quadriceps opened. January 20th, 1917, amputation through mid-thigh. Transferred April 4th.

Case 26.—4778. Admitted December 13th, 1916. Gunshot wound of left knee; infected. Fractured patella. Wounds excised on admission. December 20th, lateral incision into joint; washed out with saline; no drainage. January 26th, 1917, wounds healthy, granulating. February 7th, collection in calf tracked down from popliteal space under outer head of gastrocnemius; opened by three transverse incisions. April 7th, healed; slight voluntary movement. Transferred.

Case 29.—168 (O). Admitted November 20th, 1916. Gunshot wound of right knee; infected. Amputation through mid-thigh the following day. Recovery.

Case 30.—6919. Admitted May 10th, 1917; wounded the same day. Gunshot wound of left knee. Joint distended; wounds lacerated, through-and-through; entrance outer side ligamentum patellae; exit behind semimembranosus tendon. May 11th, wounds excised; arthrotomy; turbid fluid. Transverse incision above patella. May 24th, apyrexia; local condition satisfactory. June 8th, healed; still on splint. July 1st, discharged; fair and increasing movement in joint.

Case 31.—7072. Admitted May 14th, 1917; wounded May 11th. Through-and-through wound from outside; infected. Operation on day of admission. Wounds excised; loose fragments of head of tibia removed; transverse incision above patella; no drainage tubes, no sutures. May 18th, local and general condition satisfactory. May 24th, apyrexia; wounds clean. June 9th, wounds healing; joint quite healthy. August 6th, good range of voluntary movement in joint.

Case 32.—7080. Admitted May 14th, 1917; wounded the previous day. Single wound to outer side of patella; joint distended. Operation May 15th. Wound excised; foreign body removed; arthrotomy. Joint full of turbid blood; bacteriological report, staphylococcal infection. May 24th, general and local condition good; wounds healing. June 8th, normal progress. July 22nd, fair voluntary movement in joint.

Case 33.—6953. Admitted May 12th, 1917; wounded May 10th. Bullet wound from distance of 10 metres. Fractured tibia and fibula; septic. Arthrotomy; removal of bone fragments; three Carrel's tubes. May 16th, septic condition persists. May 24th, some improvement, local and general. June 4th, Amputation through mid-thigh. Recovery.

Case 34.—See text above.

Case 35.—See text above.

Case 36.—7403. Admitted May 26th, 1917; wounded May 23rd. Grenade wounds both thighs. Three wounds on outer side of right thigh, one involving knee-joint. Operation May 27th. Wounds excised; knee wound excised to joint; fragments of fractured patella removed; no foreign body found. Transverse incision above patella; no drainage, no sutures. June 8th, knee-joint satisfactory; some discharge from wound on outer side of ligamentum patellae. No oedema of joint structures. August 10th, wounds healed; slight voluntary movement in knee-joint.

Case 37.—7617. Admitted June 7th, 1917; wounded June 5th. Gunshot wound of left knee. Entrance on inner side, fracturing anterior aspect of femoral articular surface. There is also simple fracture of middle of shaft of femur, without direct relation to gunshot wound. Transfer notes say: "Arthritis purulenta, phlegmon incipiens; arthrotomia facta." Tube and gauze in the joint on admission. June 8th, tube and gauze removed; transverse incision above patella; joint "very septic." No drains of any sort inserted. The limb fixed on a Wallace-Maybury splint and elevated. June 25th, irregular pyrexia until 20th, since then apyrexia; wounds healthy. August 10th, patient goes about on crutches. Wounds healed; slight movement in knee-joint. About a quarter of an inch shortening of limb.

Case 38.—9030. Admitted July 22nd, 1917; wounded July 20th. Single contused and septic gunshot wound on outer side of right knee; skiagram shows foreign body (portion of shell) above patella and in front of femur. Patella fractured. Temperature 101°. July 23rd, operation. Wound excised, including wound of capsule and synovial membrane. Loose fragments of patella removed. Transverse incision above the patella; foreign body removed; joint full of turbid blood. Suture of excised wound in synovial membrane with catgut. No other sutures. August 4th, temperature fell to normal two days after operation and has remained so. Wounds now healing; no oedema of joint structures.

THE (American) National Association for the Prevention of Tuberculosis, in co-operation with the surgeon-general of the army, the Y.M.C.A., and other agencies, has drawn up a plan for a military anti-tuberculosis campaign. The name of every man discharged from the army on account of tuberculosis will be sent to the various State organizations and health boards so that the case may be followed up. The association is also co-operating with the surgeon-general to help the Government in providing the necessary sanatoriums. The educational part of the programme includes the supply of a number of stock lectures with lantern slides, and a number of special tuberculosis exhibits with moving picture films will be sent to the camps.

THE PREVENTION OF THE SPREAD OF EPIDEMIC DISEASE AT SCHOOLS.

