THE VALUE OF VITAL BLOOD STAINING IN THE STUDY OF THE SO-CALLED "INFECTIVE GRANULE."

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[PRELIMINARY NOTE.]

In the fourth report of these laboratories, and also elsewhere,¹ I have mentioned how valuable is the dark-field method of blood examination in studying the extrusion of living granules from spirochaetes and trypanosomes. By this method, combined with the better known laboratory processes, one has been able to discover a good deal regarding the part played by the infective granule in Sudan spirochaetosis, both in the blood and organs of the fowl and in the fluids and tissues of the ticks which serve as vectors of the disease. At the same time certain gaps in our knowledge remained to be bridged, and it was with the object of discovering, if possible, the missing links, that I decided to see if vital staining of the blood, a method commonly employed by German haematologists for studying the morphology of blood cells, would be of service.

After various trials it was found that toluidin blue was the best stain to employ and the most suitable strength proved to be one of 0.05 per cent. The solvent used is normal salt solution. I have no intention here of entering into details. The technique is of the simplest—the fresh blood and staining solution being mixed in a Wright's pipette and a drop of the mixture mounted as a sealed cover-slip preparation. I would merely say that this method, which during my enforced absence in Cairo has been carefully followed out by my laboratory assistant, Mr. Buchanan, appears to have solved many difficulties. It frequently shows up the granules in the living spirochaetes, it stains the free and living granules, it has apparently enabled the penetration of the red cell by the granule to be witnessed, and it has shown that not only are granules (spore forms) discharged from the mature intracorporeal bodies, but that these bodies, unruptured and still containing the spores (merozoites), can be themselves set free from the red cells. Incidentally it has shown that they possess capsules or limiting membranes. Further, and of the greatest importance, it would seem to have permitted the demonstration of the development of the young spirochaete from the granule in the peripheral blood.

I say "seem," because it must be remembered that by thus staining the blood the latter is naturally placed under abnormal conditions, and also because such observations require to be repeated and confirmed. From what I have myself seen, however, I have little doubt of their accuracy, and I may say that Major Fry has also found the method most useful in studying the granules which are shed by trypanosomes. I hope to employ this vital staining in the case of fluids from infected ticks and of secretions from hard sores and syphilitic skin lesions.

So far as the blood is concerned, one great advantage of its use is that haemoconia remain unstained, and thus a very disturbing factor in dark-field work is easily eliminated.

I trust the publication of this preliminary note may induce any who are working at this granule problem to give the method of vital staining a trial, as it is important to collect all available evidence regarding a phenomenon which I believe to be of very great importance and significance. I think it might prove specially valuable in the study of what I have called "cryptic trypanosomiasis," a term which I see Dr. Bagshawe has adopted.

REFERENCE.

¹ BRITISH MEDICAL JOURNAL, November 11th, 1911.

THE late Mr. James Wilcock, J.P., of Blackburn, has by his will bequeathed £3,000 to the Imperial Cancer Research Fund (to which he had in his lifetime given £1,000), £2,000 each to the endowment funds of the Blackburn and East Lancashire Infirmary and the Blackburn and District Nursing Association, and £100 to the Pakhoi and Leper Medical Mission.

Memoranda: MEDICAL, SURGICAL, OBSTETRICAL.

A CASE OF ACTINOMYCOSIS OF THE LUNG.

THE recorded case of actinomycosis of the lung by Dr. F. Nicholson in the BRITISH MEDICAL JOURNAL of February 10th makes me think the following notes might be of interest.

The patient, an unmarried woman, 37 years of age, has been in poor health for three years, suffering from epilepsy. Previous to that time she was quite healthy. During all that period she had been on a specially restricted diet which she rigidly adhered to, and the foods which had been cut off were so numerous and so frequently on the table as ordinary articles of diet that I believe she was underfed. The family history is good. I saw her first on August 12th. She complained of pain in the left side on breathing, had a very slight rise of temperature (99° to 99.5°), some slight cough and dullness at the base of the left lung, but no expectoration; a small patch of crepitation was present. At the end of a week, after the subsidence of pain and temperature, I used von Pirquet's cutaneous tuberculin test without giving any reaction. She now left the district for a week or two, and during that time the cough got very bad, became spasmodic in character, accompanied with retching, much expectoration, night sweats, and great emaciation. On her return on September 6th I found the dullness increased, and many moist râles present over the base of the left lung; there were no râles in the apex of the left lung, or anywhere in the right lung.

The expectoration was very offensive and profuse, and I sent it to Dr. Claridge, of Norwich, for examination, expecting to hear it contained tubercle bacilli. He reported that the case was one of actinomycosis, the ray fungus being easily detected, and that no tubercle bacilli could be found. The expectoration was yellowish-green, containing small frayed, woolly-looking pieces. When spread on glass and looked at against a black background little yellowish specks could be picked out with a needle, and when placed on a slide and pressed down by the cover-glass showed the ray fungus very distinctly.

For fourteen days the temperature ranged from 100° in the morning to 101° and 102° in the evening, and the expectoration measured about 1 oz. daily. I gave a bad prognosis, but after three weeks of feeding up the patient began to improve, the cough disappeared, and the temperature became normal. When I examined her last (in November) the dullness was still apparent and the breath sounds feeble, but there were no râles. She is now able to be about in her usual not very robust health.

Cromer.

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MELAENA NEONATORUM.

SOME cases of this comparatively rare disease have been reported during the past year or two in this JOURNAL. This is the more valuable, inasmuch as all the textbooks which I have consulted give only the slightest notice to the subject. The following case presents some noteworthy features.

The mother was a primipara, aged 38. The labour came on twenty-one days after the time when careful calculation led it to be expected. The first stage lasted about a week, and was controlled by all the means available. The delivery was accomplished with the aid of forceps, the patient being under chloroform for fully an hour, while gentle traction was employed to save the perineum. The child was a large female, born with slight wounds over the sides of the cranium where the forceps had gripped. On the day following birth I was called to see the child suffering from convulsions of a slight degree. These were put down to irritation from pressure by the forceps. To control the convulsions, I administered a little chloral and bromide by the rectum by means of a small india-rubber syringe. After the first injection I was surprised to see a little dark blood come away. Never having seen the condition before, I paid no attention to it. Some hours later I was called to see one of its cloths, containing three large clots of red blood. For two full