AN OUTBREAK OF PSITTACOSIS.

BY

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On December 21st, 1929, a green parrot was given to the two sons (aged 13) of Dr. and Mrs. M. It arrived ill, which was attributed to its having been sent by train on a very cold day. It died on December 30th.

Eight people were more or less in contact with the bird—Dr. and Mrs. M., their two boys, the cook, the gardener, a nephew of Dr. M.'s, and a friend who spent Christmas with them. Of these, the first four and the friend handled the bird; the cook went into its room, and the gardener cleaned the cage and took the dead bird away after Mrs. M. had put it in a tin box. He was told to dispose of it, but instead he put it in the shed where he worked and left it there. It was afterwards found and buried by Dr. M. On December 30th the nephew arrived to convalesce after an operation, and he spent some hours in the room in which the parrot had died. Of these people, Mrs. M., the cook, the nephew, the gardener, and the friend all became dangerously ill; the other three escaped. Only two of these five persons became ill before the party broke up, and so it happened that all the patients came under different doctors and the epidemic character of the outbreak was not at first realized.

CASE I.

In this case there was at first an apparently obvious diagnosis of the recurrence of a long-standing pyelitis. The patient, Mrs. M., felt unwell on January 5th, and on January 7th she had a rigor and went to bed with a temperature of 104° F. She had some backache and felt "very cold across her back," and had extremely severe headache. There was no sore throat, nor were there any pulmonary or abdominal symptoms. On January 9th she was seen by Dr. Smith of Henley, who has kindly assisted me in drawing up the account of the first part of the illness.

CHART 1.—Case 1.

The headache was very severe, and at night the patient was delirious and had rigors. Shivering attacks continued until the seventh day of the disease. The bowels were constipated and aperients were necessary throughout. The breathing was never suggestive of pulmonary complications. The pulse was always slow in proportion to the temperature. The urine was turbid and contained mucus and pus with a small quantity of albumin (accounted for by the pus). The right kidney was never really tender when palpated, but there was possibly a little tenderness over the right ureter.

I saw the patient on January 15th, when the fever was beginning to abate. There were no signs in the lungs, nor was there tenderness over the region of the kidney. The pulse was poor in quality and the heart sounds were rather feeble. The pus in the urine was about the same in quantity as on other occasions when I had seen Mrs. M. with an attack of fever and rigors due to an exacerbation of her kidney condition. She was obviously beginning to improve. It was not until the continuation of the fever in spite of the absence of tenderness over the kidney cast doubts on the diagnosis of pyelitis, and the news came of the illness of the other contacts, that we diagnosed the case as one of psittacosis, and blood was sent to the London Hospital for examination. The clinical diagnosis was confirmed by Dr. Robert Hutchison, who saw Case v in London.

The patient made a slow but uninterrupted recovery, the temperature becoming normal by January 25th (the nineteenth day of the disease). A few crepitations appeared at the bases of both lungs on January 21st, but these were probably due to decubitus. There was marked weakness and prostration throughout the illness. On January 22nd I did a leucocyte count, which was

26,500 per c.mm.; by January 28th it had fallen to 13,000. The spleen was never palpable. The course of the fever is shown on the chart.

CASE II.

This patient, the cook, aged 65, felt ill on January 7th, and went to bed with a temperature of 104° F. on January 13th. She continued to feel very ill with fever up to 105°, delirium, great weakness, and twitchings. She was removed to Henley Infirmary on January 18th under the care of Dr. Smith, who sends the following notes.

"She was flushed, had an evening temperature of 102°, with bronchial catarrh, and some crepitations at both bases. She was sometimes incontinent (urine) and somewhat delirious. There was some albumin in the urine. She had a very furred tongue, and gave one the impression that she was suffering from paratyphoid, but a specimen of blood gave negative results. Her temperature generally fell in the morning to 100°, and after three days it became normal, and remained so. Her tongue cleared very gradually, but she continued to be occasionally incontinent (sometimes both faeces and urine) up till January 25th. Since then she has made a good recovery."

CASE III.

The patient, aged 43, was the nephew, who had visited Dr. and Mrs. M. on December 30th, to convalesce after an operation for chronic appendicitis. He returned to Oxford on January 7th, and saw Dr. Frankland West on January 10th. Dr. Frankland West reports as follows.

Mr. M. complained of malaise and a raised temperature; during the first three days of his illness there were no special symptoms beyond the raised temperature, which, by the third day, was maintained at between 102° and 103° F. Respirations were normal and the pulse rate was between 84 and 90. The patient made no complaint of abdominal discomfort, and I could feel nothing abnormal in the abdomen. The chest was clear. High fever of a remittent type continued, the tongue became coated, the patient vomited on one or two occasions, completely lost his appetite, and was constipated. But beyond the high fever and the obvious toxæmia there were no signs or symptoms.

