, where they had been prepared according to Coley's directions.

G. K., aged 48, had the right upper jaw removed on April 10th, 1894, for malignant disease. Microscopical examination of the growth showed it to be round-celled sarcoma. On December 3rd, 1894 he again came under my care with a recurrence, and the remainder of the malar bone and part of the zygoma were removed.

On June 2nd, 1895, he was admitted to the Bristol Royal Infirmary for the third time. There was then a large recurrent sarcomatous growth occupying the whole of the right cheek, and extending into the orbit and towards the base of the skull. There were enlarged lymphatic glands in front of the right ear, in the right submaxillary region, and at the angle of the jaw. There was also a secondary subperiosteal deposit in the frontal region immediately above the root of the nose.

On June 3rd, injections with the toxins were commenced and continued until July 9th. In all the patient had twenty-eight injections, which at first were given daily. The quantity of injection used was gradually increased from πj up to $\pi xvij$, according to the effect produced. The first eleven injections were given either under the healthy skin, or into the affected cheek or glands. πj into the cheek was the smallest dose which produced a rise in temperature, but as no temperature reaction followed the injection of πvij under the healthy skin, all the later injections were given either into the affected cheek or lymphatic glands. The maximum temperature recorded was 103.8° F. Rigors frequently followed the injections. The details are as follows:

June 4th. πj injected into affected cheek. One hour afterwards complained of feeling cold but there was no rise of temperature.

June 8th. πiij injected into gland in front of ear, followed by rigor, and temperature rose to 100°. Complained of severe burning pain in throat, and was very restless.

June 10th. πiiv injected into gland in front of ear, followed by rigor and temperature of 101.8°. Centre of affected cheek had become softer and more prominent, and on the following day the skin "broke," and pus was discharged.

June 12th. πv injected into cheek. There was a slight rigor but no rise of temperature occurred. Complained that it "made him feel ill." The gland in front of the ear was found to be fluctuating.

June 15th. πvj injected into cheek. Two hours afterwards had headache (which was an usual result), followed by muscular pains in limbs. Vomited twice.

June 20th. πxj injected into cheek. No rigor had occurred since June 12th. The discharge from the cheek still continuing. Several other parts of the growth where injections had been given were softening, and some appeared less in size. Patient had lost 2 lbs. in weight since admission.

June 27th. πxiv injected into gland at angle of jaw. Temperature rose to 101.8°.

June 28th. πxv injected into gland in front of ear, followed by rigor and temperature of 103°. Patient had lost another 1½ lb. in weight. Feels weak and ill. Gland at angle of jaw rather larger, but softer. Gland in front of ear and secondary deposit on forehead both smaller and softer.

June 30th. Gland at angle of jaw breaking down rapidly.

July 1st. Portion of growth near right side of nose into which the last two injections had been given getting softer. πxvj injected into gland at angle of jaw, followed by rigor and temperature of 100.2°.

July 2nd. $\pi xvij$ injected into gland at angle of jaw, followed by rigor and temperature of 103.8°. Although the parts into which the toxins have been injected appear to rapidly soften, the general infiltration of the growth is over a more extensive area.

July 5th. $\pi xvij$ injected into portion of cheek adjacent to the upper lip. Rigor and temperature of 101.4°.

July 6th. The soft area at the angle of the jaw almost "bursting."

July 7th. The portion of growth injected on 5th has now "broken down." Patient has lost another 3½ lbs. in weight.

July 9th. The area injected on 5th has now "burst," and is discharging pus freely. The patient, who was much weaker and very depressed, decided to have no more injections.

The patient ultimately died at the end of September, 1895.

This case was doubtless an unfavourable one for injection with the toxins, but the rapid necrobiosis which occurred in the neighbourhood of the injections gave some hope for the future. Moreover, it is desirable that unsuccessful cases should be reported, so that we may form a proper estimate of

the value of this method of treatment. McBurney¹ has also recorded three unsuccessful cases.

