in mild cases where the reaction was marked during the course of the fever, I have not known one positive reaction after the fortieth day. Though it is true that a previous attack may detract from the absolute reliability of Widal's test, it is abundantly proved that a mild attack of typhoid cannot confer general permanent agglutinative properties on blood serum.

In the examination of blood serum in the tropics the great source of error is the formation of false clumps—a phenomenon which takes place more frequently and more rapidly than in temperate climates, and is due to the different conditions of the surroundings and not to any difference in the blood serums. It is absolutely necessary to use a virulent culture of bacillus, with a dilution of 1 in 10, and to fix a short time limit, say fifteen minutes, certainly not longer than twenty. All the recent evidence before us points to the necessity of shortening the time limit in order to get accurate diagnostic results. Results based on lengthened observations are quite unreliable.

As to the question of the immunity of natives to typhoid fever, more careful diagnosis and more systematic *post-mortem* examinations are showing us that their exemption is not nearly so great as has been supposed. In the older native hospital statistics, published by the Government of the Straits Settlements, typhoid fever had no place; but, in the municipality of Singapore, with a population of about 100,000, the health officer reported in 1896 186 cases of typhoid; 55 of the worst cases were sent to hospital; and of them 46 died. The diagnosis was verified in all, or nearly all, by *post-mortem* examination.⁷ Natives have little, if any, less immunity to the disease than acclimatised Europeans, and the universality of typhoid fever and typhoid infection is now fully admitted. And, more, we have the strongest reasons for believing that the Eastern tropics are not only the home but the birth-place of typhoid fever. The universality of malaria and the difficulty of obtaining *post-mortem* evidence in native practice have been the causes of error; and serum diagnosis has come only to confirm an opinion which was already partly established.

Typhoid is mostly a disease of acclimatisation, but its prevalence during that period is due to the fact that the mucous membranes of the alimentary canal then offer from a variety of causes a more congenial soil to Eberth's bacillus than do those of older residents. It is not the case that new arrivals gain immunity by passing through a mild attack of the disease.⁸ The acceptance of that theory, and of the permanent agglutination hypothesis, would involve us in the conclusion that not only every adult native, but every European in India would react positively to Widal's test, which would therefore be useless. The test has already proved of the greatest value in the tropics and has elucidated many difficulties in the study of the phenomena of tropical fever.

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TWO CASES OF SUBPHRENIC ABSCESS OPENING INTO THE LUNG.

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THE two following cases, occurring within a short time of one another, make a sufficiently interesting pair to be worthy of record. I have to thank Dr. T. H. Green, under whose care the patients were at Charing Cross Hospital, for his kind permission to publish these notes.

CASE I.—A. H., a boy, 10 years of age, was sent into hospital on July 1st, 1897, for abdominal pain, supposed to be due to perityphlitis. There was nothing of interest as bearing on the case, in the family history or the previous health of the patient. The illness began on June 20th with vomiting, which recurred after all attempts to take food. There was

scarcely any pain at this time, but, though the vomiting ceased, the boy remained ill until June 27th. He was then seized with severe pain in the lower part of the abdomen, chiefly on the right side. For the next few days the temperature was high, ranging between 99.8° and 102.6° F., and the patient was kept in bed; daily enemata were given, as the bowels were not open without this assistance, although described as being usually loose. On admission to hospital the boy appeared seriously ill. He lay on his back, with his legs usually drawn up, and resented all attempts to move him. His face was pale and his expression anxious. He was considerably emaciated. The tongue was coated with fur, and the breath slightly offensive. The pulse-rate was 118, the respirations not noticeably hurried. The abdomen was somewhat distended, especially in the right hypochondriac and epigastric regions, and there was considerable resistance in this area. The whole abdomen was tender on pressure, most so over the resistant region, and the respiratory movements of the abdominal walls were very defective. There was no lump or special tenderness in the right iliac fossa. There was some apparent fullness in the right lower axillary region and tenderness on pressure in the lower right intercostal spaces. Percussion here was impossible owing to the tenderness. The heart's apex beat was in the fifth space in the nipple line. Nothing abnormal was detected in the condition of the lungs or pleurae.

