many as five in a field being sometimes present. Histologically the millet seed areas consisted of fibrous tissue and young connective-tissue cells, among which were acid-fast bacilli and inflammatory round cells. A few giant cells were present.

Remarks.—From the examination made, one is inclined to consider this was a case of tuberculosis of the lung of a camel, followed by a condition of reparative fibrosis.

No opportunities were available of either examining the fresh specimen or making attempts to isolate and grow these acid-fast bacilli on suitable culture media, so that it is impossible to say definitely whether or not these lesions were caused by the presence of tubercle bacilli.

Apart from the fact of acid-fast bacilli being found in the lung sections, the gross lesions simulated a condition resulting from the presence of tubercle bacilli in lung tissue, and Dr Balfour, the Director of these laboratories, was of the same opinion.

In the literature at my disposal I cannot find any previous reference to such a condition existing in camels.

It is well known that the Sudanese as a race possess a certain predisposition to tuberculosis, often accelerated by their habits of overcrowding in their huts, but it is difficult to conceive the idea that such an animal as the camel, whose open air life is beyond question, would be a suitable subject for the tubercle bacillus.

STAPHYLOCOCCUS VACCINE USED IN THE TREATMENT OF ABSCESES IN A BULL.

By Captain F. C. O'RORKE, Army Veterinary Corps, Ambala, India.

LAST April I was called upon to deal with an outbreak of foot-and-mouth disease amongst the military dairy cattle at Kasauli, a Himalayan hill station.

The Indian cattle were quickly cured, but two imported Ayrshire bulls suffered much more severely.

Bull No. 1 developed abscesses in both fore legs, which extended up as far as the elbow. He was for many weeks under treatment, and before he was completely cured he developed rinderpest and died in a few days.

Bull No. 2 is the animal with which this article is concerned. He apparently recovered from the disease a fortnight after all the external symptoms had disappeared, and was moved to a branch dairy at Subatha. At this time, although he had no lesions in his mouth or on his feet, he remained very lame, and could only walk with difficulty, moving as a horse does when suffering from acute laminitis. He had fallen away and was looking in very poor condition. In this state he remained for many weeks, and although he had a fair appetite and was fed with great care he did not improve.

About the middle of June I was telegraphed for, asking me to proceed at once to Subatha to see the animal again. On arrival there I found the bull in very poor condition—staring coat, temperature 103.6°, very lame, and on the prepuce, about three inches posterior to its orifice, was an abscess about the size of a tennis ball.

I opened the abscess and syringed it out, attended to his feet, which were much overgrown, and advised a course of tonic powders (iron and gentian). Within a week the bull was serving cows again, the abscess having healed up, but he still remained poor in condition, and his action was very cramped even at a walk.

Weekly reports on his condition were sent to me, but they were not at all favourable. Then in August, when I was on a month's leave in the neighbourhood, the manager of the military dairy farm asked me to see the bull again, as he was afraid that the beast was going to die. I rode over to the dairy farm and found that the bull had been suffering from intermittent fever for some weeks. On examining his blood (fresh cover-glass preparations and stained smears) no intra- or extra-corpuscular blood parasites could be found. There seemed to be an excess of leucocytes, but beyond this I discovered nothing abnormal.

A week later I again visited him, and found him looking worse. I also noticed that an abscess was developing in the scrotum. I then had him walked by slow marches, a distance of ten miles, to Kasauli, where I was staying, so that I could watch the case more carefully, and make cultures from the contents of the abscess and also from his blood.

On his arrival I visited him again for this purpose, taking with me tubes containing ordinary agar, neutrose agar, and broth, but found that the abscess had burst about an hour before I saw him. However, I washed the outside of the abscess with 5 per cent. carbolic acid, then scrubbed it with ether and alcohol, and squeezed out some pus. I then introduced a flamed platinum loop deep into the abscess, and made cultures from the pus at the bottom of the abscess cavity. After incubating these for forty-eight hours I found about four colonies on each agar slope, principally staphylococcus and a few streptococcus colonies. From these I made more cultures, eventually obtaining a pure staphylococcus growth, resembling the staphylococcus aureus, but a little paler in colour than usual.

The next day I made cultures from the blood stream, but with negative results, except in the case of one agar slope, in which I obtained one colony, which I put down to accidental contamination of the hypodermic syringe needle from the skin.

In the meantime I made a staphylococcus aureus vaccine from a forty-eight hours growth on agar, the growth being a subculture from the original one obtained from the abscess cavity. The vaccine contained 100 millions of killed staphylococci per cc., and of this I gave a 10 cc. dose subcutaneously each week for three weeks.

The day before the vaccine treatment was commenced the bull's staphylococcus opsonic index worked out at '9, and, as already mentioned, he was in extremely poor condition, was suffering from intermittent fever, and could only walk very slowly and with short quick steps.

Within ten days he began to show a slight improvement, and at the end of the fourth week the opsonic index was '94. The abscess in the scrotum had almost healed, the bull was walking better, improving in condition, and eating everything that was put before him, and had had no fever for two weeks. He was then given one dose of a mixed vaccine containing 500 million staphylococcus

aureus and 250 millions staphylococcus albus. Shortly after this the opsonic index worked out at about 1.5, and the bull's condition was progressing daily. He is now as fit as any bull could be, and has put on nearly 200 lbs. in weight. The lameness has entirely disappeared.

I am sure there is great scope in veterinary practice for the use of bacterial vaccines, *i.e.*, the subcutaneous injection of killed bacteria in suspension, for favouring phagocytosis, and members of the veterinary profession have much better opportunities of testing them and judging the usefulness of vaccine therapy than the medical profession, who at present seem to think it has such a promising future.

I am greatly indebted to Colonel Semple, the Director of the Central Research Institute, Kasauli, who kindly allowed me to use the laboratory, appliances, etc. whilst I was in that station, and also for all the assistance he gave me.

A CASE OF MALIGNANT GOITRE IN A DOG.

CARCINOMA OF THE THYROID GLAND WITH METASTASES IN THE LUNGS.

By JOHN LINDSAY, M.D., and D. MACLEOD, M.R.C.V.S.,
Glasgow Veterinary College.

Clinical Report by Mr MacLeod.—The subject of this article, a fawn bulldog four years old, was brought to the Clinic on 10th December 1909, with the following history: Three weeks previously a slight swelling was noticed in the left submaxillary region, which rapidly increased in size and burst about a week later, discharging a quantity of blood-stained pus. The wound was kept clean, and the swelling gradually subsided until two days before the dog was brought in, when a slight enlargement of the same region on the right side was noticed; this had rapidly increased in these two days. He was off his food more or less for ten days, but was very thirsty and would drink any quantity of water.

His general appearance was unthrifty, the coat dry and staring, with the hair coming away in quantities, and this had been so for some weeks. Twitchings of the muscles were observed, and had been occurring for a considerable time. Temperature 102° F; pulse 80, and very weak. The face and neck were markedly œdematous, more especially on the right side; so much so that the eye was closed. There was profuse salivation. The throat and teeth were carefully examined and were found quite healthy.

No definite diagnosis was made, but the animal was kept under observation for some days, during which time he was given a rich nutritious diet. This he ate very well. Medicinally potass. iod. was prescribed internally, and lini. iodi. locally.

There being no appreciable difference at the end of a week, he was returned to the owner with instructions to continue the treatment for