is throughout of the greatest interest even to the civil veterinary surgeon. Starting with a chapter devoted to the anatomy and physiology of the horse's back, the author next describes the construction of the saddle ; and finally discusses the causes, and methods of preventing and remedying sore backs. We can only say that if this is a sample of the instruction dispensed at the Army Veterinary School, that institution must be doing a vast amount of good to the service.

The second small book gives a historical account of saddles and bits, illustrated by a number of interesting figures showing the modifications that have been effected in the cavalry saddle and bridle from the Roman period down to the present day.

CLINICAL ARTICLES.

ABSCESS OF THE LIVER IN THE HORSE.

By F. SMITH, M.R.C.V.S., F.I.C., Professor in the Army Veterinary School, Aldershot.

APART from pyæmia, I have met with uncomplicated abscess of the liver in the horse three times in fourteen years; all three cases occurred in India, two were Persian horses and the third an Australian. I have thought from their rarity that a notice of these cases might prove interesting to the profession, and I venture to place the clinical aspect of the cases on record.

CASE I. On 15th May 1878 a grey Persian mare, 11 years old, was treated by me for simple fever ; with the exception that she was very dull there is nothing to record, and she was discharged to duty on 21st of the same month. Between this and her re-admission on the 7th September there was nothing noticeable in her condition excepting dulness and disinclination for food. On the above date she was found entirely off feed, and showed signs of liver disorder—yellowness of the membranes, fever, intense dulness, a pulse of 50, and respirations of 20 ; by the end of the month there was an improvement, the membranes were now paler and more anæmic, considerable body wasting had occurred, urine of a brownish colour and very offensive, fæces normal, urine free from bile and albumen. The case being obscure, the most careful examination of all accessible organs was made, but nothing could be determined ; owing to the colour of the horse I diagnosed an internal melanotic growth, probably in connection with the liver. On 3rd October the fæces were found very offensive, dark in colour and contained much mucus ; albumen and bile absent from the urine. On the 9th the patient fell down in her box and remained down for two hours, rising of her own accord ; this was the only time during her illness that she ventured to lie down. On the 15th the wasting of the muscles was intense, the animal was worse, the pulse quicker, respirations increased, and the case evidently sinking ; up to this time tonics and nourishing food had been given liberally, but with no beneficial result. On the 17th and 18th she was walking in an aimless manner around her box,

pulse imperceptible ; she was evidently sinking, and died early on the morning of the 19th October.

Post-mortem Examination.—On opening the abdomen about two quarts of inspissated pus escaped, together with a quantity of serum ; the peritoneum was inflamed and covered with lymph, the transverse colon and extremity of the cæcum were highly inflamed preparatory to adhesion, for the right portion of the double colon was already firmly attached to the abdominal wall. The liver presented a mottled appearance, and was everywhere on its anterior face adherent to the diaphragm. On removal from the body it was found to weigh 20lbs., the hepatic lobules were swollen and gorged with blood ; on making a section the tissue cut gritty ; in the right lobe was a large abscess, the contents of which had burst into the peritoneal cavity ; the walls of this abscess varied in thickness, in some parts three or four inches thick, in others as thin as paper ; it was here the rupture had occurred ; in the right lobe alone seven abscesses were found in various stages, and throughout the liver there were at least twenty yellow cheesy deposits—the nuclei of future abscesses. The walls of the stomach were thickened to the extent of two or three inches ; the cuticular portion was found thickened, like a honey-comb in appearance, and of a dirty yellow colour ; these changes were the result of inflammatory action, and were due to an attempt to glue the main abscess to the stomach, so as to afford an outlet for it.

In the light of the *post-mortem* the case is clear enough, but it would have been more satisfactory had better marked liver symptoms been present. We will see how far the lessons learned in this case were applied to others.

CASE II. On 28th June 1882 a grey Persian horse was admitted to the infirmary with very obscure symptoms : off feed, great dulness, yellowish mucous membranes, and a history of having been falling away in condition for some time ; the pulse was unaffected, the respirations normal—nothing but the intense dulness. I thought of the peculiar case of 1878 and made a mental diagnosis. On 3rd July there was no change, feeding a little, pulse and respirations normal, excretions and secretions healthy, looks mournful and a piteous expression of face, great loss of flesh. Diagnosed a melanotic tumour internally, probably in connection with the liver. On 21st July the horse was found down and unable to rise ; up to this date he had made great improvement, feeding well, looking brighter and better in every respect ; he was now lying as if dead, not even the nostrils moving, pulse imperceptible, lips retracted, and he died that afternoon, never having once moved. It has been my lot to see many horses die, but this is the only one I ever met that took matters so quietly.

Post-mortem examination revealed an enlarged and calcareous liver, the organ cut gritty, and the bile ducts were enlarged and thickened. In the right lobe close to the portal vein were several abscesses, one larger than the others contained about five ounces of pus. The abscess cavity was of a dull pinkish colour ; microscopically the liver cells were found to be fatty.

