about half an inch from the posterior border of the frontal bone on the left side, and about an inch from the middle line. On the skull being opened it was found that this fracture extended through the whole thickness of the bone, no new bone having been laid down, the opening only being covered by a layer of periosteum. Two pieces of bone ran from each end of the fracture into the substance of the brain. The smaller piece, about half an inch long, was smooth and rounded off at the end, and was about the thickness of a lead pencil. The large piece was nearly an inch and a half in length, irregular in shape, with rough edges, and was so firmly embedded and bound down to the brain substance by cicatricial tissue, that half an inch of the end was left behind when the skull cap was removed, the membranes, which were adherent to the edges of the fracture, being torn through at the same time. There was much cicatrization and retraction of the surface of the surrounding portion of the brain for an area about the size of a five-shilling piece.

The points to be noted in this case seem to me to be: The severity of the original wound, the apparent complete recovery for over three years, followed by death when the man was called on to do excessive work. Although there were no symptoms in the case calling for the operation of trephining, it would appear that had the man been trephined shortly after he received the wound his life might have been saved.

A REMARKABLE CASE OF SEPTICÆMIA.

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Gunner P., was admitted into the Station Hospital, Calcutta, on October 17th, 1904, suffering from hyperpyrexia.

Personal History.—The son of a planter in Assam, his father had sent him into the Army for a time to "harden" him. He had two months' service, and his medical history sheet showed no previous illness.

History of Present Illness.—On the morning of October 17th patient had been out engaged in signalling practice. The sun was very hot, and towards afternoon he began to feel slight headache. The headache increased and was accompanied by a feeling of being very hot. At 6.15 p.m. patient reported sick at the Garrison Dispensary in Fort William. His temperature was found to be 106°, and he "complained of feeling hot and having a slight headache." He was given phenacetin and quinine, and a dose of mistura alba. Ice was applied to the head, and mist. diaphoretic given. Wet sheet packing was then employed, and the temperature reduced to 104°. At 8.30 he was sent over to the Station Hospital in a dhoolie. Admitted to the Station Hospital at about 9 p.m., his temperature was 101.8°. He ascribed his illness to having been out in the sun all the morning.
The assistant surgeon on duty looked upon it as a case of malarial fever, several cases of which—both benign and malignant tertian—were being admitted almost every day from the fort. During the night he took nourishment well, the bowels opened three times, and he slept a little, though on the whole rather restless. Between 1 and 2 a.m. the temperature rose to above 103° and was reduced by sponging. This had to be repeated several times during the night, as the temperature constantly tended to run up. At 4.30 a.m. he became very restless, but nothing unusual was noticed. At 6 a.m. he became slightly cyanosed, and the pulse was weak. At 7.30 a.m. I found him markedly cyanosed, and breathing in a short, jerky manner.

On examination the area of cardiac dulness was greatly increased from dilatation. The heart sounds were weak, and the pulse could not be felt at the wrist. There were a few moist rales at the base of the lungs, slightly more marked in the left, but no very pronounced physical signs. The temperature was now tending to run very high, and had constantly to be kept down by sponging. Liq. strych., ηviii., was injected under the skin, and quinine bihydrochloride, grs. xv. in solution, was injected into the gluteal muscles. Brandy, half an ounce, was given. The pulse could now just be felt at the wrist. The cyanosis increased, and it was noticed that the face and thighs began to show a pale purple blotchiness. The extremities were cold, and were treated with friction and hot bottles. It was noted that there were large patches of ringworm (often miscalled "dhobi's itch") on and near the scrotum; the raised edges of these had taken on a deep purple colouration.

Blood films were taken from the finger at 8 a.m. Under the microscope the wet film was seen to be swarming with small round bodies, apparently cocci. Many were free in the plasma, many were engulfed in the leucocytes, which also contained small particles of débris. Brownian movement was marked, and the cocci were so numerous as to give to the wet film an appearance something like the swarming of bees, or the restless activity of a colony of ants disturbed. The condition was now recognised as one of septicemia, and the patient was re-examined for possible sources of infection. It was seen that mosquito bites on the legs and feet had been severely scratched, as had also the patches of ringworm on the thighs and scrotum. The result of this vigorous application of the patient's finger-nails had been the removal of innumerable tiny patches of skin, and their replacement by scabs of sero-pus. The feet were not very clean, and there was a deep crack on the planter surface of the little toe of the left foot at the metacarpo-phalangeal joint. There was no other discoverable source of infection. The condition was similar to what is not infrequently seen in other men without bad results.

After the blood examination it was recognised that nothing could be done to save the patient. By 9 a.m. the cyanosis and dyspnœa had greatly increased, and the patient's condition was critical. No oxygen

Clinical Notes
was available. The purple colour on face and thighs had become deeper. The temperature tended constantly upwards, and it was necessary to use the wet sheet. Death took place at 10 a.m. on October 18th, sixteen hours after reporting sick. Less than twenty-four hours previous to his death the patient was in perfect health.

