

he could turn men to stone, that he could make a table into a cannon—had frequently done so, and continually heard people in the streets behind him asserting that he could do so.

He remained in the asylum for some few weeks, always the same frequently a little self-satisfied and smiling but, otherwise, indifferent and dull. At the earnest request of his father the latter was allowed to remove him but, within a week, he again left his home and was next heard of as having started for Cabul, as a spirit had told him that he had a mission to show his wonderful powers to the Afghans. Since then naturally no further news has arrived of him.

In conclusion I give a brief summary of a case, interesting both from the fact of the delusions being all apparently unaccompanied by any other intellectual disturbance, and the difficulty there is still, after prolonged observation, of deciding whether it is really a case of chronic Indian hemp poisoning or one of Dementia Paranoides undergoing a remission. It is that of B. R., a young Khatri, aged 20, a clerk in a Government office, who was admitted here on 9th September 1908.

This man was found by some others to have suspended his little sister, aged 7, by the feet, head downwards, to a mulberry tree near the river—was swinging her backwards and forwards, “the girl was naked except for a small handkerchief round her waist”—“she was crying.” The men told him to desist but, as he only replied I am doing my business and continued as before, they took the child away by force.

B. R. then tried to jump into the river but was prevented. He was in consequence brought here. His case is complicated by the fact that it appears that, for a long period, he had been taking *charas* to excess; but it is significant that he had done no work for two years, and that his family stated that he was in the habit of giving “much trouble” at home.

He is a slender young man, perfectly quiet and collected, answering all questions readily, clean, respectful almost servile—oriented as to place, but quite unable to give the date or day of the week—well behaved. He had perfect memory of all that he did to his sister, so that it was obviously not an act done in *charas* intoxication. On questioning he states in a quiet collected manner that he did this to her “for her good” to prevent her being wicked but cannot explain himself. He has a delusion, that is difficult to understand, about “*ilim*” or something inside him which orders him to do various acts; he also declares that he receives direct orders from God to act in a certain manner, that he can show God to anyone in about a week’s time, that he can absolve anyone from their sins and that “all men know this.” But apart from the delusions and his accounts of hallucinations of hearing, he speaks perfectly sensibly, has good memory, complete control over his attention and can understand all said to him. Physically he

is well made, almost good looking, but the two sides of his face are slightly unequal and the right occipito-parietal region is smaller than the left. The ears are very outstanding, the left more so than the right. The feet are flat and there is marked hyperextensibility of the fingers, and there is a little congestion of the conjunctivæ, limited to the exposed parts such as is common among consumers of Indian hemp.

No family history is obtainable.

He has remained in the asylum to the present time quiet, well behaved, clean and sensible with no perceptibly weakening of intellect and has indeed lately denied his delusions, but his manner and his obvious desire to escape from the asylum lead one to suspect that he may be concealing these latter. He now has apparently lost his hallucinations, and the interest he takes in his future is very unlike the usual habit of any sufferer from Dementia Præcox.

SPORADIC KALA AZAR IN BEHAR.

By F. MILLS,

Military Assistant-Surgeon, Pusa.

