this description which, injected into a rabbit, produced severe arthritis. The knee-joint from which the specimen was obtained contained two drachms of clear fluid, the cartilage was eroded and the synovial membrane was much thickened by chronic disease; it was, in fact, a destructive non-suppurative lesion probably of the nature of rheumatoid arthritis. There is no reason for supposing that this diplococcus is capable of producing pneumonia or that it is allied to the diplococcus lanceolatus. There are many other forms of infective arthritis, one of the best known being the gonococcal arthritis so often associated with gonorrhoeal iritis. Cases of arthritis following in the wake of ophthalmia neonatorum are now generally recognised and Mr. R. Clement Lucas¹¹ has collected from various sources 23 cases of joint disease in infants secondary to purulent ophthalmia. Darier¹² in 1889 showed the presence of the gonococcus in the secretion from the conjunctiva in these cases and Deutschmann¹³ demonstrated its presence in the fluid obtained from the inflamed joints. Two cases of arthritis, traumatic in origin, have been recorded by Mr. Herbert Page.¹⁴ One of these was that of a boy, aged 14 years, who received a blow on the right knee. There was effusion and the fluid contained a diplococcus which in its morphological and cultural characteristics resembled the diplococcus of rheumatic fever. Mr. G. A. Wright¹⁵ has described three cases of polyarthritis in women suffering from leucorrhoea and he suggests that they were septic in origin. Of other forms of arthritis those connected with scarlet fever, enteric fever, erysipelas, glanders, and other diseases are well known. Dr. Percy Kidd and Mr. H. E. Symes-Thompson¹⁶ have shown cases of arthritis following bronchiectasis. I have recently seen with Mr. C. W. Glasginton a case of arthritis of the middle-sized joints undoubtedly due to a septic condition arising from many carious teeth.

GLASGOW ROYAL INFIRMARY.

A CASE OF ACUTE LYMPHATIC LEUKÆMIA.

(Under the care of Dr. G. S. MIDDLETON.)

FOR the notes of the case we are indebted to Dr. W. K. Hunter, assistant physician.

A youth, aged 19 years, was admitted into Dr. Middleton's wards in the Glasgow Royal Infirmary on April 12th, 1902, suffering from swellings in the neck, axillæ, and both groins of about two months' duration. The swelling was first noticed in the right submaxillary region a little below and behind the chin. It was hard but not tender and in size not larger than a horsebean. It quickly began to enlarge and shortly afterwards a similar swelling appeared in a corresponding position on the left side of the chin. Both these swellings steadily increased in size and soon similar ones appeared in both axillæ and a few days later in both groins. During this time the patient said that he was fairly well and took his food well, but nevertheless he had fallen off considerably in weight. But it was the size of the swellings in the neck, axillæ, and groins rather than any feeling of debility that gave him anxiety and made him seek admission to the hospital.

The patient's past history was excellent. He had been a farm servant for five years and as such was exposed to all kinds of weather. He said that he was always well fed and well clothed. There was no history of syphilis. His father died at the age of 81 years; his mother and two sisters were alive and in good health. On admission to the wards the patient appeared fairly well coloured and looked healthy, though by no means specially robust. The swelling in the neck was symmetrical on both sides. It filled up the posterior triangles of the neck and extended forwards into the submaxillary and downwards to the supraclavicular regions. The glands were firm to the touch and there was no evidence anywhere of softening. At the upper part of the swelling the glands were rather matted together, but below the individual glands were more definitely isolated. There was no adhesion to the jaw, clavicles, or deeper structures of the neck. The skin was unaffected and non-adherent.

The thyroid gland was not enlarged. In each axilla the swelling was of about the size of a goose's egg; it passed under the pectoralis major in front and the latissimus dorsi behind. Similar enlargements affected the vertical and oblique sets of inguinal glands but the structures in the popliteal spaces were unaffected. The veins on the front of the chest and abdomen and also in the upper arms were considerably distended. There was no cedema of the extremities. The cardiac area of dulness was not enlarged, but there was a zone of dull percussion over the sternum extending almost to the episternal notch and measuring at its upper level three inches in transverse diameter. The heart sounds seemed pure. The lungs, too, presented no abnormality to percussion or to auscultation. Both the liver and the spleen were considerably enlarged and both were easily palpable below the costal margins. The liver measured six inches vertically in the nipple line and the vertical measurement of the splenic dulness was seven inches. The patient breathed with his mouth open and seemed to have some nasopharyngeal obstruction. The tonsils were greatly enlarged. Cough was of the laryngeal type but examination of the larynx was negative. The blood was examined microscopically in the fresh state but there was noted to be only a slight increase in the number of white blood corpuscles and the case was accordingly diagnosed as one of Hodgkin's disease. The patient made but little improvement under treatment and, indeed, within a few days of admission to the hospital he was seen to be getting steadily worse. On May 11th the glandular enlargements were noted to be considerably increased in size and there were now swellings in both infraclavicular fossæ. The lower border of the liver extended four inches below the right, and the spleen three inches below the left, costal margin. Some fluid was made out in the abdominal cavity and there was marked cedema of the legs, thighs, and external genitals. There was now a certain degree of dyspnoea and there was dulness on percussion at the base of both lungs behind. There was tenderness, too, on pressure over the sternum but no tenderness of the vertebrae or of the long bones of the arms or of the legs. The patient was now very deaf. He died four days later—i.e., on May 15th—just three months after the glandular enlargement was first noted. A post-mortem examination was not allowed.

