It will be observed that in all of the three cases in which a bacteriological examination was made, the causal organism of the metastatic infection was the *B. aerogenes capsulatus*. Four of the secondary lesions occurred in the buttocks, and it would seem—as Kenneth Taylor pointed out in his two cases—that continuous pressure, due to the patients' posture, was an important factor in the localizing of the metastatic infection. Whether the intravenous injection of eusol in Cases III and IV was contributory to their recovery it is impossible to say. In Case V there was recovery without the injection of eusol, but the remarkable feature of this case was that, despite the evidence of a systemic infection with the *B. aerogenes capsulatus*, there was an absence of marked toxæmic symptoms.

It will be noted that in the fatal cases, I and II, the intravenous injection of eusol was given when the secondary lesions were already manifest and the patient obviously moribund.

In the successful cases III and IV the intravenous injection of eusol was given early. The metastases occurred late, and recovery followed with the minimum of surgical intervention. In Case III the extensive gas gangrene in the right buttock and thigh occurred five days after amputation of the right arm. Only a small incision was made for the secondary lesion, yet the infection became localized, and a muscle slough separated spontaneously. In Case IV the metastatic infection in both buttocks developed a week after the amputation of the gangrenous feet. Here again the operation for the secondary lesion was limited, and no attempt was made to extirpate the infected muscles. It can only be suggested that in these two cases the intravenous injection of eusol delayed metastasis, and that prior to the secondary lesions the patient had time to acquire an immunity sufficiently powerful to overcome the disease.

I wish to express my thanks to Captain Max Page, R.A.M.C.(S.R.), for his help and advice, and also to Lieutenant-Colonel S. G. Butler, D.S.O., R.A.M.C., for his kind permission to publish these cases.

REFERENCES.

¹ BRITISH MEDICAL JOURNAL, September 16th, 1916. ² *Lancet*, December 23rd, 1916. ³ *Journal of the Royal Army Medical Corps*, December, 1916.

A NOTE ON SKIN GRAFTING.

BY

D. G. GREENFIELD, M.D., F.R.C.S.

SEVERAL successful cases of skin grafting during the past few weeks have prompted the writing of this note. Four large wounds have been treated by the method described. In three the wounds have been covered by firmly-growing skin at the end of a fortnight. In one only a few small islands of skin grew.

Failure follows many cases of skin grafting owing to the loosening of the grafts by excessive discharge, or to their displacement by the shifting of a dressing or its removal. The employment of oiled silk, celluloid or foil next the grafts only lessens the liability. The absence of a dressing does away with the second risk and minimizes the former, since much less discharge occurs when the wound is open to the air. There may be some greater risk of sepsis, but the other advantages outweigh this. A gauze cage can be made to keep off flies if the part is not covered by bedclothes. Several procedures recommended in skin grafting are open to criticism. It is said that grafts should overlap each other and the margin of the wound. Epithelium will adhere to a granulating surface, but not to epithelium. Consequently, the overlapping edges die from lack of nourishment. There being no spaces between the grafts there is a greater risk of the discharge floating the grafts off. It is often recommended to shave down granulations before applying grafts. This I regard as most undesirable, since it increases the discharge. If the surface is flabby and unhealthy, it is much better to wait till firm new granulations appear before applying the grafts. It may, however, be advisable to shave down the edge of the wound if it be raised and hard. The details of the method used are as follows:

1. The skin from which the grafts are to be cut is cleaned with ether soap. The best site is, I think, over

the ileo-tibial band, as the surface is flat and the skin is not easily moved on the subjacent tissues. Grafts of a uniform thickness are cut easily.

2. The granulations are swabbed with saline solution and dried with aseptic gauze.

3. Under a general anaesthetic a graft about the size of two or three postage stamps is cut with a wet razor. In thickness it should be sufficiently transparent to allow the blueness of the razor to be seen through it. On its removal pin points of bleeding should appear.

4. The graft is slipped from the razor on to the wound, slightly stretched with two fingers, and pressed firmly on. About one-eighth of an inch is left between the grafts.

5. No dressing is applied to the grafts. The patient should be in a position in which he can lie comfortably and the contact of the bedclothes avoided by a cradle.

6. Aseptic gauze is stretched firmly over the surfaces from which the skin was cut. This should be left till it peels off readily. If aseptic, the areas are dry. If any sepsis is present, the pus will soon loosen the gauze. It is difficult to avoid the infection of the skin in some cases.

After the operation discharge accumulates between the grafts and forms in some cases an unpleasant-looking scab. This should not be touched before the lapse of a week, when gentle bathing or fomentations will easily remove it. One reads of grafts which disappear entirely for a few days, after which a fine growth of epithelium can be seen over the surface. This suggests to me failure of all but a few fragments to "take," as happened in one of my cases.