BY

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EPIDEMIC diseases at schools, especially measles, are a constant source of anxiety to all masters and doctors. In the early part of last year epidemic disease assumed grave proportions, and was of unusually severe type at many of the schools, even causing serious loss of life.

Much care and thought has been spent on combating these outbreaks, but, in my opinion, too little attention has been paid in recent years to the study of their prevention. In any epidemic it is those who have been exposed to the infection who should be dealt with, and any measure which can limit an outbreak in a school by checking the development of the disease in such "contacts" and probable "contacts" deserves the closest consideration.

In 1915 Lieut.-Colonel M. Gordon was appointed to organize a special department to deal with the investigation and treatment of cerebro-spinal meningitis. One of the most serious problems presented was the treatment of carriers, investigations having shown that a considerable number of soldiers, though not suffering from the disease at the time, had the meningococcus, often in large numbers, in the naso-pharynx. Many instances occurred in which such apparently healthy individuals conveyed the disease to others presumably possessed of less powers of resistance. To disinfect or to render harmless these carriers Colonel Gordon and his staff, after much experimental work, introduced a steam spraying apparatus designed by Major Hine, the disinfecting agent used being chloramine-T. The method was fully described in his paper in the BRITISH MEDICAL JOURNAL, November 18th, 1916; since then the apparatus has been greatly improved and enlarged. Chloramine-T was superseded by a zinc sulphate solution, as this was found to be at least as efficacious and better tolerated by most individuals. In addition to the inhalation of the medicated steam spray, Colonel Gordon introduced a system of nasal douching and of gargling with potassium permanganate solution in normal saline, which was both simple and effective. The solution is poured into the palm of the hand and snuffed up one nostril, the other being closed with the finger, and the process repeated with the other nostril. The fluid which has passed down the naso-pharynx is spat out. The patient is then instructed to gargle thoroughly with a fresh quantity of the fluid.

Although originally devised for the treatment of carriers of the meningococcus, it was obvious that the spraying method might be useful in the prevention of other infectious fevers, and, so far as I know, its first application was on a transport ship in which measles had broken out and a severe epidemic appeared to be inevitable. The results of the treatment were most striking—no further cases occurred.

It occurred to me that it would be important to apply the same methods to the prevention of epidemics of various infectious fevers in schools and elsewhere. The first opportunity which I had of trying the efficacy of the nasal douching was at the 1st London General Hospital. In a large and overcrowded ward of forty-six beds a soldier was admitted on December 5th, 1917, with fever and bronchitis. Three days later he developed typical measles. All the patients on that floor (about 100) were put in quarantine, and orders were given that all patients and nurses on that floor were to nasal douche and gargle twice daily (a 1 in 4,000 solution of potassium permanganate in normal saline was used). On the fourteenth day one fresh case occurred in a V.A.D. nurse, who, as it turned out, had been the only person on the floor who had not carried out the orders. No subsequent cases arose. Dr. Mouncey Atkinson, the resident medical officer, who very ably superintended the carrying out of these measures, has reported to me that in every case which has occurred in the hospital since then these precautions have proved efficacious. No contacts have developed the disease with the exception mentioned above.

Apparatus for steam spraying is being installed at various naval and military centres and at Osborne and

Dartmouth Naval Colleges. One has been fitted up at St. Bartholomew's Hospital under Professor Andrewes's supervision, and has already proved useful in the prevention of the spread of epidemic disease amongst the resident staff and nurses.

With the approval of the Medical Research Committee and with the kind assistance of Major Hine, I have been able to fit up at one of the public schools an experimental boiler for steam spraying; with this a 1½ per cent. zinc sulphate solution is employed. At the same time a simple routine of nasal douching and gargling is being carried out with 1 in 4,000 potassium permanganate. A nasal glass tube or irrigator is used instead of the snuffing method mentioned above. With the co-operation of the head master and the assistance of the school doctor and of the matron we are making observations which are already highly gratifying. Although it is too early to draw definite conclusions as to the value of these measures, I may say that already cases of measles, chicken-pox, and rubella have occurred during this term, and in no instance has any secondary case developed. I hope to be able to publish the results of our work at an early date.

My object in drawing attention to these methods of preventive treatment is that a great amount of public and private money is wasted by the frequent outbreaks of epidemic disease in schools, in addition to the loss of time to the boys through the dislocation of their work. In institutions where it is found to be impracticable at present to install a steam spraying apparatus I would urge the trial of nasal douching and gargling, which there is reason to believe will prove of great utility.

I wish to acknowledge my indebtedness for help given by the Medical Research Committee, and Lieut.-Colonel Gordon and Major Hine.

REFERENCE.

¹ Medical Research Committee Report, 1916-17.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

QUININE IN THE TREATMENT OF ANAL FISSURE.

In the present circumstances it seems more than ever desirable to record, for the use of other practitioners, any slight advance in treatment which will save time and trouble to patient and doctor.