Post-mortem Examination.—External appearances already described. The whole body was now covered (four hours after death), with a diffuse pale purple blotchiness similar to that described on the face and thighs before death. There was no post-mortem lividity of dependent parts. The body was well nourished, and there were no marks of injury.

Heart.—Weight 10 ozs., contained a small amount of dark fluid blood in the left ventricle, which was hard and contracted. The right ventricle, which was soft and flabby, contained some pale blood clot. There were no vegetations on the valves, and no unusual appearances.

The pericardium contained about 2 drachms of serum.

Lungs.—Weight: right 1 lb. 3 ozs., left 1 lb. 6 ozs. There was slight congestion at the bases, rather more marked in the left lung.

Spleen.—Enlarged, and weighed 1½ lbs.; dark on section.

Liver.—Weighed 4½ lbs., normal in appearance.

Kidneys.—Each weighed 5 ozs. and appeared healthy.

Wet and dry films were taken from the peripheral blood both before and immediately after death, and wet and dry films were also prepared, during the post mortem, from the heart, lungs, spleen, liver and kidneys. As might be expected, all of these presented appearances exactly alike. The wet films have been already described. Stained with Leishman's stain, or with methylene blue, the dry films presented a remarkable appearance. Dotted all over the field were innumerable diplococci, sharply defined. Some were free in the plasma, large numbers were included in the leucocytes, some of which contained as many as forty diplococci. There was a very marked polymorphonnuclear leucocytosis. The cocci, with few exceptions, were all in process of division and appeared as diplococci, an appearance not at first noticed in the unstained wet films. On re-examining the wet films, one could detect in some of the cocci the dim outline of the two diplococci, inside the perfect circle which all alike presented. Stained by Gram's method, the cocci retained the stain.

The Organism.—In considering the possible nature of the organism, four cocci only need be considered, viz., staphylococcus, pneumococcus, gonococcus, and the Diplococcus intracellularis meningitidis of Weischelbaum. Owing to the meagre equipment of the "District Laboratory," which does not possess such things as a hemocytometer, a proper incubator, a centrifuge, a gas supply, or even an efficient microscope, it was unfortunately impossible to make cultures from the blood or sections from the organs, or even to make a proper blood count. It may be said to start with that there were no signs of gonorrhoea in this patient, and that cases of cerebro-spinal meningitis do not occur in this locality.
A ready method of preliminary differentiation exists in Gram’s method of staining. The organism retained the stain. This at once excludes the gonococcus and the Diplococcus intracellularis meningitidis, so that there remain to choose between the pneumococcus of Fraenkel and staphylococcus, both of which retain the stain by Gram’s method. Either of these organisms might be the cause of a general septicæmia such as existed in this case, but there appears to be two points on which a differentiation may be based: (1) In the pneumococcus there is a distinct capsule of appreciable size surrounding the diplococci; (2) in Fraenkel’s organism the long axis of the diplococci lies longitudinally, while in the case of a dividing staphylococcus the long axis of the diplococci lies transversely.

In this case there is no appearance of a capsule, and the long axis of the diplococci lies transversely, so that Fraenkel’s pneumococcus appears to be excluded. It would seem, then, that death in this case was due to a staphylococccic septicæmia, the rapid proliferation in the blood of a virulent type of staphylococcus, the only discoverable source of infection being the numerous small septic abrasions on the thighs and legs and feet, caused by the scratching of mosquito bites and ringworm patches. It would have been of the greatest interest to have determined, by making cultures, the exact species of staphylococcus, but unfortunately this could not be done for want of apparatus. The accompanying illustration by a native artist gives an excellent idea of the appearance presented by a film stained with methylene blue, one-twelfth inch oil immersion.

Remarks.—It is interesting to consider what the diagnosis would have been in the absence of microscopical examination of the blood. In all probability it would have been “heatstroke,” less probably “ague” or “remittent fever.” When one realises that even at the present day in India a microscope, at least in military hands, is an excessive rarity, it is open to speculate as to how many cases in India diagnosed “heatstroke,” or, as Sambon calls it, “siriasis,” have had their blood examined. Probably very few. In fact, it is even permissible to say that, owing to the absence of microscopes from military hospitals in India, the past statistics of malaria, enteric, malta fever, “simple continued fever” heatstroke, and all diseases, the correct diagnosis of which depends on examination of the blood, must be hopelessly inaccurate and misleading.

Sambon has asserted that siriasis is a germ disease, and in this he is supported in a tentative sort of way by Manson. Is this, then, a case of siriasis with its own particular germ? or, on the other hand, is siriasis in many cases merely a virulent staphyloccoccic septicæmia?