CASE III. While the above case was under treatment I was asked to see a horse in a neighbouring regiment under the treatment of a brother officer. Admitted to treatment with hepatitis on 17th June 1882, and on 28th reported as doing well. On 1st July relapse with

high fever, a temperature of 107° being recorded, and a pulse of 80. Suitable remedies were employed, the temperature and pulse fell, so that by the 6th he was much better, though on this day purplish spots were noticed on the conjunctiva and Schneiderian membrane. The temperature was normal, but the case was recorded as showing head symptoms, being dull and stupid; on 10th great muscular wasting was observed, the pulse 60, the visible mucous membranes of a yellow tint and covered with maroon spots, temperature 102° , bowels and urine normal; on 18th he was lying down frequently, the fæces were extremely foetid; on the 19th I saw the case in consultation, and suggested abscess of the liver; the patient now got so weak he could hardly stand, and on 24th he died.

On *post-mortem* examination the liver was found of a brownish-red colour, the capsule thickened, bile ducts enlarged and filled with yellow ochrey inspissated bile. Several abscesses existed in the organ, principally in the left lobe—one large one was filled with grumous dark inspissated pus, the abscess being adherent to the double colon, into which it would in course of time have discharged itself. Glissons capsule around the abscesses presented a remarkable appearance, being greatly congested, and large veins standing out from its surface. The blood-vessels of the liver were filled with thick tarry blood.

CASE IV. On 25th April 1883 this horse was admitted with liver congestion, temp. 104° , no volume in the pulse, conjunctiva reddish-yellow colour with maroon spots, very dull, etc.; on 25th no change, temp. 103° , urine turbid, dark yellow in colour, sp. gr.: 1040, urea apparently in excess; on 27th great dulness, pulse small and weak, coughing, respiration irregular and 50, pulse 44 and weak, feeding, purging slightly, the fæces small and of a dirty yellow colour. 29th, Very dull, feeds slowly, little dark fæces passed, pulse small; the body gave forth a most unpleasant odour, just like putrid fish. Diagnosed hepatic abscess. May 4, no change for the last day or two, still very dull, cough present, feeding better, bowels costive, passed nothing for three days in spite of enemata. At 10 o'clock this night he suddenly passed about one pint of putrid pus mixed with a few lumps of fæces; the stench from this pus was so horrible that it saturated the infirmary. May 5, better and brighter, still coughing, stands persistently, passed nothing to-day; still the fishy smell. I recorded my opinion that this was a case of hepatic abscess which had burst into the alimentary canal. On 6th and 8th passed more pus; 9th, feeding well but respiration increased to 20, pulse very small, temp. 99° . On 13th May he was taken with colic (had been doing well up to this time) and was dead in $1\frac{1}{2}$ hours.

Post-mortem Examination.—An eight-inch rent in the stomach close to the pylorus; *no sign of an abscess in the liver*, and there never had been one, but the liver was calcareous, fatty, and small. Although I searched every inch of the alimentary canal from the stomach to the anus, I found no abscess and no trace of one, so that the case will ever be involved in hopeless mystery.

We have a little to learn from these cases. I certainly ought to have diagnosed Case II. owing to the experience of Case I., but owing to the colour of the horse, and considering the frequency of melanosis compared with hepatic abscess, I considered the balance of weight to be in favour of the former. It is remarkable that Case III. should

have occurred at the same time as Case II.; the diagnosis was and can only be a "shot," in this case a satisfactory one; Case IV. is the most remarkable of the lot, and teaches more than all the others put together, for we learn more from our mistakes than from our successes. In Case IV. we have a horse showing unmistakable signs of liver trouble, followed by the dulness and depression so noticeable in the previous cases; the evacuation of pus by the rectum completed the chain of strong circumstantial evidence, and practically settled the nature of the case (with which I remember I was remarkably pleased), but the animal conveniently or inconveniently dies, and I make for the liver abscess with that feeling of certainty and infallibility of diagnosis so peculiar to youth, and the results of the search I have already recorded. Stranger even than this was the absolute absence of anything to account for the intestinal abscess with its putrid contents.

I have not touched on the causes of the disease. They are certainly not those operating in the case of man; as to diagnosis, persistent dulness, loss of flesh, fœtid fæces, and yellowish conjunctiva are suspicious, but unless the abscess point externally (which it hardly could do in the horse) I do not see how the diagnosis can be anything more than guess work.

TWO CASES OF MALIGNANT TUMOURS IN THE HORSE.

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THE following two cases, each of which presents some points of interest, came under my notice in consultation. For the main points in the history of the cases I am indebted to the gentlemen in whose practices they occurred.

CASE I. ADENOMA.

Subject.—Brown cart gelding, 6 years old.

History.—The horse was first seen on the 24th of March by Mr Barclay of Dunfermline, who was informed that the animal had been purchased about 5 weeks previously as sound, but that, as he did not appear to thrive and had become "pot-bellied," the owner thought the horse was the subject of worms. As Mr Barclay did not observe anything of a definite character he treated the case with vermicides and cathartics. On April 1st Mr Barclay was informed that the horse was off his feed and very dull, and that the abdomen seemed to be increasing in size; on visiting his patient he found that such was the case; the pulse also had become rapid (80) and weak, the mucous membranes highly injected, the respiration thoracic; further, on manipulating the abdomen, he detected a distinct fluctuation wave, and also a large hard tumour in the right inguinal region. He informed the owner that the animal was the subject of ascites, and that in his opinion it was the result of organic disease of one or more of the internal organs or of the mesenteric glands, and suggested that I should be asked to visit the case. The suggestion was acted on, and a quantity of fluid was removed from the abdomen. By rectal