On the fourth day of the illness there were several loose actions of the bowels, the motions being of the pea-soup type. The patient began to be drowsy. At this stage he was sent into a nursing home. The high remittent fever, the comparatively slow pulse, the drowsiness, and the appearance of the stools, strongly suggested that the disease was of the enteric group. The stools continued to be loose and offensive; the fever remained at a high level, and on the sixth day of the illness there were fine moist sounds to be heard over a considerable area of the left chest in front and at the back; the bases of the lungs were clear. The respiratory rate was not, however, raised at this stage.

On the following day (the eighth day) the respiratory rate rose rapidly from about 24 to 40 per minute. There were now moist sounds to be heard on both sides of the chest; these were best heard in front. The patient had some cough, with but little expectoration, and that was of the simple catarrhal type. During the next three days the respirations rose to 36 to 40 per minute; the pulse rate was 90 to 130 per minute; the patient was very drowsy and in a state of more or less persistent low muttering delirium; he had fine muscular twitchings.

On the eleventh day a general improvement set in. The temperature fell to 102° maximum, and the pulse and respirations fell to 100 and 32 respectively. From this time onwards there was no marked feature of the case beyond the general resolution of the fever, and, correspondingly, of the pulse rate, and the chest

CHART 2.—Case 3.

signs rapidly cleared up. By the sixteenth day of the illness the patient was convalescent.

The main features of the case were as follows: (1) the comparatively rapid onset of the fever and toxæmia; (2) the marked toxæmia, though the patient did not complain of headache; (3) the development of pneumonic involvement late in the disease—that is, about the seventh or eighth day; (4) the short duration of the critical stage—that is, from the seventh to the eleventh day; (5) the comparatively rapid resolution of the fever after the eleventh day of the disease; (6) the absence of abdominal pain or discomfort, and of physical signs in the abdomen; (7) the absence of albumin from the urine, except a slight amount in a

highly concentrated urine during the height of the fever; (8) the inconclusive Widal reactions of the serum; (9) the negative blood culture; (10) the failure to isolate organisms of the enteric or dysentery group from the stools; (11) the negative report upon the sputum.

CASE IV.

(Report by Dr. E. L. Elliott.)

On January 17th the patient, a gardener, aged 55, sought my advice for general malaise. He had been out of sorts for three or four days, but had been able to carry on his work. I found him with a temperature of 101° F., and ordered him to bed. For the first four days the temperature was raised, varying from 99° to 101°, and the pulse was slightly intermittent. During this time there was sleeplessness and low delirium, and the patient had some rigors followed by profuse sweating. He was seriously ill, and I considered a fatal termination a possibility. He developed a left-sided pneumonia of the lobar type, but without the violent respiratory symptoms of the pneumococcal form of that disease; the cough was never severe, and there was no sputum till January 27th, when yellow frothy muco-purulent sputum was brought up. The respiration rate was not markedly raised, nor was breathing difficult. The pulse rate was on the low side, usually below 100°, and during the first week the cardiac action gave some cause for anxiety. The pulse was weak and the heart sounds were feeble. For the heart condition he was given digitalis.

On January 26th he was not markedly ill, the temperature was normal, and the pulse 96. He looked as if he had passed through an illness; the tongue was furred but beginning to clean at the edges; there was no sore throat and no rash. The heart was not enlarged, and its action was not abnormal. The left lower lobe gave a dull note, and coarse crepitations were to be heard over its whole extent. There was no evidence of pleurisy or of effusion, and there was no distress on taking a deep breath. The abdominal organs were normal; neither spleen nor liver could be felt, and though the bowels had been freely open they had not been abnormal. The blood gave no reaction to any of the typhoid or dysentery group, including *B. aertrycke* (Hutton) and *B. abortus* (Bang).

On January 30th the condition was much improved; there was still an impaired note at the left base, and fairly copious sputum. The improvement was very marked.

CASE V.

Miss F. was likewise very ill, but as she was seen in consultation by Dr. Robert Hutchison he will no doubt publish a report of the case later in his own series.

The outstanding features of the attack seem to be (a) the high infectivity of the disease from the bird, five out of eight contacts developing it; (b) the absence of a single case of infection from a human being; and (c) the extreme severity of the illness.

Two of the patients had symptoms suggestive of typhoid fever; three had lung symptoms, but none showed the solid condition of the lung described by Dr. Thomson at Birmingham.

I am most grateful to all the other doctors concerned for their kindness in providing me with details of the cases reported in this paper.

TREATMENT OF PERNICIOUS ANAEMIA WITH
DESICCATED HOG'S STOMACH.

BY

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It is believed that the following record will be of interest in view of the severe relapse which occurred while the patient was on liver treatment and the subsequent recovery resulting from the administration of desiccated hog's stomach.