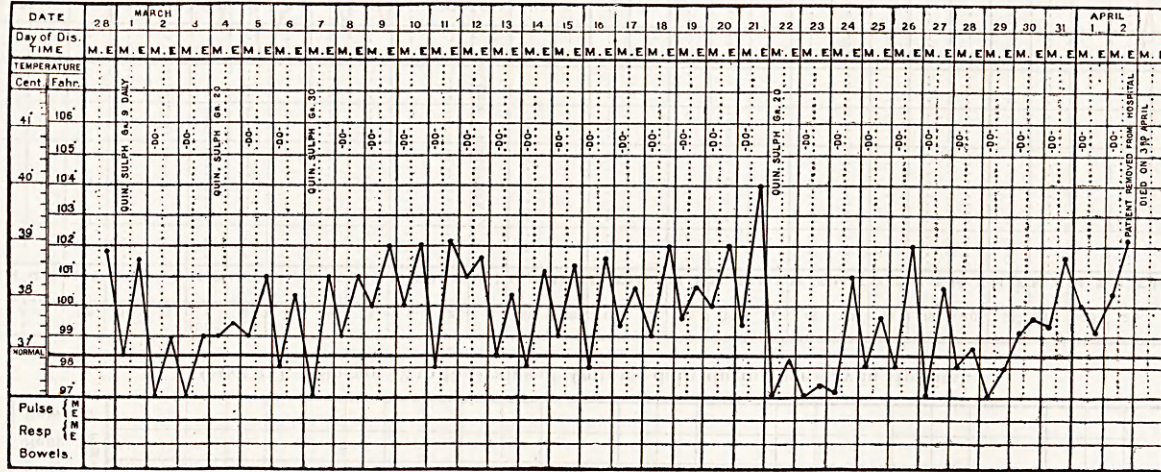
THAT Kala Azar exists in an endemic form in the province of Behar, there can be no shadow of a doubt; that its prevalence has not been generally recognised nor mortality from this cause noted is also evident, from the fact that, as far as I have been able to ascertain from enquiries made, the neighbouring districts do not record any authentic cases. Major Rogers speaks of it as occurring “less frequently in Behar,” and Dr. Basu of Patna mentions having seen some cases from Mozafferpur amongst his out-patients. Colonel Lukis, in his report of the Medical College Hospital for 1908, also records one case from Behar. The death-rate from malarial fevers in most districts is usually high, and it would be interesting to know to what extent unrecognised Kala Azar contributes to swell the totals. Many of the thousands of patients annually passing through the various dispensaries and treated for malarial fevers and malarial cachexia would, on a more careful study of their clinical symptoms, no doubt prove to be cases of advanced Kala Azar.

My attention was first directed to the possibility of the disease existing in these parts from the fact that, of several cases treated in the out-door department of this hospital for so-called malarial fever, the peripheral blood in 33 per cent. of the patients examined showed no malarial parasites, and in some of these the fever was resistant to the action of large doses of quinine. This led to the suspicion that other factors than malaria might be responsible, and careful observations made since March 1909 served to confirm my suspicion. In March one case was admitted and kept under observation till the date of his death, and, though the diagnosis could not be verified by spleen puncture,

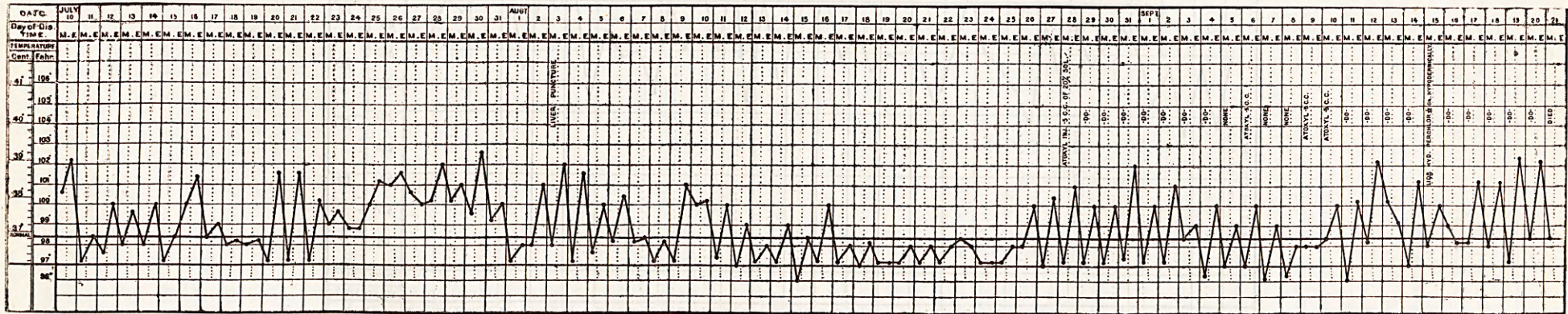
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CASE I.