The blood was examined a few days before death but this time by means of stained films. These were fixed by heat and stained with the triacid stain and with eosin and methylene blue. A careful examination of a large number of films convinced one that there was now a quite definite, though not marked, increase in the number of white blood corpuscles. These were not counted in the hæmocytometer, but by counting the corpuscles in a large number of fields and comparing them with the number in similar films of a normal blood it was estimated that there would be about 30,000 white corpuscles per cubic millimetre. They were in the following proportions: large lymphocytes, 87.3 per cent.; small lymphocytes, 4.2 per cent.; polymorphonuclear corpuscles, 2.5 per cent.; and large mononuclear (hyaline) cells, 6.0 per cent. There were no marrow cells or "mast" cells and extremely few eosinophile cells. The red corpuscles showed a moderate poikilocytosis but no nucleated red corpuscles were found. The number of red corpuscles and the hæmoglobin were not estimated.

Remarks by Dr. HUNTER.—Acute leukæmia is a rare disease. In 1893 the number of published cases was given by Kosslin¹ as 35 and since that date not more than about a dozen others fall to be added to the list. But besides its rarity the above case is of interest on account of the difficulty in its diagnosis, for examination of the blood showed but slight increase in the number of white blood corpuscles. In view of the second examination of the blood the diagnosis of the case underwent revision, for the great proportion of large lymphocytes, together with the diminution of the polymorphonuclear leucocytes, is very characteristic of the blood in lymphatic leukæmia. Certainly the absence of any marked leucocytosis in the earlier stage of the disease, and the very moderate leucocytosis (30,000 per cubic millimetre) later, is not what one looks for in a typical case of leukæmia. But such cases as the above are not unknown, for, as von Limbeck² has pointed out, the lymphocytosis sometimes

¹¹ Ibid., vol. lxxxii., p. 137.

¹² Archives d'Ophtalmologie, 1889, p. 175.

¹³ Archiv für Ophthalmologie, 1890, p. 170.

¹⁴ Transactions of the Clinical Society of London, vol. xxxv., 1902, p. 84.

¹⁵ THE LANCET, May 17th, 1902, p. 1376.

¹⁶ Transactions of the Clinical Society of London, vol. xxxv., 1902, p. 176, 216.

¹ Jahrbuch der K.K. Wiener Krankenanstalten, Jahrgang 2nd, 1893, p. 565.

² The Clinical Pathology of the Blood. London: The New Sydenham Society, 1901.

does not appear till shortly before death, and Ewing³ says: "As a rule, the severity of the general condition is proportionate to the increase of leucocytes, except in acute leukaemia, when the number of leucocytes may not exceed that of inflammatory leucocytosis." In the light of such observations, then, I think I am correct in classing the case as one of leukaemia and the short duration of the illness—not more than three months in all—would seem to justify one in calling it an acute leukaemia. That it was not pseudo-leukaemia (Hodgkin's disease) seems quite clear when one considers that in that condition the polymorphonuclear and large mononuclear or hyaline cells together usually make up 90 per cent. or more of the total leucocytes present; here only 10 per cent. are made up of these corpuscles. It might, however, be urged that this case commenced as pseudo-leukaemia and passed on to be a true leukaemia. Some such cases have been put on record but few of them seem unequivocal. That our case did not commence as a pseudo-leukaemia one cannot positively assert, seeing that the variety of leucocytes present early in the disease is not known. Still, in the absence of evidence to the contrary, it seems correct to think of it as a leukaemia from the beginning. And we would here again insist that the differentiation of leukaemia from pseudo-leukaemia does not entirely depend on the presence or absence of a considerable leucocytosis. It would seem to be not at all impossible that some of the cases of pseudo-leukaemia described as passing into leukaemia were really leukaemias from the beginning but with only a slight increase in the number of their white blood corpuscles. In conclusion I have to express my indebtedness to Dr. Middleton who so kindly placed at my disposal his record of this case and by whose kind permission I publish it. I myself am responsible for the second examination of the blood and for the conclusions drawn therefrom.

Medical Societies.

OBSTETRICAL SOCIETY OF LONDON.

Ophthalmia Neonatorum, its Etiology and Prevention.

A MEETING of this society was held on July 1st, Dr. EDWARD MALINS, the President, being in the chair.

