the cavity irrigated every two hours. Hitherto I have used eusol, but no doubt other solutions will be as efficacious.

If the working of the cannula is tested in the *post-mortem* room, it will be seen that a fine spray of fluid is thrown in every direction on to the lung and chest wall. The irrigation causes no distress; a full ampoule of fluid has been run through the pleural cavity at one dressing without any inconvenience to the patient. As the lung expands the point of the cannula is pressed against the chest wall and causes some pain; it should then be removed. For this reason it is desirable to insert it at some little distance from the anterior and upper limits of the cavity, otherwise it may have to be taken out before the infection is controlled.

It is too early yet to speak of actual results. The impression I have gained from a limited number of cases, and these all late, with severe infection, is that the infection is quickly controlled, that the lung expands well, and that the general condition of the patient improves very rapidly. Certainly at present the results of drainage of a badly infected haemothorax are not good. (I refer now to cases which cannot be treated by immediate closure.) Many cases discharge for long periods, and only heal after much falling in of the chest wall, or after wide resection of ribs—in any case with a greatly damaged and comparatively useless lung, and a deformity of the chest and spine.

I have not yet had a case in which there seemed any necessity for secondary closure of the chest. If the lung did not expand after the pleural cavity had been rendered sterile, or approximately so, by irrigation, I should not hesitate to reopen the wound, free the adherent lung, and close the chest.

GUNSHOT INJURIES OF THE ELBOW-JOINT: TREATMENT BY EARLY EXCISION.

BY

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INJURIES inflicted in the region of the elbow-joint of necessity vary with the nature of the missile, the degree of sepsis, and the amount of damage to bone and soft parts.

The experience of civil practice in connexion with fractures involving this joint serves to show how even a slight injury may interfere with and cause permanent disability and restriction of function. The ultimate results of injuries to the elbow-joint caused by gunshot wounds cannot be regarded as satisfactory, as in the majority of cases there is complete ankylosis, and not always in the most favourable position. Several such cases have recently come under observation at the base. Even if the wound remains aseptic, bony outgrowth will in the long run inhibit movement to a considerable degree. It is, however, the regrettable experience of most surgeons that comparatively few gunshot injuries remain aseptic, and this is particularly true in the case of joints.

When the bones are badly comminuted, especially the lower end of the humerus, and with it perhaps also the olecranon process of the ulna, results are deplorable—sepsis spreads in the surrounding parts, which become oedematous and swollen, the synovial membrane is infected, drainage is difficult and unsatisfactory, and the patient rapidly shows signs of septic absorption. Whatever method to combat infection be undertaken the results are the same—the bone goes on necrosing, and accurate apposition of fragments is out of the question, a long and tedious illness results, and one not devoid of risk to the patient—risk of both life and limb.

Primary excision of the elbow for tuberculous disease, fracture dislocation, and the like yields good results, and it would therefore appear feasible that equally good results might be obtained by early excision of wounded joints. The degree of sepsis in the surrounding tissues forms no contraindication to immediate excision—in fact, experience has shown that the free drainage immediately provided by the excision of the joint is coincident with a rapid fall in pulse and temperature, and the patient makes strides towards recovery, and is soon able to be up and about.

The question arises, How much bone is to be removed to secure a satisfactory new joint? but this, of course, will largely depend upon the nature of the primary injury.

A large number of cases of gunshot wounds of the elbow-joint with little or no damage to heads of radius or ulna have passed through my hands at a base hospital. In an early series of cases the classical excision of the joint was performed, removing the humerus just above the level of the epicondyle, the whole of the head of the radius and ulna at the same level, but, as was to be expected, movement was long in returning, and the forearm muscles had to be re-educated. A more satisfactory functional result can be obtained by removing less bone and interfering less with muscle attachments.

In a late series the lower end of the humerus was removed above the level of the epicondyles and rounded well off, preserving the radius and ulna intact and not interfering with the attachment of triceps to ulna if the latter was not already damaged. The incision employed was the angled incision of Kocher, beginning at the lateral epicondylar ridge two or three fingerbreadths above the joint level, pressing vertically down to the head of the radius and thence along the lateral border of the anconeus to the dorsal border of ulna about three inches below the tip of the olecranon, and finally curving medially over the ulna. In certain cases the incision had to be modified to suit the wound existing, but as far as possible the angled incision was employed to avoid damage to important structures.