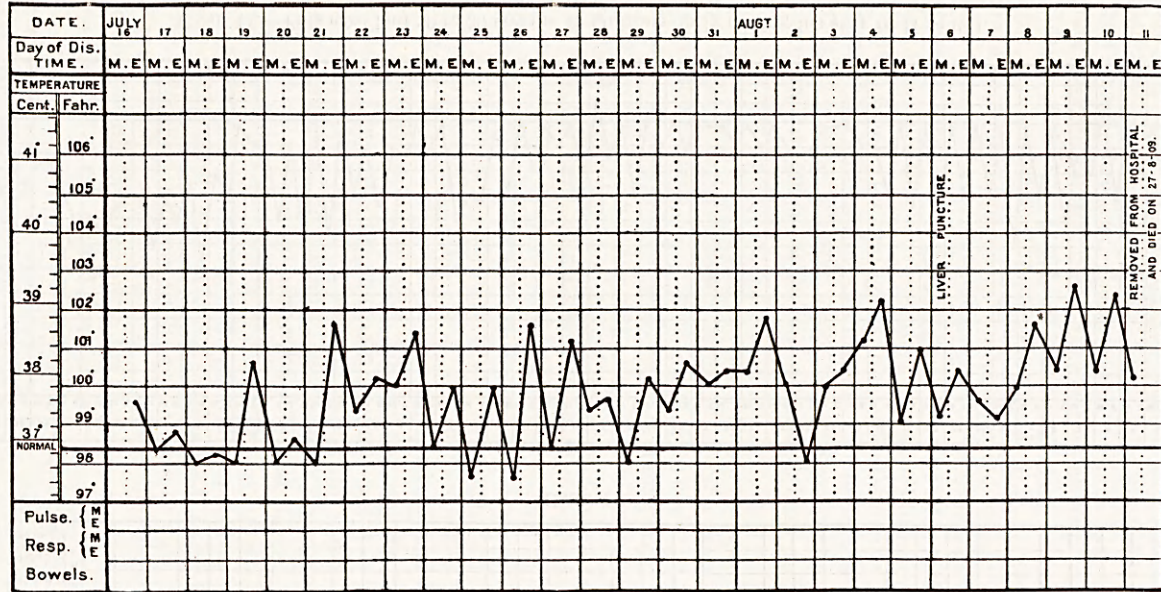


CASE II.—This case had 20 to 30 Grains of Quinine daily during his stay in Hospital.

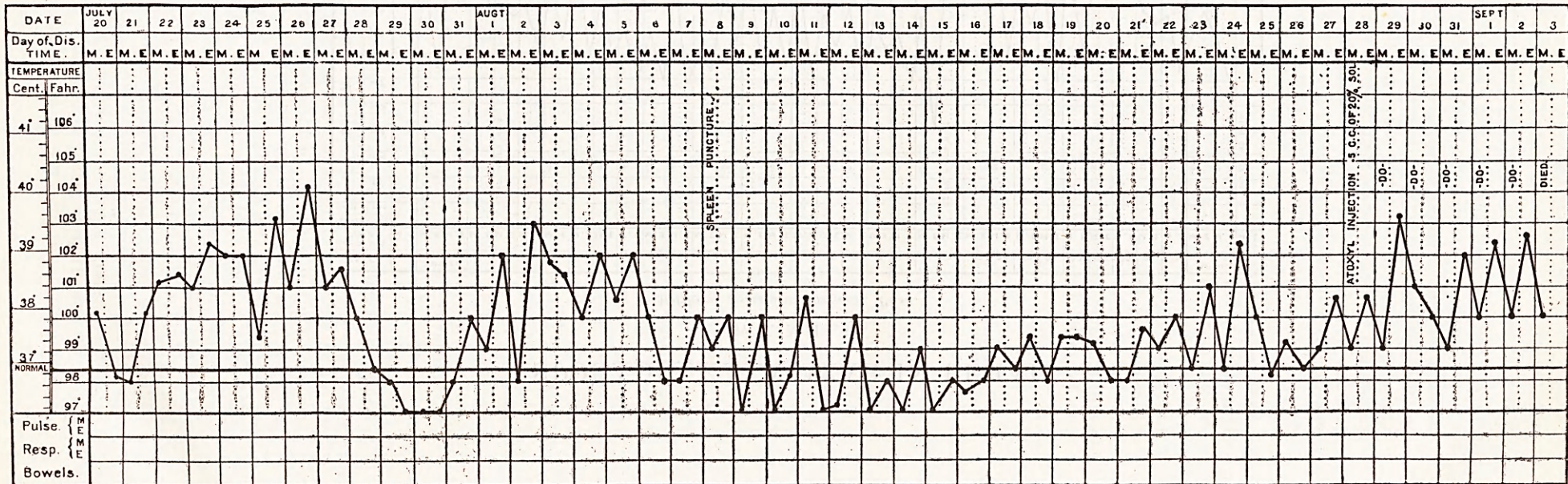
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CASE III.—She got 12 to 15 Grains of Quinine daily during her stay in Hospital.



