respirations, and a complete transformation in the appearance of the patient.

On the 10th his condition was fairly good. There was again an increase in the exudate, but not to such an extent as to warrant operation. On the 11th the symptoms were again unfavourable, and on this day I withdrew one gallon. The relief gained on this occasion was not so apparent, and the patient was daily losing flesh and strength. On the 12th another gallon was withdrawn.

The 13th showed the patient much worse, although there was very little fluid in the chest. The respirations were very laboured ; pulse 72, and weak.

14th. I had now no hopes of a recovery. There were apparently extensive adhesions between the layers of pleuræ, and consolidation of the lower parts of the lungs. Tapping was performed for the last time, and $\frac{1}{3}$ of a gallon withdrawn, but no perceptible relief was experienced. The animal lingered on until the 18th, on which date it was found dead in the loose-box in the morning.

Post-mortem examination showed, as anticipated, extensive adhesions, and consolidation of the lungs in patches which were of a fibrous nature, indicating a previous attack or attacks. At the time of death there was only a small quantity of fluid in the thoracic cavity.

Although the termination of the case was unsatisfactory, still there are one or two points of interest.

For one thing the operation of tapping demonstrated the fact that both sides of the chest can be effectually emptied by puncture on one side only (the right side in preference), the communication being, I presume, through the network in the posterior mediastinum. Prior to tapping on each occasion, the extent of fluid was carefully noted, and on the completion of the operation it was found each time that there was a corresponding reduction on each side. Another point is the enormous quantity of serous fluid which continued to be poured out throughout the later stages of the disease, in all $15\frac{1}{3}$ gallons.

TUBERCULOSIS IN THE HORSE.

By JOHN BURNETT, F.R.C.V.S., Maybole.

So few cases of tuberculosis in the horse have been recorded that I have thought it might be interesting to some of the readers of *The Journal of Comparative Pathology and Therapeutics* to give the history of a case which has come under my observation. Whether the paucity of numbers reported is due to the rarity of this disease in the horse, or whether it may be due to an overlook on our part, in not making *post-mortem* examinations, I know not ; perhaps it may in many cases be due to our mistaking this disease for some other. In the present instance a mistake could scarcely have been made.

The subject of this case was a bay Clydesdale horse, four years old. When he was brought to me for treatment on the 4th July 1889, I could get no more information concerning him than that he had not been taking his food well for some time, but had been working regularly up to date. With the exception of a languid appearance,

and a slightly accelerated pulse, he had every appearance of a healthy horse, having a good coat, and being in fair condition. The languid appearance and accelerated pulse I attributed partly to his not having been feeding well for some time, and to his walk of ten miles to my place. I considered him to be suffering from dyspepsia and sluggish liver, for which I prescribed a mixture containing acid. nit. mur. dil., ext. taraxaci., and inf. chiratae, to be given morning and evening in food or in a quart of cold water, the same to be continued for a week. I also rasped his teeth, as they were requiring it, and ordered for him easily digested food.

I had a letter on the 11th July to say he was considerably improved both in feeding and spirits. I sent the same mixture for him, to be continued another week.

I heard no more about him until he was brought to me again on the 7th August. I then found that, instead of having made progress, he was worse than when I first saw him, the pulse being more frequent and the visible mucous membranes much paler than natural. I made further inquiries regarding his past history, but could gain no further information. I attributed his being worse to his having been put to work for the previous fourteen days. I ordered entire cessation from work, and directed that he should not to be brought down to me again. I now prescribed for him powders containing pulv. quassiae, ferri. sulph., and acid. arsen. These were continued for ten days, one morning and evening.

I visited him on the 25th August, and found him in much the same condition as when he was last brought to me. I prescribed for him ferr. dialysat. in the morning, and a powder containing pulv. nucis vomicae, ferri carb. sacch. and gentian in the evening. I also requested that a sample of his urine should be sent me, which I found of lower specific gravity than normal.

I did not visit him again until the 23rd September, when I found him very much worse, being now much emaciated, especially the superior cervical muscles, and walking with an unsteady gait. The respirations were now increased, but there was no cough, which was absent throughout all his illness. Pulse 66 and weak, and temperature about 104°.

I now learned for the first time that he had had a severe cold in the latter end of October 1888, this having been brought to the stable by a newly-purchased horse. He had discharged freely from the nose, but none of his glands had either suppurated or swollen. I examined all his glands, as I had previously done, but could find nothing amiss with them. I now concluded that he must be suffering from some internal tumours or abscess as the result of the cold he had had, and the thought struck me—Can it be tuberculosis? But I must say I tried to banish that thought from my mind. I made inquiries as to whether he was making excess of urine, and was informed that they thought he was. I now prescribed for him iodine and pot. iod., alternated every five or six days with the previous powders for the same time. He was also having milk and other nutritious foods.

I visited him again on the 26th October, when I found a slight improvement. He was steadier in his walk, and his coat had a better appearance, although he was still as much emaciated. I continued the previous treatment until I again visited him on the 10th November,

when I could detect little change in his appearance since my last visit. I now substituted ferr. dialysat. for the iodine and pot. iod.

