All cases should be treated at the earliest possible moment. Chloroform is better than other general anaesthetics for this purpose, because it produces definite stages of anaesthesia which can be readily prolonged as required. Cases which have been cured by abnormal experiences, such as an abdominal operation, or a shipwreck, would probably have been cured earlier by suggestion under chloroform.

GUNSHOT WOUND OF SPINAL CORD AND TRACHEA: RECOVERY.

BY

CAPTAIN G. W. THOMPSON, R.A.M.C.,

AND

CAPTAIN G. W. STANLEY, R.A.M.C.

A LIEUTENANT was brought on to the hospital ship *Dongola* at about noon on October 14th, 1915. He was hoisted on deck and conveyed with great care to the officers' ward. He was seen immediately, and found to be in almost a dying condition—blanched skin, pinched expression, and dilated pupils. Respirations were very shallow, and the diaphragm apparently did not move. He was most comfortable in the sitting position, with the chest and shoulders supported; the chin was bent on to the chest. The only history supplied was that he had been wounded in the back two hours before admission. Pituitary extract was given hypodermically, oxygen administered, and hot water bottles freely applied. When the dressings were removed from the neck a gunshot wound was seen in the middle line of the back over the lower cervical vertebrae. The wound was found to go down to the spinal cord, and several loose pieces of bone were removed, and a smooth elongated, partially movable, body detected. This was believed to be a bullet pressing on the spinal cord. "Barker's" solution was injected all round the wound, and what we believed to be the bullet was seized with forceps, and very gently raised; it was found to be attached to the spine. Within two minutes the breathing became deeper and gradually natural, colour slowly returned, and the pulse improved. In half an hour respiration was natural, the pulse fair, and colour good. During manipulation of the partially attached piece of vertebrae air escaped through the wound at each respiration, and as the breathing became stronger each respiration was accompanied by a whistling noise through the wound. The wound and skin were thoroughly cleaned and dressings applied; the trunk and neck were fixed as firmly as possible between pillows in the semi-erect position.

On October 16th we immobilized the neck and back with plaster-of-Paris and adapted aluminium splints, shaped over the head, shoulders, and back. The same day he was transferred to H.M.H.S. *Aquitania* for England. Major Jackson, R.A.M.C., P.M.O. of H.M.H.S. *Dongola*, saw the patient several times with us, and Colonel Mayo Robson, A.M.S., who kindly came on our ship and agreed that the risk in movement, with the neck well fixed, was very small.

There is no doubt that the vertebral column was fractured and a fragment of bone was pressing on the spinal cord, also that the trachea was perforated.

On November 8th we heard from the patient at the 2nd London General Hospital telling us he was convalescent and hoped soon to be about again.

Captain Thompson writes under date May, 1916: Since writing these notes I have met Colonel V. Warren Low, A.M.S., who was attached to H.M.H.S. *Aquitania* as consulting surgeon, and watched the progress of the case on the voyage to England. Colonel Low tells me the patient developed a high temperature with dullness of one lung behind, but these signs cleared up before he reached England.

THE Order of the Nile of the Third Class has been conferred upon Dr. Llewellyn Phillips, Honorary Physician to the Sultan of Egypt.

THE Children's Country Holidays Fund is continuing its work under some difficulties, but managed in 1915 to send away 15,955 children at an expenditure of rather less than as many pounds. Towards the amount the parents contributed over £4,000. The weekly payment for each child had to be raised from 5s. to 6s. The fund, which has its offices at 18, Buckingham Street, Strand, London, W.C., appeals for subscriptions.

EUSOL AND OTHER METHODS OF WOUND TREATMENT.

BY MAJOR C. W. DUGGAN, R.A.M.C.

FROM the appearance of wounds transferred to the Military Hospital, Lincoln, after treatment with eusol, it is evident that a clean, healthy, granulating surface is readily produced by this antiseptic, but having reached this stage one has to admit that the further progress of the wound is delayed by the presence of a watery solution in contact with the wound; and hence recourse is had to various astringents to promote healing.

The reason for this interrupted success is due to neglect of the principle of osmosis without which all treatment is doomed to failure; it has also led to the bewildering number of remedies and methods recently recommended, and to the statement that no single dressing will suit all wounds, or the different stages in the healing of a wound. I have already written on this subject to the effect that the whole question depends on the carrying out of the two principles, namely, antiseptics and osmosis, and keeping these in mind the whole process of wound treatment is a comparatively simple and straightforward one. To fulfil these conditions any dry non-irritating antiseptic may be used; personally I prefer ichthyol; I have used it for more than a year in septic gunshot wounds, and have invariably been satisfied with the results. Glycerine exerts an osmotic action which is superior to all others, and if I were only allowed one drug in the treatment of septic wounds, I would employ glycerine in preference to any other. It is quite unnecessary to vary this treatment at any stage. I have been in the habit of swabbing the wound with pure rectified spirit, but if the patient complains of the irritation I do not insist on continuing its application.