It is, perhaps, interesting to speculate how the toxins act in these cases. Although tumours have been known to disappear in the course of infectious fevers other than erysipelas, I cannot think that temperature alone is the cause of the rapid destruction of the sarcomatous tissue, for in the case above-recorded the temperature was at no time very high and never continued much more than twenty-four hours after injection. From the marked difference in action between the injections placed under the healthy skin and those into the growth itself it appears as if the toxins exerted some direct influence on the sarcomatous tissue, but whether of a specific or non-specific character it is difficult to determine.

Can it be that the lowly-vitalised cells of a malignant growth are more easily destroyed than the stable and resistant cells of normal tissue, by such baneful influences as toxins and febrile conditions acting in a non-specific manner? Whether this is so or not, I am unable to admit that there is necessarily any specific action of the toxins, or that the results support the theory of a bacterial origin of sarcoma and carcinoma upon which the streptococcus erysipelatis has a directly antagonistic effect. Bruns seems unable to account satisfactorily for their action.

That all cases should be equally affected by the toxins is not to be expected. According to Coley, the osteo-sarcomata are least benefited, and from the fact that in the case reported above the effect was greater and more rapid when the injections took place into the growth itself, it seems that the more superficial forms of sarcoma would be more hopeful than those in which the growth has extended very deeply.

It is scarcely necessary to point out that this method of treatment should not be thought of except in cases that are unfit for operative interference. My chief object is to draw attention to a therapeutic measure which may have some good in it, and in such deplorably hopeless cases as inoperable malignant disease we may surely give it a fair trial; but in order that we may not arrive at false conclusions it is necessary that the diagnosis should in all cases be supported by microscopical examination.

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A CASE OF CELLULITIS TREATED WITH MARMOREK'S ANTISTREPTOCOCCIC SERUM.

By FRANCIS HEATHERLEY, M.B., B.S., F.R.C.S.,

New Ferry.

ON July 2nd I was asked to see J. P. B., aged 15 years, an engineering student, previously healthy except for an attack of acute rheumatism two years ago. He had a suppurating boil below the right angle of his mouth, which had been coming some days, and was making him feel ill. The temperature was 103° F. The boil was incised and some thick creamy pus let out. The patient felt faint. No enlarged glands were to be felt. During the next few days the swelling gradually spread over the right side of his face, becoming red and brawny, and being surrounded by an advancing zone of oedema; points of slough also appeared on the mucous membrane of the lower lip. The swelling was attended with very little pain, but the patient rapidly became weaker and was restless at night. The ordinary treatment of cellulitis, including incisions, was carried out, but apparently without benefit; the tissues, when incised, cut like potato, and bled slightly.

On July 6th nearly all his joints were painful and tender, but not enlarged nor red. He complained also of pain in the left side of his chest, and a pleuritic rub was heard in the axillary line. The surface of the brawny swelling was mottled in colour, and there was no fluctuation; the right half of his upper lip and the adjoining part of the cheek were 1 inch in thickness; there was tenderness over the region of the liver; there was no albuminuria.

For the above condensed notes of his progress I am indebted to my friend, Mr. E. W. Phillips, who had charge of him from July 2nd to July 8th. When I saw the patient again the swelling of the right side of the face made him almost unrecognisable. He was weaker, his sensibility blunted, and there was more restlessness than pain. He was in charge of a trained nurse, to whom great credit is due for the way he took his nourishment throughout his illness.

July 9th. No rub to be heard in the axilla, but there is a rub below the apex beat synchronous with the heart's action. This lasted two or three days, but was not followed by signs of effusion nor of pericarditis. He had a dry tongue, and was troubled with tenacious mucus accumulating in his mouth. He was at times slightly delirious. Some of the incisions, from which serum previously trickled, now exuded small quantities of thick pus on pressure.

On July 9th he was worse, and owing to his desperate condition, which was evidently tending to a fatal termination, I thought myself justified in trying the effects of Roger and Charrin's antitoxin. Having obtained his parents' sanction to the experiment, I telegraphed to London, but failed to hear of a supply. I accordingly tried Paris, and received two bottles from Dr. Marmorek on July 11th.