My next visit was on the 23rd December, when I found no improvement in him. Being satisfied that further treatment was useless, I advised the owner to destroy him; but as he seemed unwilling to do so, I told him to continue the foods he was receiving, and to let him take his chance, at the same time expressing a wish that I might be informed in the event of the animal dying, as I wished to make a *post-mortem* examination.

I received a letter in the beginning of January, intimating that if I wished to make a *post-mortem* examination I was to come up, as they were now going to destroy the horse. I went up on the 13th January and found him neither better nor worse than when I last saw him. He was then destroyed, and I removed the organs affected, which I sent to Professor M'Fadyean for his opinion. He has promised to add to these notes the result of his examination.

I must confess that in looking at the spleen I could have had no idea what disease to class it under; but on laying open the thoracic cavity, and seeing the pleura costalis studded in several places with small tubercular growths, I was certain I had got a case of tuberculosis in the horse.

This disease in the human subject and in various species of animals is considered both hereditary and infectious. It is but reasonable to suppose that the horse may contract the disease either from the human being or from some animal, or that he may inherit it. By heredity I do not intend to convey the idea that the bacillus tuberculosis descends from parent to offspring, but that a peculiar habit or condition of the body is transmitted, and that when suffering from any disease which lowers the vitality of the system, the subject becomes an easy prey to tuberculosis. I believe the cold from which this horse suffered in the latter part of the year 1888 may have had something to do with the development of the disease.

On inquiry I learned that none of the people about the farm had been affected with tuberculosis, so far as was known; but at the same time I found that this horse had grazed every summer in the fields along with the cows, and I know that tuberculosis has existed in the stock for a length of time. I also learned that neither the horse nor his dam had been reared on cows' milk, but that his grandsire, "Young Ivanhoe," who was also bred on the farm, had been reared on cows' milk from six weeks old. All trace of this horse has been lost, as he was sold and sent to America. He had served a number of mares one season only, and I am led to believe that some of his progeny were delicate, but about this I intend to make further inquiries.

[The parts from the above case which Mr Burnett was good enough to send to me for examination were—the entire spleen, portions of the right lung, and parts of the diaphragm and costal pleura.

The spleen was greatly enlarged, weighing 20 lbs. The increase in weight was due to the presence in it of a white sarcomatous-looking tissue. At some parts the new tissue took a tumour-like form, but at many places it was ill-defined at its periphery, shading gradually into the remnant of the pulp tissue. Neither caseation nor calcification was present in any part of the spleen. At some points the peritoneal

covering of the organ showed soft villous growths, resembling the early stage of *perlsucht* lesions of cattle, and similar formations were present on the diaphragm and costal pleura. The lung tissue was crammed with miliary tubercles. A scraping from the splenic growth showed the presence of tubercle bacilli.—J. M.F.]

A CASE OF EQUINE TUBERCULOSIS.

By A. E. METTAM, M.R.C.V.S., Assistant to H. M. Stanley,
M.R.C.V.S., Birmingham.

THE subject, a grey gelding eight years old, came into the infirmary for opinion and advice on February 24, 1890. The animal had been treated for a feverish cold and sore throat about Christmas, but it had never regained its former vigour and condition. He appeared dull, was easily tired on exertion, and did not take his rations with relish. He was used at ordinary farm work, and said to be a good worker when in health.

On examination, his condition warranted his detention. The exertion caused by his journey here had fatigued him considerably, and although when I had last seen him he was in fairly good condition, he was now much emaciated. When he had been in the yard an hour I took his pulse, which was weak and numbered 68. Temperature 104° F. Respirations 20. Auscultation revealed harsh sounds in trachea and larger bronchi; these gradually died away as the apices of the lungs were approached. No consolidation could be detected. Heart was regular, motions and secretions normal. There was a cough, but it was very faint and not prolonged. Congestion of the lungs and bronchitis was the diagnosis.

Counter irritants were applied and medicine given in balls. Steamed foods were ordered as diet. Appetite at first was ravenous; for two days he would eat anything and everything offered, but there was great difficulty in swallowing water and other fluids. These always returned down the nostrils, and pharyngitis was suspected as a complication. Whenever he had been attempting to drink, he broke out into a violent perspiration, the sweat standing on him in beads. This was noticed until the 26th, after which date it never recurred. On the same day as the sweating disappeared a discharge was noticed from the nostrils; it resembled oatmeal gruel, and was never profuse. Consolidation of the lungs could now be detected in patches, the apices of both lungs being especially affected.

The dysphagia became so pronounced that no solid food could be taken; even the balls were held for as long as five minutes and then put out. Dyspnoea was absent, which was remarkable, taking into account the amount of consolidation. Stertor was expected, because an enlargement appeared above the larynx, but of this there was no sign. A smart cantharides blister was applied to the enlargement, but scarcely any vesicle arose. For three days attempts were made to swallow, but in vain. Thirst was very marked. The balls were discontinued and electuaries were given.

During the week his temperature varied from 102° F. to 105° F., being always higher at night; pulse varied from 64 to 72, but never