The grafts in the presence of discharge may pucker slightly. This is the reason why I think slight stretching of them in application is useful. If there is any blistering of a graft a day or two after operation it is advisable to snip a small button-hole with a pair of sharp curved scissors. In future, except in a very clean dry wound, I would make such a small opening in any graft above the size of a postage stamp at the time of operation. There is nothing novel in the method used, but it is one which has much to recommend it.

ANOTHER WANDERING SHRAPNEL BALL.

BY

CAPTAIN H. L. GREGORY, R.A.M.C.(T.F.),
GENERAL HOSPITAL, B.E.F.

PROFESSOR ARTHUR KEITH's letter in your issue of February 24th prompts me to record the following case, in which a shrapnel ball entered the body between two ribs and was removed from the common iliac vein:

The sequence of events was, baldly, as follows:

January 9th. Wounded between ninth and tenth ribs, anterior axillary line, right side.

January 9th to 14th. X-rayed at casualty clearing station. Bullet seen in chest.

January 14th. Admitted to No. 26 General Hospital. Bullet seen in chest by x rays.

January 15th. Right hæmorrhax diagnosed.

January 17th. Explored with needle and found sterile.

January 18th. Aspirated. A pint of fluid blood; much cough followed.

January 20th. X-rayed again. Bullet not in chest, but seen in abdomen.

January 25th. X-rayed again. Bullet in same position. Bismuth meal.

January 26th. Pain in right iliac fossa, suggesting appendicitis.

January 27th. Pain and tenderness increasing. Swelling above Poupart's ligament.

January 28th. Operation. Appendix removed; bullet removed from vein.

January 29th to 31st. Increasing pain, distension, and vomiting, followed by death.

There was a gash wound in the front of the arm, which possibly took a little "way" off the bullet. When the patient was admitted the breathing was distressed, necessitating the upright position, and there was frequent cough with fairly copious greenish sputum. There were signs of pleural effusion—dullness, diminished breath sounds, vocal fremitus, and resonance, with displacement of the apex beat to the left. There was ægophony on both sides.

The x rays showed the bullet near the middle line at the level of the anterior end of the sixth rib. It moved obliquely upwards and inwards with respiration, and now and then oscillated quite violently through a distance of about an inch.

Captain D., radiographer to the hospital, suggested that it might be in a bronchus, and it seemed very possible that this was so, thus accounting for the cough and sputum and respiratory distress, though there had never been any hæmoptysis. The x ray, of course, showed the hæmorrhax, which rather obscured the outline of the liver and diaphragm.

After aspiration there was severe paroxysmal cough, air hunger, and distress, lasting about half an hour, but quieted by morphine.

Next day breathing was much easier, and on January 20th, when he was rayed again, the cough was gone.

Now came the surprise; the bullet was no longer in the chest, and on searching the abdomen it was found an inch below and an inch to the right of the umbilicus. Neither Captain D. nor I had at this time heard of bullets wandering about the circulation, so we concluded that it had either been coughed up and unconsciously swallowed, or had passed directly from a bronchus into the oesophagus by ulceration. There was no evidence in support of these hypotheses, but we could suggest no other, and for the next few days the stools were closely scrutinized, but without avail, the bullet remaining where it was. A bismuth meal was watched descending the oesophagus, but no leakage was detected, and there was never any cough or difficulty at meals.

On January 26th temperature and pulse each rose to 100, with pain, tenderness, and resistance to pressure in the right iliac fossa, and a small amount of swelling above Poupert's ligament.

Next day the symptoms and signs persisted, and suggested either intercurrent appendicitis or ulceration of the small intestine in which the bullet was thought to be, possibly held up at the ileo-caecal valve.

At the operation I found the appendix inflamed and removed it. The surrounding coils of intestine were injected and beginning to adhere. I then turned up the caecum and ileo-caecal junction, and felt the bullet behind the peritoneum on the inner side of the ureter and to the outer side of the common iliac artery, and as I thought, vein. I removed it by blunt dissection, together with a large bead of what I thought was rather thick pus, but which may have been fibrin, and was dismayed to find free bleeding follow. This was controlled by pressure, with a retractor, and the rather ragged hole in the vein, which could not be stitched, was plugged with gauze, wrapped in thin rubber, and brought out of the incision in the rectus sheath. The vein below was thrombosed. Unfortunately peritonitis ensued, and the patient died on January 31st.

Post-mortem examination revealed unexpected conditions. The track of the bullet was first followed through the chest wall and diaphragm into the liver; it had left an orange-coloured track three inches long, which led straight into the end of the hepatic vein. There was no sign of bleeding from the liver wound, and merely a film of blood in the chest remaining from the haemothorax. There was general peritonitis, the pelvis was full of turbid fluid and flakes of purulent lymph, and there was a subphrenic abscess on the left side. There had been no leakage from the plugged hole in the vein, but it was firmly thrombosed below.