The treatment naturally varied, depending upon the degree of sepsis present. If severe the wound was left widely open and treated with eusol gauze or after the method of Carrel-Dakin, the arm being fixed to a splint at right angles until sepsis subsided and the surrounding parts returned to normal. In milder cases the wound was partially closed with sutures, while the last few cases which came to the base early were excised, bipped, and closed after the method of Rutherford Morison, with excellent results.

The splint is left off as soon as the wound has healed sufficiently and the arm supported with a sling, the patient being encouraged from the first to use his wrist and fingers. At night the arm is extended on a pillow or fixed to a straight or widely-angled splint, if desirable.

The results, even in very septic cases, were surprising, the wounds cleared up rapidly, and the patient was able in all cases in the series to be out of bed at an early date, and movement was encouraged by the end of the fifteenth to eighteenth day. One patient at the end of a month could flex and extend his elbow as well as pronate and supinate his forearm and only a small healing sinus remained. The earlier the excision is performed the more certain is the patient to have a good and serviceable arm with free movement.

The conclusions arrived at from observation of fourteen cases are as follows:

1. Excision of the elbow-joint in gunshot wounds offers the patient the best chance of combating the infection and of a rapid recovery with a movable joint.
2. If excision can be performed without the removal of the heads of radius and ulna, the results are better and more quickly attained.
3. Where possible the triceps insertion should always be preserved.
4. The earlier the excision is performed the shorter is the illness and more perfect the result.

TWO CASES OF ABSCESS OF TESTIS DUE TO BACILLUS COLI.

By W. GIFFORD NASH, F.R.C.S.

THE two cases related in the following notes illustrate a comparatively rare affection and one which has received very scant notice in works on diseases of the genito-urinary organs.*

CASE I.

On February 17th, 1913, I saw, with Dr. L. Gifford Nash of Turvey, Beds, a gentleman suffering from acute cystitis, following a wetting whilst shooting in Ireland. The urine was acid, and contained a fair amount of albumin with a deposit of pus and blood. The Clinical Research Association reported that it also contained a colon bacillus of the *Bacillus lactis aerogenes* type. Under urotropine the cystitis soon cleared up.

* A very complete description of a similar case was given in the *Lancet* of October 4th, 1913, by Mr. W. P. Bonner.

In May, 1913, the patient had a mild attack of epididymo-orchitis whilst staying in Sussex, and also suffered from boils, for which he was treated with a vaccine.

On December 13th, 1913, he was admitted to the Bedford Nursing Home under my care, suffering from high fever and swelling of the right testis and epididymis. The urine contained pus. On December 24th an abscess of the testis was opened, and the body of the testis, which had sloughed, was removed.

On January 13th, 1914, the epididymis was excised and sent to a pathologist, who found a coliform bacillus resembling the *B. pseudo-asiaticus* of Castellani.

A vaccine was prepared and used for a considerable time. Dr. L. G. Nash informs me that there have been occasional mild attacks of swelling of the left epididymis, and that *Bacillus coli* is still present in the urine.

CASE II.

On August 11th, 1917, I saw with Dr. Harrison of St. Neots a married man, aged 27, suffering from acute swelling of the left testis and epididymis. His history was that whilst serving in the army he had an acute attack of swelling of the right testis on May 7th, 1917. About May 20th the swelling was punctured and pus found. On June 1st castration was performed, and he was told that he was suffering from tuberculous disease of the testis. There was no history of urethritis. He left hospital on July 28th, and was discharged from the army.

On July 31st he returned home to his wife and sexual intercourse took place. On August 2nd he had pain in the left testis and slight swelling which progressively got worse. The swelling of the testis was preceded by frequency of micturition.

When I saw him on August 11th there was redness of the left side of the scrotum, and swelling and tenderness of the left testis and epididymis. From the history of the acute attacks in May and August I diagnosed an infection with *Bacillus coli*, and as he had lost his right testis I advised incision of the left testis with a view to letting out the infected products and saving some part of the testis. The patient was removed to the Bedford Nursing Home, and on August 12th I incised the scrotum and also the testis and epididymis. The testis had commenced to slough. Pus from the testis was sent to Dr. Eastes's pathological laboratories, and it was reported that the material contained the *B. coli* and *proteus*. A vaccine was made and twelve doses were given.

On October 25th Dr. Harrison reported that the wound had healed, the testis was atrophied, and the sexual functions were a good deal impaired.

REMARKS.

The cases related were both due to infection of the testis and epididymis by bacilli of the colon type. It is probable that the infection gained entrance along the vas deferens, as in both cases the inflammation of the testis was preceded by bladder disturbance.