As sepsis and secondary haemorrhage do not occur with this treatment, I am convinced that septic limbs would be saved from amputation. This statement is all the more important in reference to the lopping off of limbs in France, to be followed by a re-amputation in this country—a proceeding which appears to me barbarous in the extreme.

The saline treatment labours under the same disadvantage as eusol—a healthy wound surface is produced which requires the substitution of astringents to induce healing, and even with this change of dressing progress must necessarily be slow. In illustration of these points I quote the two following cases:

A German petty officer had his left arm shattered in a naval action in the North Sea on March 25th, 1916; the arm was removed on his own boat by means of a penknife about 4 in. below the shoulder; he was rescued from the sea by one of our torpedo boats; he remained on board for two days and was then taken to — where the flaps were trimmed, the wound was dressed every two hours during the day and every three hours during the night with saline solution. After sixteen days he was transferred to a general hospital, and the wound dressed daily with eusol for four days, when he was sent to the Military Hospital, Lincoln. The wound presented a healthy granulating surface, a broad piece of strapping had been placed round the upper arm at the base of each flap, and another piece to bring the flaps together. I removed the strapping at 10 a.m., when I found the flaps gaped, so I painted the surface of the wound and the adjoining skin with 20 per cent. ichthyol in glycerine, and applied gauze, absorbent wool and a bandage. At 7 p.m. I found the flaps no longer gaped, having become adherent in this short period of time; the same dressing was applied. In one week the wound has become reduced to half its original size and in another week it will have completely healed over. The chief point of interest in this case is the rapid osmotic action of the glycerine.

He —, on October 13th, 1915, was hit in the left hand by a bullet from a Maxim while he was in a German trench; first aid was applied and he then walked to the field ambulance where a dry dressing was put on. He was sent to Rouen for three weeks; he was next transferred to a general hospital in England, where he remained under treatment for nineteen days, and then he came under my care in the Military Hospital. He stated that the two end digits of his left ring finger had been removed at the general hospital. To relieve suppuration two incisions had been made in the palmar surface of the hand — namely, one near the little finger, another in the centre of palm, and there was a third incised wound 1 in. above front of wrist; a drainage tube had been passed from this wound to the wound in the centre of the palm. I removed the drainage tube at the first dressing, and did not replace it; no useful purpose was served by it, as the anterior annular ligament of wrist compressed the tube.

As a substitute for drainage tubes, I always syringe out with pure sp. vini rectificat., and in this case the spirit passed

readily from the one wound to the other; a sinus extended from the wound above the wrist for 2 in. higher up the arm; the skin of the hand was in a very sodden state from previous wet dressings. The hand was very much swollen, exceedingly painful, and suppurating freely; it had been kept in a bath for forty-eight hours, during which time the patient had had no sleep. Equal parts of ichthyol and glycerine were painted on the wounds twice daily, and where the drainage tube had been pure spirit was run through once daily. In one week the wounds had contracted, the discharge was less, and there was no pain in the hand. On the tenth day after admission there was no discharge from the wounds, the hand was no longer swollen, there was no return of pain, and the patient could move his fingers and wrist freely without pain. On the thirteenth day the wounds in the hand had healed and the wound above the wrist was about the size of a sixpence; in another week this had completely healed.

In this case there was no improvement during nineteen days' treatment with wet dressing, but a change to ichthyol and glycerine resulted in rapid contraction of the wounds and cessation of suppuration.

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Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

THE DANGER OF IODINE SOLUTIONS FOR STERILIZING THE SKIN IN ABDOMINAL OPERATIONS.

