for the appearance of heterologous agglutinins in the serums of such animals, and in the serums of individuals suffering from epidemic cerebro-spinal meningitis."

These facts seem to us to be important in view of the recent work of Hort and Caulfeild.[9] May not the fever and other symptoms following injection of monkeys with filtered meningococcal suspensions and filtered cerebro-spinal fluid derived from cases of cerebro-spinal fever have been due to a secondary subinfection from the intestine—the result of the action of meningococcal toxin on the mucosa—and not to the presence of a living ultra-microscopic virus? Such an explanation was evidently considered by Hort, but his reasons for discarding it do not seem to us to be quite convincing.

An instance in which the meningococcus may have rendered the intestine more permeable to the *B. paratyphosus* B came under our notice: Ten wounded soldiers were being treated by Dr. Tate in the County Infirmary, Downpatrick. Four of them presented symptoms of influenza, and from the nasopharynx of these, but not from the others, the meningococcus was isolated. One of the patients continued to show febrile symptoms, and from his blood and cerebro-spinal fluid the *B. paratyphosus* B, but not the meningococcus, was isolated. It is possible (and in fact our few animal experiments point in this direction) that the activity of bacilli of the *alcaligenes* class may help to break down the barrier opposed to the entrance into the blood and meninges of meningococci from the nasopharynx. Of our 119 "carriers" one only developed meningitis, and this experience seems to be that commonly recorded. It is evident that the meningococcus can cause meningitis only under certain conditions. May not the activity of intestinal germs be a predisposing factor?

Whether the meningococci or *alcaligenes* bacilli are the primary infectors must at present remain doubtful; but there can be no doubt of the importance of recognizing that, in cerebro-spinal fever, the toxic action not only of the meningococcus but also of other germs has to be considered. In the blood serum of the patient, antibodies for all the micro-organisms concerned in the infection are formed, and it would doubtless be an advantage if antimeningococci serum also contained these substances in a high concentration. A *post-mortem* examination of the first case occurring in this outbreak was made by Professor Symmers, and, like others which we have made, it showed the usual enormous enlargement of the mesenteric glands, haemorrhages into the bowel wall, and swelling of the lymphoid tissue of the gut. The liver showed yellowish areas of degeneration.

It is a remarkable fact, and one which has been noted by Symmers on several occasions, that these abdominal lesions are often very marked when there is very little evidence of inflammation of the meninges. These lesions would seem to point to a general infection and would seem to indicate that treatment should not be confined to the septic complication in the meninges. If antimeningococcic serum is of value, one would expect that it would be rational to inject it into the blood so as to deal with the general infection. If the statement is true that the subcutaneous and intravenous injections of antimeningococci serums are of no benefit, then the evidence that the benefits of intrathecal injections are due to the antibodies in the serum must be much more convincing than that which has so far been furnished.

The following treatment would seem to us to be reasonable: (1) The subcutaneous or intravenous injection of antimeningococcic serum; (2) the treatment of the septic condition of the meninges on general surgical lines by lumbar puncture and lavage with hypertonic solutions or antiseptics.

REFERENCES.

[1] Symmers and Wilson, BRITISH MEDICAL JOURNAL, June 22nd, 1907; *Journal of Hygiene*, ix, No. 1, 1909, p. 9. [2] J. A. Arkwright, *Journal of Hygiene*, April, 1907, p. 199. [3 and 4] W. James Wilson, *Lancet*, June 15th, 1908. [5] E. C. Hort, C. E. Lakin, and T. H. C. Benians, BRITISH MEDICAL JOURNAL, April 24th, 1915, p. 715. [6 and 7] W. James Wilson, *Journal of Hygiene*, ix, 3, 1909, p. 316. [8] Elser and Huntoon, *Journal Medical Research*, xx, 1909, p. 373. [9] Hort and Caulfeild, *Journal of the Royal Army Medical Corps*, September, 1916.

DR. W. A. LYNOTT, of the Federal Bureau of Mines, has prepared statistics showing that every worker in the United States loses on an average nine days' work in the year by disease which could be prevented by sanitation and the use of proper machinery.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

CEREBRAL COMPRESSION: OPERATIONS: RECOVERY.

