widely and so largely used as sulphonal, and also because, so far as I can ascertain from the records, it is the only case of its nature arising in the history of the East Riding Asylum—a period of forty-one years.

(1) A paper read at the Autumn Meeting of the Northern and Midland Division held at the Lincoln Asylum, Bracebridge, on Thursday, October 24th, 1912.

Leucocytosis produced by the Injection of Normal Saline Solution.

By WILLIAM BOYD, M.D., M.R.C.P.E., Dipl. Psych., Pathologist, Lancashire County Asylum, Winwick.

IN the July number of the journal Drs. Dods Brown and Ross give an account of the various methods which have been used to produce an increase in the number of leucocytes in the blood. These methods are numerous and varied, but they do not include one which was discovered accidentally in the treatment of the case about to be described, nor have I been able to find any reference to a similar case in the literature. Various drugs such as nucleic acid, ceredin and argentum colloidale have proved efficacious, and Dr. Lewis Bruce has stimulated the leucocytes by the injection of such an irritant as turpentine. In the present case, however, the simple intra-venous injection of normal saline solution, containing no drug whatever, was found to produce a marked leucocytosis, which in one instance reached the high figure of 28,000. For permission to publish the notes of this case I am much indebted to the kindness of Dr. T. C. Mackenzie.

The case is as follows:

On September 14th, 1911, J. M—, female, æt. 37, was admitted to the Inverness District Asylum suffering from acute excitement with confusion. Her temperature on admission was 99° F., but soon returned to normal, where it remained during the greater part of her illness, at no time rising higher than 99·6°. On many occasions, however, it was impossible to take her temperature, owing to the violence of the excitement. She was in poor physical health, showing evidence of gastro-intestinal disturbance, and during the time she was under observation she rapidly lost weight and became greatly emaciated. Her mental condition was typical of acute confusional insanity: there was great excitement and considerable confusion, disorientation was complete, and hallucinations, both visual and auditory, were very well marked.

Repeated injections of 40 oz. of normal saline solution were given by the rectum, but produced little or no benefit. As she was evidently

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suffering from some form of toxæmia, it occurred to us that an intra-venous injection of normal saline solution might prove of benefit. The median basilic vein was accordingly opened, and 40 oz. of ·75 *per cent.* saline solution were run in. At the time of the injection, which was done in the morning, the leucocytes numbered 9,500. That same evening the number had risen to 15,400. She was a good deal better mentally, the excitement lessened, and she slept well. Next day her leucocytes had returned to 9,000. Five days later she was again transfused with 40 oz. of normal saline, and this time the leucocytes rose from 10,000 to 28,000. The leucocytosis was polymorphonuclear in type. As it was impossible to continue opening the patient's veins, the next injection, 70 oz. in amount, was given into the breast. The result was another slight mental improvement, accompanied by a leucocytosis of 13,400. On two subsequent occasions saline was again given by the breast, without any mental benefit, however, the leucocytosis being only slight in each case. Numerous injections of saline were given by the rectum throughout the patient's illness, but these never produced any effect on the leucocytes. The patient gradually lost strength, became extremely emaciated, and died on January 28th, 1912, the excitement continuing until the end.

To sum up: normal saline solution was given in three ways and with correspondingly varying results. When given intra-venously it produced a well-marked leucocytosis, when given subcutaneously the leucocytosis was slight, and when given by the bowel there was no leucocytosis. The degree of mental improvement produced bore a relation to the intensity of the leucocytosis.

I record this case in the hope that others, who may be adopting the treatment of cases of excitement by means of the injection of saline solution, will make further observations on the behaviour of the white blood-corpuscles.

Morphino-Mania with Suggested Visual Hallucinations. By P. J. DWYER, M.B., Assistant Medical Officer, Richmond Asylum, Dublin.

P. G—, æt. 40, admitted January 9th, 1912, on a charge of assault; had been a sailor for many years, during which period he contracted the morphia habit. Since 1884 he had been taking the drug, gradually arriving at the stage previous to admission, when he was taking 15 gr. a day. The largest dose he ever took was 15 gr., followed in an hour by 10 gr.

He was an emaciated, miserable specimen of a man on admission, quite cachectic, and positively a mosaic with needle punctures. So hard was his skin on portions of his body that a needle could not be driven in without breaking.

His pupils were very small and the right knee-jerk was exaggerated.

He told me that he had an old prescription for a small dose, which he got made up in different chemists' shops, thereby getting a goodly

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