The boy suffered considerable pain, chiefly on the right side of the abdomen, for which fomentations and leeches were applied without much relief being obtained. The motions were partly formed and normal in colour. On the third night after admission he was given 1 minim of hypodermic injection of morphine, which relieved the acute pain and procured him a good night's rest. On the following day (July 6th) his bowels were opened naturally three times, but nothing abnormal was noted with regard to the motions. The abdominal pain and general tenderness gradually subsided, and on July 7th all the signs of disease were definitely confined to the hepatic region. The skin here was slightly red; there were some enlarged superficial veins visible, and tenderness was still present in this area. On July 8th the tenderness and resistance in the right hypochondrium were distinctly limited below by a definite edge, apparently that of the liver, palpable about 2 inches below the costal margin. The dullness over this mass extended upwards as far as the fifth rib in the nipple line, and followed the curve of this rib into the axilla. Internal to the nipple line, over the cartilages of the fifth, sixth, and seventh ribs on the right side, was an area of tympanitic resonance. No breath sounds were audible over the dull area, but above it, in the fourth right intercostal space, just below the nipple, some crackling *râles* were audible. The apex beat of the heart was in the fourth space, an inch internal to the nipple. The edge of the spleen could be felt beneath the costal margin. In the back there was slight dullness at the base of the right lung, but no other morbid signs. On this and the following day the general condition appeared rather to improve, and the patient was brighter and slept better.

On the night of July 10th he was seized with a fit of coughing, and expectorated 4 ounces of very fetid pus, brownish grey in colour. It contained no tubercle bacilli, but on cultivation colonies of staphylococcus aureus and albus were obtained. Unfortunately no special search was made for the colon bacillus. On July 12th the whole of the right side of the chest was dull on percussion. There was increased vocal resonance over the root of the lung behind, and, in front, blowing bronchial breathing at the apex and in the upper axilla. The area of tympanitic resonance near the right nipple was rather increased in extent; the edge of the liver and that of the spleen were still palpable, as before. Exploratory punctures were made by Dr. Green in the right chest, in the expectation of finding pus, but no fluid of any kind was withdrawn. On July 13th the cough still continued, and the respiration was hurried (40). The pulse was now 144 and the temperature 101.3° F. On this day the bowels were opened seven times, the stools being small, loose, and light in colour. On July 14th the upper part of the right lung was again fairly resonant and full of fine *râles*, and weak breath sounds were audible over the whole of that side of the chest. The diarrhoea continued, and a little more offensive pus was coughed up on the following day. From this time the condition of the patient gradually improved; the enlarged liver and spleen shrank until they were no longer palpable, and the signs on the right side of the chest disappeared. The boy left the hospital for a convalescent home on August 18th.

In this case, owing to the favourable termination, the diagnosis was not established beyond possibility of doubt; it was not possible to exclude the existence of an empyema, confined at first between the lung and the diaphragm, and finally opening into the former. In favour, however, of the diagnosis, finally adopted, are to be set forth the acute onset with vomiting, the entirely abdominal nature of the early symptoms and signs, the enlargement of the spleen, and the failure to find any pus in the pleural cavity on exploration. Where the abscess originally started is not clear, a perityphlitic origin being quite possible, but the subsequent symptoms are satisfactorily accounted for on the hypothesis of the existence of a subphrenic abscess, which finally perforated the diaphragm and caused partial collapse of the right lung.