The patient, a man aged 52, was first seen by me on June 30th, 1924, for the examination of his blood condition, a diagnosis of pernicious anaemia having been made some time previously. On this occasion the blood count was as follows:

Red blood cells (per c.mm.)	...	...	...	1,700,000
White blood cells (per c.mm.)	...	...	...	6,200
Haemoglobin	...	...	...	40 per cent.
Colour index	...	...	...	1.17
Differential count:				
Polymorphonuclears	...	...	...	68 per cent.
Small mononuclears	...	...	...	24 "
Large mononuclears	...	...	...	3 "
Transitional mononuclears	...	...	...	4 "
Eosinophils	...	...	...	1 "

The film showed marked poikilocytosis and anisocytosis, also granular basophilic degeneration; one nucleated red cell was seen; no parasites.

I saw him on several subsequent occasions during the following years, and he was also treated medically in Germany. The diagnosis was frequently confirmed by ample blood counts and by clinical examination. His red blood cells were rarely more than 3,500,000, and his colour index was usually above 1.

In June, 1927, he became seriously ill and received medical treatment in Germany. This treatment took the form of several blood transfusions and the application of a diet chiefly composed of the yolk of eggs and orange juice, and was successful for a time. His blood count before treatment was: red blood cells 1,000,000 per c.mm., white blood cells 1,300, haemoglobin 30 per cent. Six months later, in December, 1927, he came to see me, and the count was: red blood cells 3,300,000, white blood cells 6,500, haemoglobin 84 per cent., and colour index 1.23.

Treatment by means of liver and liver extracts was duly tried in this case, but did not appear to bring the improvement met with so frequently in other cases of pernicious anaemia. At the commencement of his last relapse he had tried liver extract as made by several different reputable firms, but he was steadily getting worse. During this period he was out of my immediate observation, but he again came to see me on October 3rd, 1929. He was then in an extremely exhausted condition, and his blood count was:

Red blood cells (per c.mm.)	...	...	...	1,240,000
White blood cells (per c.mm.)	...	...	...	3,000
Haemoglobin	...	...	...	30 per cent.
Colour index	...	...	...	1.25
Differential count:				
Polymorphonuclears	...	...	...	46 per cent.
Small mononuclears	...	...	...	38 "
Large mononuclears	...	...	...	8 "
Transitional mononuclears	...	...	...	4 "
Mast cells	...	...	...	4 "

A few macrocytes, microcytes, and poikilocytes were present.

I wrote to his medical attendant that I regarded him as extremely ill, and that unless some drastic change could be effected he would die. I suggested that a transfusion be done, and also pointed out the recent work of Dr. Sharp, director of the Department of Experimental Medicine of Parke, Davis and Co., in regard to the administration of desiccated hog's stomach.

His medical attendant agreed with me as to the desperate nature of the patient's condition. The patient was very loath to have any further blood transfusions in view of the number he had had in Germany, and a very unpleasant experience he had had from receiving a few cubic centimetres of blood not of his own group. Consequently the blood transfusion was postponed temporarily. Treatment with another liver extract was continued, and the administration of glycerinated raw pig's stomach was tried. The condition, however, became worse, and a blood transfusion (140 c.cm.) was given on November 9th. This helped the patient a little, but the pulse was still rapid (120) and oedema in the legs was present forty-eight hours afterwards.

On November 16th the blood count was:

Red blood cells (per c.mm.)	...	...	...	985,000
White blood cells (per c.mm.)	...	...	...	3,600
Haemoglobin	...	...	...	22 per cent.
Colour index	...	...	...	1.22
Differential count:				
Polymorphonuclears	...	...	...	42.0 per cent.
Small mononuclears	...	...	...	41.5 "
Large mononuclears	...	...	...	13.0 "
Transitional mononuclears	...	...	...	0.5 "
Mast cells	...	...	...	1.0 "
Eosinophils	...	...	...	2.0 "

The red blood cells showed variation in size and shape; there were no nucleated cells.

I got into touch with Parke, Davis and Co., who promptly sent me experimental supplies of desiccated hog's stomach (ventriculin), so that this method of treatment might be tried.

At the commencement of treatment with hog's stomach the patient was in an exhausted condition; he was extremely anaemic, the lips were blanched, and the conjunctivae very pale. The spleen was enlarged two fingerbreadths below the costal margin, and the liver was also firm and enlarged. The pulse was 120 per minute with the patient in bed, and there was a fair amount of oedema in the feet. The tongue was very furred. Albuminuria also was present.

The first administration of hog's stomach consisted of 7.5 grams daily, and after a day or two the dose was increased to 15 grams. On January 13th, 1930, the dose was further increased to 20 grams. This treatment has been continued with only an intermission of a day or so up to the present time. After a few days the patient's condition improved considerably, but the blood count did not show the same improvement. Since then the improvement has been rapid and the patient is up and able to go out of doors. The spleen is not palpable and the liver is much improved. Albuminuria is still present, but there is no oedema. The pulse is now normal (72) except after exertion such as going upstairs,