CASE IV.—This case had 20 to 30 Grains of Quinine daily during his stay in Hospital.

he was unquestionably suffering from Leishmaniasis, as a perusal of notes on his case taken in conjunction with those that follow will show. The next three cases were admitted in July, and the diagnosis in each was confirmed by spleen or liver punctures. The fifth case seen in September died on the fourth day after his admission to hospital, the diagnosis being confirmed by spleen smears made *post-mortem*. From inquiries made I find that there have been other sufferers from the same complaint in the village and bazar in which cases Nos. I and III lived, and in case III two other members of the family have died from the same complaint within the last two years, pointing clearly to house infection. Cases I to IV have been born here and have never left these parts, and case V was away only for three months at Jalpaiguri, where he states he was first attacked with fever. It is doubtful whether the last case contracted the disease at Pusa or Jalpaiguri, but assuming that there is an incubation period, and accepting his statement that the fever commenced soon after his arrival at the latter place, it may be concluded that the infection occurred at Pusa.

As this hospital is open only to Estate employees and those connected with the Agricultural Research Institute, a limited number of people seek relief, and, generally speaking, patients outside a radius of two miles of Pusa are not seen by me.

Judging from the above facts, it may be assumed that the disease is far more prevalent here, and therefore in the Province, than is generally supposed, and whether it is only sporadic or shows a seasonal prevalence, when it takes on an epidemic form, is yet to be ascertained. The bed-bugs which infest every native hut in the neighbourhood have been identified by Mr. Howlett, Second Imperial Entomologist at Pusa as *cimex rotundatus*, and if they alone are responsible for conveying the disease, it is easy to imagine that given favourable conditions of soil and temperature, in a people who are susceptible to its invasion, with bad harvests and unhealthy years, how easily, in this densely populated part of the country, an epidemic might at any time be lighted up and spread insiduously along the beaten tracts as it has done before in the great Assam and Burdwan epidemics, so graphically described by Rogers. Further examination of the fever mortality *per mille* of this Province might throw some light into the prevalence of the disease in Behar.

The following symptoms and complications were common to all the cases:—Continuous fever of an alternating remittent and intermittent type ushered in with rigors during the early stages of the disease, yellow conjunctiva, liver enlargement, great splenic enlargement, progressive debility and emaciation with very little corresponding anæmia, albumen in urine, appetite only slightly impaired, little or no

constitutional disturbance during the periods of high pyrexia, and œdema of the lower extremities.

Special symptoms and complications:—Dysentery in three cases, epistaxis two cases, pain from duodenal ulcer two cases, skin pigmentation three cases, urine of low specific gravity three cases, hyperæsthesia of lower extremities two cases, general œdema two cases, pseudodiphtheritic tonsillitis one case.