THE following case is not without interest in that no obvious lesion was found at the operations, and yet rapid improvement followed this treatment.

A Chinese woman, aged 27, jumped from a moving train on July 26th, and was admitted to the railway wards of Shantung Road Hospital, Shanghai, about twenty-four hours later. On admission there were definite signs of compression of the brain. There was partial paralysis of the right arm and leg, the right knee-jerk was absent, and the right pupil was dilated and fixed. The pulse was 60, the breathing quiet, and she was completely unconscious. No bones were broken, but there were several abrasions, one being over the left parietal region.

Six hours later she was definitely worse—the paralysis was more marked, and the pulse 56, and of poor quality; and a decompression operation was decided upon. A trephine opening was made over the anterior branch of the left middle meningeal artery; the artery was found bleeding freely, and was occluded by pressure. There was no extradural clot, but as the dura was bulging and did not pulsate it was incised, and about two ounces of clear cerebro-spinal fluid escaped under pressure. There was no sign of subdural clot; the trephine circle was replaced and a gauze drain left under the flap. Immediately after operation the pulse was 65, stronger and better, and by the following day it was evident that she was going to live. The drain was removed in twelve hours.

During the subsequent three weeks her general condition improved considerably; twenty-two days after the accident there was still complete paralysis of the right arm, right side of face, eyelid and eyeball; there was paresis of the right leg, but she could walk about a little when assisted; she had no control over the bladder—it emptied itself when full. The movements of the left side of the body were quite normal. As the paralysis seemed likely to be permanent unless something could be done to relieve it, it appeared advisable to explore the Rolandic area to ascertain if there were any localized pressure on the cortex. This was done on the twenty-third day after the accident; as no Gigli saw was available three trephine circles were removed and connected by saw cuts giving a very thorough exposure of the whole Rolandic area. There was no extradural clot; the dura was incised and there was no subdural clot and no evidence of any pressure on, or damage to, the cortex. The trephine circles and connecting bridges of bone, which had been kept in hot saline, were replaced and the wound closed without drainage.

There was some rise of temperature the same night, but it was subnormal next day and remained so thereafter; the wound healed by first intention. On the third day after operation she was first seen to move her right arm voluntarily, and on investigation all movements seemed to be present but weak. Each day the muscles gained power, and after ten days there was little appreciable difference between the two sides of the face when she showed her teeth; and by this time, too, she had regained control over the bladder.

She insisted on leaving hospital seventeen days after the second operation. She could then walk without assistance, and had quite good power in all the muscles of the arm; there was, however, still some ptosis of the right eyelid, dilatation of that pupil, and incomplete co-ordination in the movements of the eyeball with those of the left eyeball. She promised to return and report progress, but failed to do so.

Probably the first decompression operation relieved an oedematous condition of the brain, and it certainly saved her life. The condition previous to the second operation can hardly have been due to oedema, as it was very localized—practically to the arm and face centres. But whatever the condition may have been the improvement after wide exposure of the Rolandic area was strikingly rapid.

Shanghai. N. HAY BOLTON, M.D., F.R.C.S.E.

from December, 1891, to February, 1892, taking part in the capture of Tambi and Tamatava, and receiving the Ashanti medal with a clasp.

BRIGADE SURGEON HENRY JOHN HUGHES LAWRENCE, R.A.M.C. (retired), died at Quedgeley Lawn, Gloucestershire, on November 23rd, aged 86. He took the diploma of M.R.C.S. in 1852, and became Fellow in 1866. He entered the army as assistant surgeon on February 24th, 1854, spent most of his service in the Grenadier Guards, and retired on June 21st, 1885, with the honorary rank of brigade surgeon. He served in the Crimea in 1854–55, and took part in the siege of Sebastopol, receiving the medal with two clasps and the Turkish medal. Over thirty years later he served in the Sudan, at Suakin, receiving the medal and clasp, with the Khedive's bronze star.

The Services.

EXCHANGE.

CAPTAIN R.A.M.C.(T.), M.O. Battalion R.E., one year in France, desires exchange to Ambulance Train (in England preferred).—Address, No. 4993, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Universities and Colleges.