In the following case the fatal issue rendered possible the confirmation of the diagnosis made during life, and the similarity of the signs in the two cases lends some additional support to the explanation given in the former instance:

CASE II.—F. S., a married woman, 48 years of age, was admitted on September 26th, 1897, for abdominal pain and shortness of breath. She had been the mother of eleven children, and had worked hard to support this large family. She had always been a temperate woman, but had long suffered from "indigestion," with pain and nausea after taking food. Her bowels were always constipated. Three months before coming into hospital she had had increased pain in the upper part of the abdomen, which

"went through to her back;" this gradually increased, and one week before admission she was suddenly seized with acute pain referred to the lower part of the abdomen, which compelled her to take to her bed. She applied hot flannels and hot sandbags to the abdomen, one of which was so hot that it produced a large burn to the left side of the umbilicus. Her bowels at first were constipated, but acted after an enema, and since this treatment she had passed frequent loose light-coloured motions. She vomited at intervals, but there was no hæmatemesis.

On admission she was a poorly nourished woman, who looked much more than her age. Her face was flushed, and she appeared worn and anxious. She lay on her back with her legs extended. Her voice was very weak, and she spoke in gasps. The breathing was hurried (40), and the pulse 128, small and weak. The abdomen was distended and tender throughout, most markedly in the upper part, the left side looking fuller than the right. Respiratory movement was diminished; no peristalsis was anywhere visible. Her temperature was 101° F., and she had some diarrhoea, the motions being loose but of normal colour. No physical signs of disease were discovered in the chest beyond a slightly diminished resonance at the base of the left lung behind. The apex beat was not palpable.

On September 28th the tenderness over the abdomen was less marked; the pulse was 144, respirations 52. On September 30th she had an attack of pain in the left side of the chest, with a feeling of suffocation and orthopnoea. She coughed up a very little fetid sputum, and said she felt that she wanted to bring up more, but could not. The breath was now highly offensive. The heart could be felt beating in the fourth intercostal space, just internal to the nipple. There was tympanitic resonance, with very weak, slightly bronchial, breathing in the left axilla and over the lower part of the left lung in front. Behind there was bronchial breathing over the root of this lung, and diminished resonance with very weak breath sounds over the base. There was a good deal of tenderness in the left hypochondrium and over the dull area behind. The pulse was now 143, respirations 60, temperature 100.8° F. Severe diarrhoea set in, and she passed seven loose light-coloured motions within about twelve hours. This continued on the following day, and on November 1st the patient passed several dark-coloured stools containing much altered blood. Later on she passed nearly 2 pints of bright red blood *per anum*, and also vomited about half a pint of clotted blood. The stools were now very frequent, being passed almost every half-hour, and still contained altered blood; this condition continued all the next day. She took her food well, and was not sick. The breath was very fetid. There was some pain in the abdomen referred to the umbilicus, but not very severe. She died of exhaustion on November 4th.

Necropsy by Mr. Cantlie.—The upper half of the abdominal cavity presented a condition of purulent peritonitis; the lower half was entirely free, being shut off from the upper by the adhesion of the great omentum to the anterior abdominal wall along a line running just above the umbilicus. The spleen and both upper and under surfaces of the liver were covered with recent lymph, the layer on the upper surface of the latter being nearly 3 inch in thickness, and of the appearance and consistence of stiff custard. In the lower and anterior part of the first portion of the duodenum was an ulcer, with thickened rounded edges, the size of a half-crown. Round it on the peritoneal surface was a thick ring of tough lymph, suggesting that adhesions had first formed, but that these had subsequently given way and allowed the contents of the duodenum to escape into the peritoneal cavity. In the stomach, on the lesser curvature about 3 inches from the pylorus, was an old cicatrised ulcer, the floor formed by peritoneum; in the process of cicatrisation the last 3 inches of the stomach were narrowed to form a tube about 1½ inch in diameter. In the centre of the left wing of the diaphragm was a large perforation the size of the palm of the hand, extending through into the left lung. The latter was adherent throughout to the diaphragm, and in the lower lobe was a large abscess cavity, with ragged walls, about the size of a Jaffa orange. It contained a small quantity of dark, offensive, purulent matter. The right lung was also partially adherent to the diaphragm, and a small collection of pus was found at the anterior border near the middle line, lying between the lung and the diaphragm.