Although the peripheral blood of all these patients was frequently examined, no malarial parasites nor Leishman-Donovan bodies were found. Liver puncture was made in two cases, and spleen in one, with the following precautions—15 grains of calcium chloride was given three hours before puncture and the dose repeated after an hour. A small hypodermic needle with an all-glass syringe was used, skin and needle were thoroughly sterilized, the needle was smartly introduced into the part selected and blood rapidly withdrawn—the patient was cautioned to make no movement at the time of introducing the needle, and after its removal was kept lying for six hours on the punctured side. A firm abdominal binder was applied and the patient kept in bed on fluid food for 24 hours. There were no bad results. One case had pain for 48 hours over the site of puncture but no rise of temperature afterwards.

Films were coloured with Giemsa and Romanowsky's stains and gave excellent results, the parasites seen were generally large oval free forms.

The slides from cases II, III and IV were sent to Kasauli and my diagnosis confirmed by Col. Semple, M.D., in case IV he remarks that "after prolonged search two suspicious bodies were found." As this man subsequently died in hospital and a *post-mortem* examination was performed, I was enabled to make several smears from the liver and spleen in which numerous Leishman-Donovan bodies were found. In all the smears blood platelets were exceptionally numerous, and in one case the blood was very watery and spread badly on the slides. Case V who died in hospital four days after admission, and in whom no spleen puncture was made, showed abundance of Leishman-Donovan bodies in smears made from his spleen *post-mortem*.

As only five cases have been under observation here, there is not sufficient data to note the seasonal incidence of the disease, but all seem to have first suffered from fever in the cold weather which dates the beginning of their attacks. Of the five cases reported two occurred in children, two in young adults, and one in a man of 25 years. Four were Hindus and one a Mahomedan. The mortality in this series was 100 per cent.

In summing up I am of opinion that in these parts cases coming under observation with enlargement of both liver and spleen, great debility and emaciation, with a history of prolonged

fever and resistant to the action of quinine must be viewed with suspicion; an examination of the peripheral or spleen blood if positive, confirming the diagnosis, but a negative result on the other hand, after one or two examinations only, by no means disproving the existence of the disease.

Brief notes of the cases might be of interest.

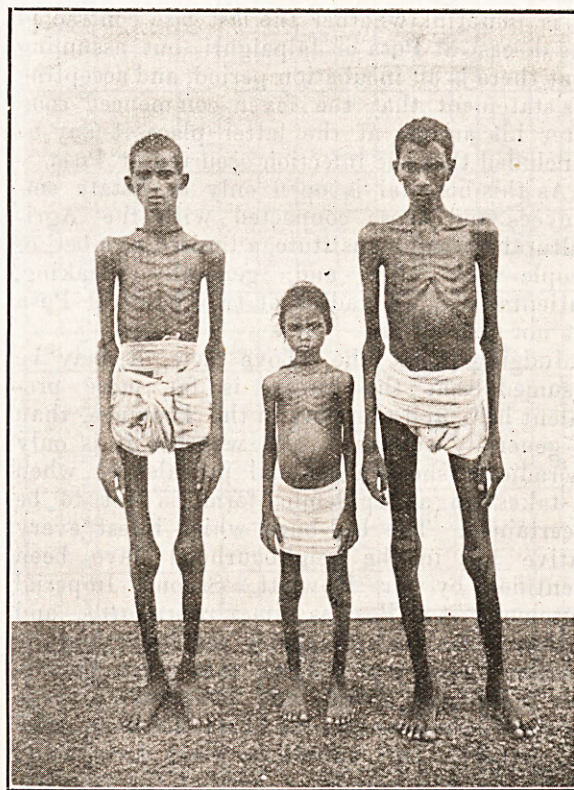
Case I.—Bograt, Hindu male child, age 10 years, was admitted on 1st March, 1909, with fever, enlargement of liver and spleen, œdema of extremities and ascites. The fever commenced six months ago with daily rigors and regular intermissions, but became continuous during the past two months. The spleen extended down to the umbilicus, and the liver could be felt $1\frac{1}{2}$ inches below the costal arch, hæmic murmurs could be heard over the præcordial area, breath sounds were deficient at both bases. The tongue was furred, bowels regular, conjunctivæ yellow but no jaundice. There was great debility and emaciation, and some anæmia. The skin of the face was discoloured, and he had some hyperæsthesia of the lower extremities. The urine had a S. G. of 1012, acid reaction, and contained albumen and bile.