UNIVERSITY OF OXFORD.

THE following candidates have been approved at the examination indicated:

SECOND B.M.—*Materia Medica and Pharmacology:* H. Burford, G. Cowie, F. B. Dutton, R. B. Hervey-Wyatt, R. W. Lush, K. A. I. Mackenzie, T. Patterson, G. H. Rossdale, H. W. Toms, E. A. Woods. *Pathology:* E. A. Crook, T. Patterson, J. J. Savage, G. K. Stone, J. P. S. Walker. *Forensic Medicine and Public Health:* H. E. Bamber, E. F. Creed, R. B. Hervey-Wyatt, K. A. I. Mackenzie, S. W. F. Underhill, H. StH. Vertue, C. D. Wood. *Medicine, Surgery, and Midwifery:* H. E. Bamber, W. Burridge, E. F. Creed, G. I. Evans, K. A. I. Mackenzie, G. H. Rossdale, S. W. F. Underhill, S. C. Varley, H. StH. Vertue, A. L. Watts, C. D. Wood.

UNIVERSITY OF CAMBRIDGE.

THE following candidates have been approved at the examinations indicated:

THIRD M.B.—*Part I, Surgery and Midwifery:* D. J. Batterham, D. C. Beaumont, A. D. Haydon, B. B. Jareja, G. M. Kendall, G. L. Maule, V. C. Pennell, D. W. R. Richardson, F. A. Williamson.

Part II, Medicine, Pathology, and Pharmacology: C. H. Crawshaw, H. W. Featherstone, A. D. Haydon, H. G. G. Jeffreys, G. M. Kendall, C. F. Mayne, A. Orr-Ewing, A. A. Prichard, N. S. Tirard.

M.C.—W. H. C. Romanis.

Dr. Lloyd Jones has been appointed Demonstrator in Medicine.

UNIVERSITY OF LONDON.

THE following candidates have been approved at the examinations indicated:

M.D.—*Branch IV (Midwifery and Diseases of Women):* F. C. Schuler. *Branch V (State Medicine):* Ethel M. Minett, Laura G. Powell, R. H. Wilshaw.

M.S.—*Branch I (Surgery):* C. J. Marshall (University Medal).

UNIVERSITY OF DUBLIN.

TRINITY COLLEGE SCHOOL OF PHYSIC.

THE following candidates have been approved at the examinations indicated:

FINAL MEDICAL, PART I.—*Medical Jurisprudence and Hygiene, Materia Medica and Therapeutics, Pathology:* *H. L. Parker, *P. B. Moloney, L. Albertyn, S. C. Mitchell, J. M. Hill, E. E. Rollins, W. V. Pellissier, W. Sweetman, P. J. Swanepoel, P. A. Dormer, F. Gill, J. Posner, Rita Henry, G. Marshall, J. G. Bird, T. H. R. McKiernan, †W. A. Shannon, †E. R. Tivy.

PART II.—*M.B.:* J. P. Macnamara, Clotilda B. Bevis, J. G. Bird, T. P. Chapman, E. Parker, M. C. Dippenaar, J. J. Keatley. *B.Ch.:* *Clotilda B. Bevis, *F. J. Smith, W. F. Wicht, P. Rock, A. F. Grimbly, W. Garde-Browne, J. P. Macnamara, E. Parker, G. Marshall, H. S. Campion, J. T. Westby, T. G. Roche. *B.A.O., Midwifery and Gynaecology:* W. P. Lubbe, A. H. Davidson, Meta G. Jackson, M. C. Dippenaar, H. J. Rice, S. A. Clark, J. A. W. Cullen, F. W. P. Sullivan, T. E. Hill, H. Banks, P. J. Swanepoel, A. G. Wright, W. J. Hamilton, W. J. McClintock.

*High marks. † Omitting pathology.

DIPLOMA IN PUBLIC HEALTH, PART II.—G. E. Palmer.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH.

MR. DODBALLAPUR SIVAPPA PUTTANA, Dodballapur, India, has been admitted a Fellow.

LONDON SCHOOL OF TROPICAL MEDICINE.