In this case the symptoms were so well explained by the condition found *post mortem* that but few notes are necessary. The old history of indigestion was no doubt accounted for by the cicatrised gastric ulcer, the more recent attack of three months' duration being due to the duodenal lesion. Perforation of the latter into the upper part of the peritoneal cavity seems to have occurred at the date of the sudden acute attack of pain, the adhesions which shut off the lower part of the peritoneal cavity having formed ere this, owing to some localised subacute peritonitis. The abscess thus formed in the upper part of the abdomen first caused adhesion of the lungs to the diaphragm by spread of inflammation, and finally actually perforated into the base of the left lung at the time when the pain in this region and offensive expectoration occurred (September 30th), the small amount of pus actually brought up being due to the free communication with the abdominal cavity. The resemblance between the symptoms in the two cases is very close; in each the pain was at first referred to the lower part of the abdomen, while the morbid signs soon became confined to the upper part over the seat of the lesion; in each the perforation into the lung was accompanied by signs of pneumothorax and by profuse diarrhoea; the temperature in each case was irregular, and never very high. The severity of the lesion in the second case made recovery practically impossible, as, even if the exact condition could have been recognised at once, and an operation performed for suture of the ulcer and drainage of the

peritoneum, a favourable result could scarcely have been hoped for in the exhausted state of the patient, whose severe symptoms were already of seven days' duration before admission to hospital.

MEMORANDA: MEDICAL, SURGICAL, OBSTETRICAL, THERAPEUTICAL, PATHOLOGICAL, ETC.

MALFORMATION OF THE THUMB.

THE accompanying rough sketch shows the right thumb of a patient who appeared at my camp dispensary recently. The metacarpal bone is single, but the proximal and distal phalanges are double. In fact, there are two complete thumbs, though the skin does not divide till a point slightly beyond the interphalangeal joint.

The proximal phalanges articulate evidently with one another, and move, though not freely, on one another. They have also quite distinct articulations with the metacarpal bone.

No inconvenience is felt by the owner, who says he can work quite well with the hand.

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TREATMENT OF GUINEA WORM BY INJECTIONS OF PERCHLORIDE OF MERCURY.

BEFORE my attention was drawn to this method of treatment by an article in the BRITISH MEDICAL JOURNAL, I was in the habit of employing the usual method of winding the worm, on its appearance superficially, on a piece of stick or lint. This manner of treatment was at its best long and tedious, and often, when the worm broke, attended by suppuration and considerable swelling. At the shortest the patient had to be kept in hospital for some weeks, which in the worst cases would extend into months. Moreover, the treatment was attended by considerable pain.

Since reading the above-mentioned article I have treated several cases now by the injection of perchloride of mercury solution into the mouth of and along the track. The method is simple: 11xx of a 1 in 1,000 solution is injected first into the mouth of the sinus; if this is not sufficient, it is repeated further up the track after an interval of a few days.

My experience has invariably been that the worm has been killed, and absorbed in the same way as a catgut ligature, and instead of a period of weeks being necessary to effect a cure, a week or ten days sees the patient back at work. As this method is perhaps not generally known in the districts where guinea worm is common, I think it worth while to add my testimony to its efficacy.

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IMPACTION OF A COIN IN THE OESOPHAGUS: ULCERATION INTO AORTA: DEATH.

ON December 19th, 1897, I was called at 10 P.M. to see W. C. Y., a fine well-nourished boy aged 4 years and 7 months. A few minutes before I arrived a sudden attack of hæmatemesis had occurred, and, judging by the clots and stains, I estimated he had vomited about a pint of blood. The child was very pale, drowsy, and collapsed; the extremities were cold and the pulse was 127. I applied the usual remedies, and the condition remained unaltered until a little after 11 P.M., when he vomited about half a pint of blood. After this there was a distinct improvement, the pulse dropping to 104 and