only one relapse and the sub-inoculation, four weeks afterwards, was negative. On the second evening after re-inoculation (eight cubic centimetres of heavily infected heart blood of a rat) two spirochætæ were seen in a preparation, but on subsequent occasions none could be found.

Similar observations were made on a large *Cercopithecus callitrichus*. The re-inoculation was followed by a marked rise in temperature and although no spirochætæ could be seen in preparations of the peripheral blood a rat inoculated with five cubic centimetres became infected after a prolonged incubation period of seven days. Those rats which had recovered from the disease were re-inoculated with large amounts of heavily infected blood at varying intervals. Of seven only one showed parasites in the blood after re-inoculation. Spirochætæ were seen eight hours afterwards; these disappeared within 12 hours and were never seen again. Monkeys inoculated with the strain of spirochætæ obtained from the New York case passed through a similar attack and had the usual relapses—one after a negative interval of 19 days. Re-inoculations with the same strain resulted in much the same manner as noted in similar infections with the African spirochætæ. In one case the sub-inoculation of a white rat on the first day after the re-inoculation of the monkey was followed by the infection of the rat, although no parasites could be seen in preparations from the monkey's peripheral blood. Further sub-inoculations made some days later from this monkey were not followed by infection.

The course of the disease in rats inoculated with "O" strain was quite different. The parasites were never so numerous and were never present for so long a time as in the case of the African strain (maximum—three days for the New York strain, 17 days for the African). Relapses were also observed but never more than two. With the African strain three relapses were quite common. The re-inoculation of four rats was followed by infection in only one case, the parasites being present in the peripheral blood for one and a half days.

From the above experiments the conclusion must be drawn that there exists, to a certain degree, active immunity against re-infection in the case of both the "O" and African strains respectively, as only a small percentage of the rats and monkeys became re-infected and then showed only a very slight infection. The monkey, mentioned above, which was inoculated twice with the "O" strain was inoculated after a certain time with the African strain. Spirochætæ were found in the peripheral blood on the next day and remained present for three days in the same way as was observed in monkeys inoculated with the African strain originally; in fact, the course of infection was similar to that of a *first* infection with spirochætæ in the monkey. In one rat (Experiment 1078) inoculated with the New York spirochætæ, which had been kept in defibrinated blood for 12 days, the blood examination did not reveal the presence of the parasites, most probably on account of insufficient observations. In spite of very careful examination no spirochætæ were seen in this rat after two re-inoculations one four weeks, the other seven weeks after the original inoculation. The rat, however, became infected after nine hours when inoculated with the *African strain*, eight days after the last re-inoculation, and has had two relapses since. Another rat (Experiment 1122) inoculated with "O" strain showed the parasites for three days and had one relapse. Five weeks later it was re-inoculated with the same strain but the parasites were not seen. When inoculated seven days later with the African strain the rat passed through a course of infection similar to that of the previously untreated control rat. Two rats which were inoculated with the African strain and which had not shown parasites after re-inoculation with the same strain (Experiment 1081) four and a half weeks after the original inoculation, with six cubic centimetres of heavily infected blood, and which, four and a half weeks after this again, were inoculated with the "O" strain, became infected in the same manner as the controls.

From the above one must draw the conclusion that the spirochætæ of the African tick fever is of a species differing from that of the New York spirochætæ in that each confers a relatively active immunity against itself but not against the other. I would therefore suggest for the spirochætæ of the African tick fever the name of "*spirochætæ Duttoni*."

Liverpool.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

A CASE OF RENAL CALCULI IN A CHILD.

BY DAMODAR BABAJI MANDHLE, L.R.C.P., L.R.C.S. EDIN.,
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THE following case is of interest both from the occurrence of renal calculi in so young a person and, moreover, from the absence of definite symptoms pointing to the existence of the lesion which was found after death. The patient, who was a boy, aged three and a half years, was admitted to the Park-hill Hospital on May 15th, 1906, in a cyanosed and delirious condition, and died the next evening. He was sent in as a case of measles. On admission he was cyanosed and almost pulseless and was found to be suffering from the symptoms of broncho-pneumonia. In fact, he had some retraction of the thorax, was croupy, and the question of tracheotomy was considered. The symptoms all pointed to an acute attack of measles, with broncho-pneumonia as its special complication and a "toxic" heart. The child died suddenly from cardiac failure after having had all the usual treatment. Before the patient was taken ill with measles he seldom suffered much from any complaint that needed special attention.

At the necropsy the lungs were found to present patches of pneumonic consolidation scattered about on either side. The right side of the heart was slightly enlarged with a definite tendency to fatty degeneration. The spleen was normal. The left kidney was very congested but otherwise normal, while the right kidney was full of renal calculi, both in the pelvis and calyces, one, the largest, being in the centre of the pelvis. The calculi were of the oxalate of lime type; the largest of them measured half an inch in length and one-third of an inch in breadth, and was enveloped with a band of renal tissue, the rest ranging from the size of a pin's head to that of a pea, scattered all over. The other organs were normal.

I have to thank Dr. N. E. Roberts, the visiting physician, for allowing me to publish this case.

Liverpool.

FRACTURE OF A RIB DUE TO MUSCULAR ACTION.

BY S. HERBERT DAUKES, M.B., B.O. CANTAB.

ON Feb. 20th, 1906, I was called in to see a man, 52 years of age, who "felt something go" whilst straining at stool. On examination of the left side of the thorax at the spot where the maximum pain was complained of, the sixth rib was found to be fractured in the mid-axillary line. The condition admitted of no doubt from the point of view of diagnosis as deformity could be felt at the point of fracture and on pressure the deformity disappeared with distinct crepitus. The patient was an apparently healthy labourer subject to gout but free from any local new growth or other pathological condition which could account for the accident. He had never before had a fracture of any sort. The side was strapped and the rib united without further trouble. I believe that there are very few cases on record of a similar nature.

High Wycombe.

BRIGHTON AND SUSSEX MEDICO-CHIRURGICAL SOCIETY.—The annual meeting of this society was held on May 31st, Dr. A. Newsholme, the President, being in the chair. Dr. W. C. Chaffey was elected President for the ensuing year; Dr. A. Newsholme and Dr. J. F. Gordon Dill, Vice-Presidents; Mr. C. J. Oldham, treasurer; and Dr. R. Sanderson, honorary librarian. The members of the council appointed were Mr. W. A. Bowring, Dr. P. S. Eves, Mr. R. F. Jowers, Dr. F. J. Paley, Dr. L. A. Parry, Dr. J. W. Pugh, Dr. R. J. Ryle, and Mr. Hugh Stott. Dr. E. Hobhouse and Dr. W. Broadbent were elected secretaries for a third year.