Mr. SYDNEY STEPHENSON opened a discussion on Ophthalmia Neonatorum, its Etiology and Prevention. He remarked that ophthalmia neonatorum was the cause of more blindness than any other local disease of the eyes excepting atrophy of the optic nerve. Competent authorities estimated that it accounted for upwards of 10 per cent. of the cases of blindness. In the United Kingdom alone the individuals blinded by the disorder probably represented a yearly burden upon the commonwealth of upwards of one-third of a million pounds sterling. Yet ophthalmia neonatorum might be prevented by the adoption of a few simple precautions. Of 1498 cases of ophthalmia neonatorum gonococci were demonstrated in 60·17 per cent. Amongst the other micro-organisms sometimes associated with the disease were the following: pneumococci, Koch-Weeks's bacilli, Morax's diplobacilli, bacterium coli, Klebs-Löffler bacilli, pneumobacilli, pyococci, streptococci, and micrococci lutei. Mr. Stephenson laid considerable stress upon the bacteriological examination of the pus from the conjunctiva, as the mere clinical diagnosis of the disease was open to serious fallacies, of which he quoted instances. It was pointed out that infection of the baby's eyes with gonococci might come about (1) in the maternal passages, either before or during the act of birth; (2) almost immediately after birth; or (3) one or several days after birth. Although the second was by far the commonest mode of infection, yet cases were quoted to show that rarely the eyes might become infected in utero. With regard to prevention Mr. Stephenson pointed out the great advantages of Credé's method, the alleged drawbacks to which were severally examined and criticised. The only disadvantage of the method admitted by Mr. Stephenson was the almost constant production of an insignificant conjunctival catarrh. An analysis of cases treated by different agents brought to light the fact that a 2 per cent. solution of nitrate of silver was by far the best prophylactic remedy. Protargol and solutions of corrosive sublimate were good but inferior to the nitrate of silver.

³ Clinical Pathology of the Blood. London: Henry Kimpton.

Dr. G. E. HERMAN said that the mass of evidence collected by Mr. Stephenson clearly showed the superiority of the 2 per cent. solution of nitrate of silver originally recommended by Credé to every substitute that had as yet been tried. He found much difficulty in advising students what to do. The objection to Credé's method was that it always produced some conjunctivitis. This was really only a trifle, but from a mother's point of view it was a great thing; and a young practitioner who gave people occasion to say of him that he always did something to newly born children which inflamed their eyes would be much handicapped in practice and he could not explain to his patient that he did it lest the eyes should be infected with gonorrhoea. He thought that the best thing to teach was that the practitioner should inquire into the presence or not of vaginal discharge and if there was discharge or any history or symptoms suggesting the possible presence of the gonococcus he should use nitrate of silver, but if there was no suspicion of gonorrhoea he should be content to use 1 in 2000 sublimate solution.

Dr. WALTER C. SWAYNE said that he wished to emphasise Dr. Herman's point about the young practitioner. Having the supervision of a maternity charity in which, as in all the London hospitals with medical schools attached, the work was carried on by students, he felt certain that the work would fall off if it was found that the use of Credé's method, although it was universally acknowledged to be the best, gave the public the opportunity of saying that the babies got sore eyes in consequence. On this account in the maternity department a weak solution of corrosive sublimate was used instead of nitrate of silver. He also thought that it would be interesting to hear the experiences of others in large provincial towns.

Mr. E. TREACHER COLLINS pointed out that one circumstance which rendered newly born children liable to ophthalmia was that they secreted no tears. If the conjunctiva immediately after birth was simply washed with water it had been shown that the number of cases of ophthalmia were reduced, but if a sufficiently powerful bactericidal fluid was used they could almost entirely be done away with. It was satisfactory to know that the amount of ophthalmia neonatorum was decreasing. When a case of ophthalmia neonatorum came under his care he was in the habit of asking if the mother had been attended by a medical man or a midwife. He was sorry to say that he found nearly half the cases had been attended by medical men. This, he thought, showed that the profession generally did not yet realise the great value of employing prophylactic measures against this disease. Ophthalmia neonatorum was not only preventable but might be cured without loss of sight if dealt with sufficiently early and skilfully treated. Obviously midwives could not be trusted to undertake such treatment. Unfortunately he often found that valuable time was lost by mothers using lotions suggested by them. He asked if it would not be possible for the Midwives Board, now drawing up rules for midwives, to make it compulsory for them to call in a medical man to a case occurring in their practice or to notify it to the medical officer of health of the district.

Dr. W. S. A. GRIFFITH wished to thank Mr. Stephenson for his valuable paper and hoped that it would convince the council of the society of the need of revising its directions to midwives in regard to this matter. His experience at Queen Charlotte's Hospital had convinced him of the undoubted superiority of the nitrate of silver and he regarded the very small percentage of imperfect results not as failures of the method but as failures in carrying it out. At the same time in his private practice he did not use it as a routine procedure, being satisfied to use it in all cases in which he suspected gonorrhoeal infection, and for the rest he was satisfied thoroughly to cleanse the eyelids, nose, and lips with an ample wash of a 1 in 1000 solution of mercuric iodide as soon as the head was born and before the child opened the eyes or attempted to breathe, and he had no reason to be dissatisfied with the results. Dilute mercury solutions, 1 in 2000 or 1 in 4000 or less, were utterly untrustworthy. Boric acid solutions were little better than plain water.

Dr. C. J. CULLINGWORTH said that in advocating legislation for improving the training and controlling the practice of midwives he had always regarded the prevalence of blindness due to preventable causes as one of the strongest and most telling arguments and he had frequently made use of it. With regard to the modes of infection enumerated by