THE following candidates have been approved at the examination held at the end of the fifty-second session:

R. D. Sabnis, Lieutenant-Colonel W. S. Sharpe, R.A.M.C., L. D. Parsons, G. H. Dart, F. Barretto, H. E. Ekanayake.

Medical News.

AT a meeting of the Röntgen Society on Tuesday next, at 8.15 p.m., at the Institution of Electrical Engineers, Victoria Embankment, Mr. C. A. Schunk will give an account of a spectroscopic investigation of some sources of ultra-violet radiation.

HEREDITARY nobility has been conferred on Dr. Wilhelm von Waldeyer, Professor of Anatomy in the University of Berlin, on the occasion of his 80th birthday.

THE *Morning Post* states that the University of Malta has conferred the honorary degree of M.D. upon Dr. A. E. Garrod and Dr. H. H. Tooth (both of St. Bartholomew's Hospital), Mr. William Thorburn of Manchester, and Mr. C. A. Ballance of St. Thomas's Hospital as a mark of its appreciation of the humanitarian work performed by them. All these gentlemen are serving in the Army Medical Service with the temporary rank of colonel.

THE Local Government Board notifies that at the instance of the Insurance Commissions chief administrative and technical officers of approved societies and insurance committees have been added to the list of certified occupations subject to the recommendation of the Insurance Commission in each instance, but the Commission will not, save in wholly exceptional circumstances, recommend any man under thirty years of age found fit for general service or for garrison duty abroad.

THE Professional Classes War Relief Council, of which the Lord Mayor of London is president, seeks to assist the families of professional men and women who are in distress through the war. The three main branches of its work are to help in the education of children, to train youths and girls for suitable careers, and the maintenance of a maternity home for the wives of professional men who are serving their country. It appeals for subscriptions at this season. They should be sent to the treasurer of the Council, 13 and 14, Prince's Gate, S.W. Any gift may be allocated to any one of the special objects mentioned.

AN advanced course of lectures on infant care for nurses, midwives, voluntary health workers, and mothers has been arranged by the National Association for the Prevention of Infant Mortality and for the Welfare of Infancy. The lectures will be given on Mondays, beginning on January 8th, at the house of the Royal Society of Medicine, at 3 p.m., and on Thursdays at the same hour at the St. Marylebone General Dispensary, 77, Welbeck Street, W. The earlier lectures will be given by Lady Barrett, M.D., M.S., Mrs. Shepherd, M.B., Mrs. Scharlieb, M.D., Dr. Amand Routh, Dr. Eric Pritchard, and Dr. Frederick Langmead.

AT present the University of Chicago has no medical school of its own, though it has an agreement with the Rush Medical College. We learn from the *Medical Record* that the General Education Board and the Rockefeller Foundation have announced the appropriation of £400,000 for the establishment of a medical department in the university. The university will give a site valued at £100,000, and will raise a further sum of £660,000; in addition the present plant of the Presbyterian Hospital, valued at £600,000, will be placed under the control of the department. The staff for clinical teaching and laboratory work will consist wholly of full-time men. Laboratory buildings and a university hospital with its own laboratories and an out-patient department will be provided. The new school will provide for 300 students, all of whom will be required to have an academic degree before admission. It will also supply facilities for post-graduate work.

ON November 5th Professor Sigalas, Dean of the Medical Faculty of Bordeaux, with other members of the professorial body, received a deputation of the Spanish intellectuals who have recently visited France. In addressing them, Dr. Sigalas referred to the difficulties in the work of the faculty caused by the war. Ninety-five per cent. of the students and many of the professors were with the armies; those who remained behind gave their time to attendance on the wounded and to teaching. In the *Livre d'Or* of the faculty were already inscribed the names of thirty-five dead. Twenty members had received the decoration of the Legion of Honour, thirty the Military Medal, and nearly three hundred the War Cross. Dr. Odón de Buen, Professor of Zoology in the University of Madrid, said the war was waged against the common enemy of all civilized nations. Behind the war zone there were soldiers of peace who carried on their precious work in full intellectual communion with their Spanish brethren. The Universities of Bordeaux and Toulouse were sisters of that of Madrid.