Under large doses of quinine there was some improvement during the first week of his stay in hospital, but the fever rose again, he became rapidly worse, epigastric pains became frequent and severe, a mastoid abscess threatened, the general œdema increased; at this stage there were daily attacks of epistaxis when he lost much blood. He was removed from hospital by his relatives on the 2nd April, and died the next day.

The peripheral blood, frequently examined, showed no malarial parasites nor Leishman-Donovan bodies; as he refused spleen puncture and no *post-mortem* was made, the diagnosis could not be confirmed microscopically, but a review of his symptoms and the typical chart leave no cause for doubt as to the nature of his complaint.

Case II.—Jhapsi, Hindu male, age 20 years, is the first figure on the right in the photograph. He gives a history of fever of seven months' duration commencing with rigors, and apyrexial periods of four and five days' duration; for the last three months the fever became continuous, the patient was very weak and emaciated, liver and spleen were both much enlarged, the latter could be felt one inch below the umbilicus and the liver one inch below the costal arch in the mammary line. Skin of face and dorsum of hands pigmented, conjunctivæ yellow—no jaundice, little or no anæmia, other organs normal. There was no history of house infection, and he has never been out of these parts. The temperature chart shows the characteristic fever typical of Kala Azar, there have been periods of steady improvement and frequent relapses. The urine examined weekly has been of low specific gravity, never over 1012, with

an acid reaction containing albumen and bile, the albumen is constant but variable in quantity. There have been attacks of epigastric pain, and he had dysentery while in hospital which yielded to Ipecac. and Bismuth. For about a fortnight he had some hyperæsthesia along the anterior aspect of both legs, and latterly both feet became œdematous; he lost a good deal of blood on two occasions from epistaxis. The patient left for his home on the morning of the 21st September and was brought back to hospital the same evening, where he died at 7 P.M. The *post-mortem* examination showed great enlargement of the spleen, which weighed 2lbs. 4 ozs., the liver also was enlarged and weighed 4lbs., other organs normal. Two small ulcers were found in the duodenum, the upper part of which was much



congested, the cæcum and adjacent part of the ascending colon were deeply congested, as was also the sigmoid flexure, and there were traces of old dysenteric ulcers along the course of the sigmoid. The mesenteric glands were enlarged and looked like black beans between the layers of the mesentery. The peritoneal cavity contained $1\frac{1}{2}$ pints of serum, and the pericardial sac 10 ounces. 20 to 30 grains of quinine daily did not control the fever, and 15 atoxyl injections containing .5 c.c. of a 20% solution had been given without any marked benefit. Peripheral blood examined frequently showed no malarial parasites nor Leishman-Donovan bodies. Artificial pustulation was produced experimentally over the splenic area, and

smears made from the exudate gave negative results.

A liver puncture, made three weeks after his admission, showed Leishman-Donovan bodies in abundance; smears were sent to Kasauli and the diagnosis confirmed by Colonel Semple, M.D.