It will be obvious, I think, how I was misled from the beginning by the supposition that the bullet was at first in a bronchus. It seems now most probable that it was at that time in the right auricle, and that the excitement and disturbance of the aspiration dislodged it into the inferior vena cava, and that its passage through the mouth of that vessel caused the intense respiratory distress referred to above. The mysterious and for some days unexplained immobility of the bullet in the abdomen perplexed us all.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

CARCINOMA OF THE COMMON BILE DUCT WITHOUT JAUNDICE: RAPID DEATH FROM METASTASIS.

RECORDING a case in which a symptom is absent that may be reasonably looked upon as a sheet anchor in the diagnosis often seems to me of doubtful value, and even confusing. On the other hand, a chance reader may find such a case of some utility, because he is engaged in some special study of the particular condition, or because he finds in it a useful warning against over-confidence in the possibilities of accurate diagnosis. For these reasons I venture to publish the following brief notes:

A man aged 38 years, a waterside labourer, came to University College Hospital two weeks before admission, complaining of pains in the right shoulder. He was a dock labourer, and the only point of importance in his history was the presence of a urethral stricture the result of gonorrhoea. The pain in the shoulder was quickly followed by the appearance of a tender, semi-fluctuating swelling, the size of a pigeon's egg, over the right acromio-clavicular joint. A few days later he lost his voice, and eight days before admission developed complete facial paralysis on the left side, which he attributed to exposure to the cold wind when working on a barge.

He was admitted to hospital on November 24th, 1916, and the further point was ascertained that for a week before the above symptoms were complained of he had suffered from neuralgic pains in the right thigh and left side of the abdomen. It was apparent that the man was desperately ill, wasted, and suffering severely. Examination at once excluded any such condition as gonorrhoeal arthritis or multiple gummata. In addition to the tumour already noted a mass was felt in the right rectus abdominis muscle, and rapidly growing masses were also present in the neck, due to involvement of the lymphatic glands. The left vocal cord was paretic. The neuralgic and agonizing pains in the right thigh and leg were clearly due to intermittent pressure. The left facial palsy was complete, with loss of taste on the anterior part of the tongue. Multiple growths afforded the only explanation and death rapidly followed (December 30th, 1916).

There was not the slightest indication as to the primary seat of the neoplasm during life, and this dogmatic statement was supported by the necropsy.

Although there was at no time any trace of jaundice, and in fact any abdominal symptoms apart from the neuralgic pains, the primary growth was situated in the common bile duct, which was infiltrated by carcinoma but the lumen not diminished.

The growth on the right shoulder, which sprang from the right clavicle, reproduced the carcinoma in an intensely active form. Growths were disseminated in the cervical, thoracic, and abdominal glands, in the lungs, peritoneum, and adrenals.

London, W.

F. J. POYNTON, M.D., F.R.C.P.Lond.

Reports of Societies.

THE TREATMENT OF TRAUMATIC AND ARTERIO-VEINUS ANEURYSM.

AT a meeting of the Medical Society of London on April 2nd, Lieutenant-Colonel D'ARCY POWER, President, being in the chair, Colonel CHARTERS J. SYMONDS, opening a discussion on the treatment of traumatic and arterio-venous aneurysm, said that whilst many cases of arterio-venous aneurysm had been submitted to operation since the war began others had remained untreated; it would be very valuable to see both groups, and so modify the views currently held. His experiences had led him to correct some of his former views. The most interesting form of aneurysm was that in which there was a direct communication between an artery and a vein, either direct or by the intervention of a sac. In some the communication was set up within a few hours of the trauma; in others there was considerable delay. He asked for experiences as to the secondary effects of aneurysm, such as were alluded to by Sir George Makins and by Dr. Bernheim of America, especially cardiac and circulatory disabilities. The local conditions in some varix aneurysms were important; in those involving the common femoral artery and the profunda femoris there was enormous dilatation of veins, so that they looked like sinuses running through the muscles. The difficulty in arresting haemorrhage in these was very great. After giving particulars of a number of these he proceeded to discuss the treatment. In aneurysm of the posterior tibial artery the disability was very slight; this was also true for those at the bend of the elbow. When an aneurysm existed at the base of the skull, so that the patient was kept awake at night and had nerve disturbance in consequence, it was advisable to operate. Sir George Makins's view was that aneurysmal varices seldom required operation. He described, by means of diagrams, the various operative procedures which had been devised for aneurysm, and the degree of success which had attended them in his own experience. Gangrene was a serious danger in operations on the common femoral; in the South African war it occurred in 50 per cent. according to Makins. In aneurysms below the middle of Hunter's canal, his experience was that gangrene did not follow ligation of the vessels.

With regard to arterio-venous aneurysms, Makins was strongly of opinion that these should be left for from two to three months, to consolidate and contract and to permit