Fig. 1.

On that day the swelling extended over the forehead to the edge of the hairy scalp, to the middle line at the back of neck, beyond the clavicle in a downward direction, and slightly across the middle line of the front of neck. There was a pyramidal swelling upwards from the root of nose, in which the thrombosed frontal vein could be felt. The right eye was closed by brawny swelling of the lids, and was considerably protruded owing to the process having spread into the orbit. There was chemosis of the ocular conjunctiva. On separating the lids the patient said he could see quite well, and counted fingers held up before him. The nose was red and slightly swollen, and there was some oedema of the left eyelids. Both lips were much swollen, and the right halves brawny, making the use of a feeding-cup difficult. Brawny swelling of left cheek over region of lower

jaw extended backwards to the angle. On the right side the brawniness extended down to the clavicle. The ears were not affected. The patient was taking food well, but was weaker and apathetic. He did not flinch when his eye was syringed. The pulse was bad at times, and his back was beginning to look red. Fig. 1 is from a photograph taken on this date, for which and Fig. 2 I am indebted to my friend, Mr. Frank H. Elsby.

At 3 P.M. the serum arrived from the Pasteur Institute. At 4 P.M. a portion of skin over the right buttock was well scrubbed with soap and water, and washed afterwards with 1 in 20 carbolic lotion; 10 c.cm. of serum was injected deeply from a new syringe which had previously been soaked in 1 in 20 carbolic solution, then well washed out with boiled water, and the needle passed several times through the flame of a spirit lamp. The site of the puncture was covered with lint and strapping. The lad did not seem to feel the injection. In the evening two capillary tubes were charged with serum from the right temple and forwarded to Guy's Hospital for examination. The conjunctiva of the right eye gave way towards night, and serum began to trickle from it down the cheek.

On July 12th there was no increase or extension of the swelling. There was dysphagia, and he had coughed up

Fig. 2.

several lumps of bloody mucus. The pulse was running. In the afternoon the respirations were deep and laboured, and he appeared to be moribund. At 4 P.M. the rest of the serum, 13.5 c.cm., was injected. This lot of serum was slightly flocculent. In the evening he appeared rather brighter, although there was no other improvement apparent.

On July 13th the swelling of the right eye was less, and the eyeball less protuberant; the swelling of the nose and the left lids had gone; the lips were less swollen and the neck softer.

On July 14th the swelling in general was less, and the cheek was becoming less brawny. As his pulse and temperature remained up, it was decided to give him the benefit of a fresh supply of serum which had arrived from Paris. At 6 P.M. 21 c.cm. were injected into the right buttock. There were no signs of local trouble at the sites of previous injection.

tions. He flinched when the serum was injected, and whenever his eye was syringed. Fig. 2 represents his appearance on this day.

On July 15th the swelling of the face was less in the morning, and diminished visibly during the day. He was ordered calomel gr. iij. He slept fairly well during the night, and on July 16th was much brighter, although still very weak and with a running pulse. The swelling everywhere was less and much softer; the skin was becoming more natural in colour over the swelling. Owing to the reduction in the swelling the thrombosed frontal and submental veins were more prominent. He turned his head about in bed to see who was coming in, and showed some choice as to his food. He opened his right eye pretty freely. He complained of his limbs aching very much. Owing to the calomel not having acted, the dose was repeated in the morning, and that having no effect, he was given ol. ricini ʒij in the evening.

On July 17th he was much worse; the bowels acted six times during the night and early morning. He was very low and apathetic; the circulation was evidently failing, although he was still taking nourishment well.

At 3 A.M. on July 18th he became very collapsed, and, although he rallied for a time, he eventually sank at 6 A.M.

Throughout his illness he took on an average in twenty-four hours milk 3 pints, eggs 4, meat extract ʒij, brandy ʒiv, champagne Oj.