A typical case of anal fissure came under my care and refused operative treatment. There were tuberculous glands in the neck, a pile, and a fissure a quarter of an inch deep extending upwards from the base of the pile for more than an inch and a half. After trying the usual palliative remedies without result, and remembering the granulating power of quinine, I packed the fissure with quinine hydrochloride (about five grains) after swabbing with cocaine solution. This treatment was repeated on each of three days. In twenty-four hours the surface showed well-marked granulations, and the patient's symptoms were much relieved. She slept all night after having had pain, severe enough to prevent continuous sleep, for ten days.

After the third day that part of the fissure within reach was looking healthy, but the patient complained of pain higher up. I therefore prescribed enule cocaine gr. ½, to be followed in a quarter of an hour by enule quinine sulphate gr. 5. These were used on four days, and by that time the fissure was quite healed and all pain and symptoms had disappeared; there has been no recurrence.

The extension of this method of treatment to bullet wound and other sinuses suggests itself.

Oxford.

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A CASE OF MAGGOTS IN THE NOSE.

In October, 1916, while acting as nose, throat, and ear specialist to a general hospital in India, the following case came under my care:

A B., aged 55, complained of a headache, ascribed to a debauch on the previous evening. The next day the headache continued; he complained of pain in the nose and left ear and had an attack of epistaxis, more copious from the left than the right nostril. During the day he had several other attacks and

the headache became much more severe. When admitted to hospital both sides of the nose were full of resuscitated diet, which, it was apparent, did not originate from any bleeding vessel in Kiesselbach's area on either side. There was no history of previous nasal trouble. The left lobe of the liver was somewhat enlarged. The patient was kept quiet in bed and given calcium lactate, and the next morning found about thirty maggots on his pillow which had evidently fallen or been sneezed out of his nose during the night. The nostrils were thoroughly painted inside with liquid vaseline several times a day, which has the effect of occluding the respiratory organs of the insects. During that day and the next more larvae came away, and the bleeding entirely stopped. In all, some fifty to sixty larvae were counted, and the pathologist to the hospital was able to hatch flies from them in artificial media. The patient slowly recovered his strength, and three weeks later the headache had disappeared, and he was walking about.

The nose presented an extraordinary appearance. The greater part of the bony septum was destroyed, as also the turbinate bones on either side. It was extremely difficult, even with the most scrupulous care, to keep the nostrils free from foul-smelling crusts; well-marked atrophic rhinitis was present and persisted. There were, however, neither signs nor symptoms of sinus complications, and the patient was discharged from hospital for light duty at the end of six weeks.

The difficulty of diagnosis and the success of thorough early treatment appear to me to be the outstanding features of this case. It is probable that the insect obtained access to the nostrils and deposited its ova during a period when the man was lying outside in the open air intoxicated. Though most cases of this nature seem to occur in patients who suffer from some pre-existing pathological condition of the nose such as syphilis or some form of atrophic rhinitis, there was no previous history of either condition in this instance. Judging from a certain number of recorded fatal cases in which there appears to have been an invasion of the cranial cavity through the cribriform plate of the ethmoid, followed by intracranial sequelae, or from those which have ended fatally in septicaemia, this patient seems to have had rather a fortunate escape than otherwise, in spite of the havoc wrought in his nose by the maggots.

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Reports of Societies.

SELECTION OF CANDIDATES FOR THE AIR SERVICE.

At a meeting of the Medical Society of London on March 11th, the President, Sir STCLAIR THOMSON, being in the chair, Surgeon H. GRAEME ANDERSON, R.N., attached R.N.A.S., read a paper on the selection of candidates for the air service. He suggested that for eliminating the unfit a special flying school should be instituted where border-line pupils could be instructed in flying under patient and sympathetic instructors, and with a medical officer specially interested in aviation carefully recording the results. In selecting candidates for the air service a sound constitution free from organic disease was looked for, and a fairly strong physique, in order to withstand altitude effects, such as cold, fatigue, and diminished oxygen. Normal hearing and good muscle and equilibrium sense were essential, and good eyesight was of the greatest importance. Next to vision the question of temperament was most important. The ideal aviator must have good judgement, be courageous, and not upset by fear, although conscious of the perils of his work. He must be cool in emergencies, able to make careful and quick decisions, and act accordingly. He must be ever alert, as mental sluggishness in flying spelt disaster. An aptitude for flying was found most commonly amongst those used to playing games and leading an outdoor life. Racing motorists had not made the best pilots. Candidates should be made to undergo a surgical examination, a medical examination, and a special sense examination, preferably carried out by experts in each line, and the final selection made on the total results by a medical selection committee.

Surgical Examination.

The age should be between 18 and 30 years, 24 years being about the best, though much depended upon the physiological age. Height did not matter much, but the candidate should not be under 5 ft. 2 in. As to weight, the lighter the candidate the better, but this did not