by amputation of the tail, died from tetanus seven days after the onset of the symptoms.

When one considers that the serum used in these cases was anti-toxic to an extraordinary degree, that the quantity of it injected was relatively large, and that the treatment was begun very soon after the onset of the symptoms, there is obviously little hope that the serum treatment will prove of any value in cases of naturally contracted tetanus of the horse.

CLINICAL ARTICLES.

IS ACTINOMYCOSIS TRANSMISSIBLE BY CUTANEOUS INOCULATION ?

By F. L. GOOCH, F.R.C.V.S., Stamford.

ON 8th July 1893, I was summoned to a large farm in this district to attend a herd of twenty-one young steers, from eighteen months to one year and nine months old, which, the messenger informed me, were affected with enlarged shoulders, some of the shoulders suppurating. On arriving I found the whole twenty-one more or less affected. Before venturing an opinion, I questioned the foreman in charge as to the history of the steers, which was as follows :—

The whole of the herd had been reared on a farm just on the border of the Fen district until the previous autumn, but about October 1892 they were sent to a farm in Deeping Fen to be wintered in straw-yards. During their stay there they were all setoned by an "empiric" as a preventative against black-quarter, and returned to the farm upon which they had been reared about 1st May 1893, some of them then showing signs of enlarged shoulders, and two of them having large "wens" on the inferior maxilla.

At my first visit I carefully examined the setons (some of them still remaining in the "dewlap"), and found small enlargements around the seat of the operation, similar in substance to those on the shoulders ; and, continuing my examination, I found a thickened cord, extending from the seat of the operation to the affected shoulders, resembling a thickened indurated lymphatic. I questioned the foreman and also the owner as to what the setons were dressed with, but could never find out. Some of the shoulders had suppurated, but, instead of healing as an ordinary abscess, a large tumour-like substance (at first resembling an ordinary wart) commenced to grow, and when I saw them first some of the growths were as large as a cricket ball.

I was puzzled in my own mind as to what disease I had to deal with, but, suspecting actinomycosis, I excised one of the tumours and forwarded it to Professor M'Fadyean ; as the weather was hot it did not arrive in good condition, and he was unable to make a satisfactory section so as to examine it microscopically, and give a definite opinion as to the nature of the disease, so I again visited the herd on

the 14th and excised another tumour, which I forwarded in spirit, and Professor M'Fadyean had then no difficulty in detecting with the microscope distinct colonies of actinomyces.

After my first visit I informed the owner of my suspicions, and commenced treatment accordingly, which consisted in administering at once a draught to each steer of magnes. sulph. 1 lb., pulv. zingib. 5j., and afterwards a draught morning and evening containing potas. iodide 5j. I removed all remaining setons, excised all tumours, and opened the other shoulders that were suppurating. I dressed the parts locally with iodised phenol three mornings in succession, and then missed three mornings, and continued the dressing until the granulations were reduced to the level of the cutaneous surface, when all local treatment was discontinued. The wen-like substances on the two steers' maxilla I blistered with a strong ointment of hydrarg. biniodide. The draughts containing potassic iodide were continued until 5th August.

On 31st July I forwarded to Professor M'Fadyean another small tumour, but not in spirit, so as to enable him to make a section from a fresh specimen, as the actinomyces in the specimen sent in spirit presented a somewhat shrivelled appearance. He examined this specimen and wired me, saying that typical colonies of actinomyces were present.

I visited the herd again on 5th August, and found the treatment having the desired effect; the tumours had gradually diminished in size, and the wounds were healing; those shoulders which had not suppurated but presented an indurated condition were being reduced in size, and none of them showed signs of suppurating.

I again visited them on the 10th, when I found them still progressing; and again on the 16th, when I could only find six steers that were at all affected in the shoulders. I also noticed that the thickened lymphatic, extending from the seat of the operation of setoning to the shoulder, had in nearly every case disappeared.

I did not visit them again until 5th September, when, as the six were not progressing so fast as I should have liked, I commenced giving the potassic iodide in rather larger doses, and continued local dressing. I may here state that from 20th August to the 5th September all treatment had been discontinued.

On again visiting, 20th September, I found five of the steers very much improved, but the sixth one presented a complication in the form of a diseased parotid gland, which had become much enlarged, and suppurated. I discontinued the potassic iodide with the five, but gave the one with diseased glands 5j. of the salt morning and evening, and applied the iodised phenol. I did not visit them again until 20th October, when all except the one with affected glands were discharged convalescent.

I was called to the same farm again the last week in December to another case of disease, and up to that date none of the animals had shown any signs of a recurrence of the malady.

In my opinion the outbreak was the result of cutaneous inoculation, and my reasons for that opinion are:—

1st. One bullock when I saw them first was affected very much worse than any of the others, and I have no doubt was affected before the operation of setoning.

2nd. All the enlargements of the shoulder, and all the enlargements on the maxilla (except one) were on the left side.

3rd. The continuous thickened cord-like substance extended from the seat of the operation to the affected shoulder, and similar granulations were present round the seat of the operation.

In all probability the operator in setoning would pierce the skin from the left to the right side—it being right-handed for him—all the setons being placed through the dewlap, and not up one side of it.

In my opinion the steer that was worst affected when I first saw them was (by accident) the first one setoned, and the others were afterwards inoculated.

There is another point respecting actinomycosis which has puzzled me very much. In two cases I have had a recurrence of the disease at the end of a year, both cases having been treated by me in the early spring of 1893, and apparently perfectly recovered, grazing as well as the other bullocks, and showing no symptom of disease until recently, when both cases were reported almost simultaneously as being affected, although they were in totally different localities. In my opinion the animals became in some way re-affected.

Respecting the treatment of actinomycosis, I may say that I have never had a case that has not yielded to the treatment carried out in this particular outbreak.

I have come to the conclusion that the so-called “wen” of the Fen district is really a form of actinomycosis, as Professor M'Fadyean found colonies of actinomyces in a portion of an enlargement excised from the inferior maxilla, and such cases yield readily to the same treatment as is adopted for actinomycosis.

TWO CASES OF AZOTURIA *vel* HÆMOGLOBINURIA.

By E. WALLIS HOARE, F.R.C.V.S., Cork.

(1.) A chestnut mare, eight years old, in high condition, the property of a carter, engaged drawing timber. Previous history—healthy. Had been kept inside for three days during the Xmas holidays, and fed as usual. On 27th December was put to work, and after carting the first load of timber from the wharf to the deal yards, about half a mile distant, the driver noticed the animal to be slightly stiff in the hind quarters, but thought nothing of it; after drawing the third load the animal got so stiff that she could hardly walk; she was then unharnessed and taken to a farrier, who examined the feet, but could find nothing, and gave the opinion that she was suffering from a very serious affection, consisting of “*a falling of the blood into the joints*,” so he would not undertake the treatment.

I did not see the mare for about two hours after, and on arrival found her lying down, unable to rise, attacked with intermittent convulsions of both fore and hind limbs, pulse full and strong, respirations accelerated, no sweating. Ascertained that neither urine nor fæces were passed that morning.

Passed the catheter and found the bladder much distended, and drew off a large amount of very dark coffee-coloured urine.