Report on Specimen of Serum by Guy's Pathologist.—Microscopic examination of serum showed the presence of a staphylococcus (probably staphylococcus pyogenes albus) in large numbers, whilst a blood serum cultivation gave abundant colonies of the same organism at the end of twenty-four hours.

REMARKS.—My friend, Mr. B. W. Murray, of Liverpool, who was very interested in the boy, and saw him with me on several occasions, agrees with me in the following notes. In the first place, I think the case worth recording, being, so far as we know, the first instance of the remedy having been tried in this country. Secondly, up to the date of the first injection the disease was, in our opinion, proceeding to a fatal termination, and in the natural course of events one would have expected the swelling to have increased rather than diminished as the end approached. The way in which the process stopped spreading and then diminished was, in our opinion, more than a coincidence. Thirdly, we should like to draw attention to the temperature, which, on reference to chart, will be seen to have risen after the first and fallen after

the second and third injections. Probably, at the advanced stage of the disease which our patient had reached it would have been better to have given 20 c.cm. as a first injection. There were apparently no bad results, either local or general, attending the use of the serum. We consider that if it had not been for the regrettable over-stimulation of the bowels the boy would probably have pulled through. Our experience of the serum in this case will encourage us to have recourse to its use earlier in the course of any future case.

Lastly, I take this opportunity of expressing my indebtedness to the Pasteur Institute for so promptly supplying a foreigner and complete stranger gratuitously with the serum in this case, as they did last year in the case of the diphtheria antitoxin before a supply was established in London. It may be hoped that this remedy will prove in its own way as valuable in a class of cases where in the past our efforts have had to be confined practically to keeping up the strength of the patient until the disease wore itself out, or *vice versa*.

A CASE OF ERYSIPELAS NEONATORUM TREATED BY ANTISTREPTOCOCCIC SERUM.

By ERNEST A. T. STEELE, L.R.C.P., M.R.C.S.,
Plaistow.

THE male child of Mrs. B., aged 3 weeks, presented on October 4th, 1895, dusky redness spreading downwards from the umbilicus over the hypogastric and iliac regions, buttocks, and upper part of the thigh. The redness also involved the penis and scrotum, which were very much swollen. Above the pubes the skin was of a purplish red colour, and pitted deeply on pressure. The umbilicus was not yet healed. The child was very ill, and refused the breast. The temperature was 102° F., the pulse 150. I gave an injection of 6 c.cm. of Ruffer and Robertson's antistreptococcic serum between the shoulders.

On October 5th the temperature was 101.2° F. The child was taking the breast, and looked better. The redness had not extended, had lost its defined margin, and the skin was not so tense. The scrotum was more swollen. Another injection of 6 c.cm. was given.

On October 6th the redness was fading, patches of normal colour appearing in affected area. The temperature was 100° F., and the general condition of the child much better.

On October 8th the child was doing well, but a fresh patch of redness had appeared on the left thigh, and the scrotum was sloughing in one place. The temperature was normal. A further injection of 5 c.cm. serum was given.

October 13th. Since the last note all has gone well, and were it not for the slough on the scrotum the child would be quite well. The slough is about the size of half a crown, and separating nicely. It involved the whole thickness of the skin and subcutaneous fissures. The slough separated on October 19th, leaving a granulating surface with healing margins. The ulcer left by the separation of the slough had healed on October 26th, and the child is now quite well.

REMARKS.—In the practice of the Plaistow Maternity Charity I have seen a fair number of cases of erysipelas neonatorum, but I have never seen one recover when the disease was so far advanced as in this case. I am convinced that the child's recovery is due to the antistreptococcic serum. No other treatment of any kind was adopted.

A CASE OF MULTIPLE ENLARGEMENTS OF THE (LONG) BONES WITH SPONTANEOUS FRACTURES.

By GEORGE GUNN SINCLAIR, L.R.C.P. ET AL.,
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I wish to bring under notice the following case, not only on account of the rarity of the disease, but also on account of the curious history of accidents which preceded it. The case has been under my care for the past five years.

The patient, R. S., a man, aged 37, is the third son of a