In the diagnosis of this condition we must think of acute gonorrhoeal epididymitis, acute tuberculosis of the epididymis, and acute torsion of the testis. In both cases the occurrence of gonorrhoea was denied, and there was no history of any urethral discharge. Gonococci were not found in the urine or in the epididymis and testis. Further, gonorrhoeal epididymitis very rarely suppurates. In neither case was there any evidence of tubercle in the genito-urinary tract, and the acute onset and rapid sloughing of the testis did not resemble tuberculous disease. Torsion of the epididymis was not present in either case.

As to treatment, I believe that the use of a vaccine and early incision of the inflamed structures give the best chance of saving the testis.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

REFERRED SYMPTOMS IN COMMENCING INGUINAL HERNIA.

I HAVE examined 18,000 English and German soldiers, and have been much struck with a common symptom amongst a considerable number—namely, pain in the region of one costal margin, increased tension of the upper segment of one or other of the rectus muscles, a general feeling of discomfort in the upper part of the abdomen without any definite physical signs of indigestion or other intra-abdominal trouble. If such a case presents itself, and if the patient has been standing or walking for a couple of hours, and equal pressure is applied over both internal abdominal rings (with the thumb of each hand), the facial expression will show uneasiness, or actual pain may be localized over the ring on the same side as the abdominal pain for which advice was sought. Over and over again a cure of the symptoms has been obtained by the application of a lightly fitting truss.

The anatomical reasons to my mind are quite plain. The nerve supply of the intestines is from the solar plexus, situated chiefly round the crura of the diaphragm, and that of the abdominal muscles is through the lower intercostals.

The diagnosis to be correct must not depend upon asking if there is pain in a particular locality in the iliac region. If there is a facial expression of discomfort, or actual pain, ask where. The answer will mention the ring on the same side as the abdominal symptoms. This method of examination will exclude malingerers, and any leading question will cause in all probability a false diagnosis.

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A CASE OF PORENCEPHALY.

R. I. M. was admitted into the Jamaica Government Lunatic Asylum on April 13th, 1914, with a history of epilepsy. She was a well-developed woman, aged 37, with right-sided hemiplegia. The right upper limb was flexed at the elbow, wrist, and finger-joints, a very limited range of movement being left. The muscles of the limb were quite wasted. The right lower limb was equally affected as regards wasting and limitation of movement. She could neither spit nor whistle, and saliva was continually dribbling from her mouth. She was suicidal but not dangerous. There was no instrumental delivery at birth. She began to have fits when 16 months old. The paralysis was noticed at the time, and she attended school for a period, but, owing to the severity of the fits, had to be taken away. No one of her relatives has been insane.

During her stay in the institution she had fits periodically, and suffered from recurrent attacks of pellagra, otherwise she enjoyed fairly good health. For six months before her death she had fits, but she gradually began to get very emaciated, and had to be confined to bed up to the day of her death, September 2nd, 1917.

Post-mortem examination revealed the following: The skull was very thick, dense, and heavy. The dura mater was thickened, fibrous, but not adherent to the calvarium. The pia arachnoid was opaque and oedematous. *Brain*: There was a notable disproportion between the two sides; right hemisphere—simple convolitional pattern, congested, no wasting; left hemisphere—simple convolitional pattern, pale, general wasting. On section from the anterior to the posterior pole there was a well-marked cavity containing straw-coloured fluid which was not turbid. When the fluid was let out the cavity was smooth, there being a complete absence of the basal ganglia or any other vestige of brain matter. Lying across the floor of the cavity were remnants of the choroid plexus. There was an excess of cerebro-spinal fluid. The brain weighed 895 grams. Examination of the cerebellum, pons, and medulla showed nothing abnormal. No morbid changes calling for special note were found in any of the other viscera.

For permission to publish particulars of this case I am indebted to Dr. D. J. Williams, Medical Superintendent.

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Reports of Societies.

FARM COLONIES IN THE TREATMENT OF TUBERCULOSIS.

A DISCUSSION on this subject was opened at a meeting of the Tuberculosis Society on January 21st by Sir R. PHILIP. He stated that it was nearly twenty years since in the BRITISH MEDICAL JOURNAL (July 23rd, 1898), he had made a plea for the establishment of farm colonies for tuberculous patients. It was founded on the experience of the Royal Victoria Hospital, Edinburgh, which showed that in a considerable number of cases complete arrest of tuberculosis could not be attained within the ordinary time limit of sanatorium residence, nor even when it was considerably extended, and that work of a definite