Case III.—Athbarai, Hindu female child, age 10 years, is the centre figure in the group. The history of the commencement of her attack was the same as that recorded for the previous cases; fever was of 9 months' duration, liver and spleen were both enlarged; she had a mild attack of dysentery while in hospital, and shortly before her discharge the feet became œdematous and face puffy. The urine had a specific gravity of 1024, and contained albumen and bile. She died out of hospital 16 days after her discharge, from a recurring attack of dysentery, and general anasarca. A brother and sister had died from the same complaint within the last two years. Peripheral blood, frequently examined, gave negative results—smears from a liver puncture made on the 6th August showed Leishman-Donovan bodies in abundance. Slides were sent to Kasauli and the diagnosis confirmed by Colonel Semple, M.D.

Case IV.—Lal Behari, Hindu male, age 16 years, is the left figure in the group. The invasion stage of his fever was similar to the other cases; it continued for five months. The spleen and liver were enlarged, and the urine contained albumen. Complications in this case were diarrhœa, a small pneumonic patch at left base, and an attack of pseudo-diphtheritic tonsilitis four days before death.

No malarial parasites nor Leishman-Donovan bodies could be recognised in smears made from his finger or spleen blood while he was under treatment, and scrapings from an old ulcer over the splenic region also gave negative results; films of spleen blood were sent to Kasauli for Colonel Semple's opinion, who discovered two doubtful Leishman-Donovan bodies.

The autopsy revealed nothing of special interest, but smears made *post mortem* from spleen scrapings showed Leishman, Donovan bodies in abundance.

Case V.—Akloo, Mahomedan male, age 25 years, was a resident of Pusa. His fever was of 10 months' duration, with a history of early rigors. He went to Jalpaiguri in December, 1908, where he states he was first attacked. Since his return to Pusa six months ago, his fever has been continuous. The liver and spleen were enlarged, he was suffering with dysentery on admission, and the lower extremities were œdematous. The urine was of low specific gravity and contained albumen.

The patient died four days after his admission, and smears made from spleen scrapings, *post-mortem* showed Leishman-Donovan bodies in

abundance, both free and in the endothelial cells.

EXPERIENCES OF MICROCOCCUS CATARRHALIS INFECTION.

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I CAME to India a little before the advent of true influenza. It appeared in 1889 soon after its widespread occurrence in Europe. In those days it struck me that colds and catarrhs were more common in this country than one had expected, and that these colds occurred in epidemic form in Indian stations. Following in the wake of influenza we have, I think, been inclined to associate these catarrhs, which have always been with us, with influenza, though we recognise they are never of the same severity, or so often followed by the same unpleasant sequelæ; and in fact, even clinically considered, must be a different disease. In the laboratory here we have been examining many specimens of sputa during epidemics of this catarrh, and have found the cause to be due not to the bacillus influenzae, but to the micrococcus catarrhalis. This coccus is also a secondary and very destructive infection complicating tuberculosis of the lung in our cases. Again, we find it to be the infection in cases of chronic bronchitis, which are so common in all classes of patients—cases that sometimes develop asthma associated with the bronchitis. However, in catarrh due to micrococcus catarrhalis another state of affairs exists, in that the micrococcus catarrhalis is the primary infection, and other secondary infections, principally various staphylococci, are also present; the treatment of these latter becomes just as important, or more so, as that of the primary infection, when we come to deal with these cases by vaccine therapy.

The symptoms of a cold due to micrococcus catarrhalis are, I think, sufficiently diagnostic in most cases to lead us to infer that the agent is this infection, without in all cases examining the sputum. The catarrh begins in the throat, spreads upwards to the nasal cavity, down into the larynx, trachea and larger bronchi, is accompanied by some fever, malaise, sometimes gastric catarrh due to invasion down the œsophagus, and is followed by cough, and expectoration, which becomes purulent, and lasts for ten days or more. Although a minor ailment, it is most unpleasant; especially as the sufferer has to drag through his day's work if he possibly can. I have often noticed that household servants are those first attacked, spreading the catarrh to their masters. Moreover during an epidemic a dinner party is followed by a further spread among the guests. The obvious inference is that a sufferer during conversation sprays the food handed round the table with his culture, which is then conveyed directly to his neighbour's throats. It is a common saying