THERE are probably no intra-abdominal conditions that may be the source of more continuous suffering to a patient or be more difficult to treat than peritoneal adhesions. It certainly, therefore, behoves us in our own work to avoid any practice, however commendable for other reasons, that might conduce to such an undesirable result. It has long been my custom to discard the use of iodine solutions for the sterilization of the skin prior to an abdominal operation, although I have freely applied them after the peritoneal cavity has been efficiently closed. My reason was that I had occasionally seen the skin irritated as the result of its application; and the fear arose in my mind that the peritoneum, being a much more delicate structure than the skin, might suffer equally, if not to a greater degree, should any of the iodine applied to the skin gain access to it, directly or indirectly. My fears were later confirmed by papers by Propping and Bertelsmann in the *Zentralblatt für Chirurgie* (Nos. 19 and 26). The former proved by experiments on dogs that abundant fibrous agglutinations resulted from the injection of a solution made up of twenty drops of tincture of iodine in 80 c.cm. of salt solution into the peritoneal cavity. He further stated that he had seen six cases of ileus which he believed to be attributable to adhesions the result of iodine irritation. Bertelsmann recognized the possible danger connected with the use of iodine for sterilizing purposes. I have already drawn attention to the subject in my *Practice and Problem in Abdominal Surgery* (p. 67), where the matter is more fully discussed. The possible evils of the use of iodine in abdominal work has recently received further confirmation in a contribution to the *Annals of Surgery* (February, p. 198) by M. H. Walker and L. M. Ferguson, whose investigations were undertaken ostensibly for the purpose of determining what measures could be employed to prevent the formation of peritoneal adhesions. But, in their experiments upon rabbits, they, first of all, sought to produce adhesions, and found that "the densest aseptic adhesions were caused by touching the peritoneum lightly in five places with a small gauze pledget, dipped in half-strength tincture of iodine." One of the conclusions at which they arrived is "iodine should be used in abdominal surgery with great care, or better, not used at all, for a very little of it allowed to touch the bowel causes masses of adhesions."

I will not enlarge on the question as to what may be used in place of iodine for the sterilization of the abdominal skin; suffice it to say that the usual methods for the initial cleansing of the skin followed by the application of, first, a compress of carbolic lotion (1 in 40) for several hours, and, second, another compress soaked in lotion (1 in 20) for an hour or so will fulfil every requirement

of efficient sterilization. When time does not admit of the longer process of preparation, spirit can be used, or even 1 in 20 carbolic solution alone.

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EXTRACTION OF INTRACRANIAL FOREIGN BODIES.

On March 14th a boy, aged 16, walked into my surgery complaining of a blow on the head from a falling tree. My partner, Dr. Burn, saw him, and diagnosed a depressed fracture. I operated in the evening, and found what appeared to be a piece of detached bone. I removed with forceps what turned out to be a fragment of a branch. It was irregular, but measured approximately $1\frac{1}{4}$ in. by $\frac{3}{4}$ in. It had been driven completely through the skull, and was lying under the parietal bone. After removal of the wood I elevated the depressed bone, and closed the wound with the exception of a space left for drainage.

The patient progressed well till the seventh day, when he had very violent convulsions. I opened up the wound again to allow of more free drainage, and he made a complete recovery, returning to work five weeks after the accident. A striking point about the case is that there is no history that the boy was ever in the slightest degree unconscious, and that he was able to travel a distance of four miles, partly by train and partly on foot, after such a severe head injury.

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British Medical Association.

CLINICAL AND SCIENTIFIC PROCEEDINGS.

GRENADA BRANCH.

The Control of Yaws.

The first meeting of the Grenada Branch was held at the offices of the International Health Commission, St. George's, Grenada, on May 5th, when the President, the Honourable E. F. HATTON, Colonial Surgeon, read a paper on the control of yaws in Grenada. There was, he said, evidence that the disease was introduced into the West Indies by slaves brought from the West Coast of Africa. Though the traffic in slaves was stopped in 1807, slaves taken from slave ships by the British navy were set free in Grenada at a much later date. Down to the abolition of slavery yaws was very prevalent; its contagious nature seemed to have been recognized from a very early date, and nearly every estate had its yaws house for segregation. Slavery was finally abolished in 1834, but a system of apprenticeship followed for four years, during which the yaws houses were kept up. At the end of this four years, in 1838, the slaves scattered all over the colony, many of them taking up gardens in the hills, and the yaws houses were done away with. In 1875, 33 cases of yaws were treated in the colony hospital, and in the following year an auxiliary hospital, providing for sixteen males and ten females, was opened. The number of cases admitted to it rose until it reached 118 in 1882. Increased accommodation was opened at the yaws hospital in January, 1883, at which time it was estimated that there were 800 cases in the colony, or about 2 per cent. of the population at the time. The number of cases admitted to the hospital fell from 376 in 1883 to 34 in 1894; thereafter it rose, with some fluctuations, until the large total of 605 was reached in 1915. Dr. Hatton pointed out that segregation, the policy relied upon for over forty years in Grenada, St. Lucia, and other neighbouring colonies, had not been successful. Yaws was an endemic disease, and isolation failed in such diseases, owing to the difficulty of isolating every case. There had always been cases of yaws hidden away, and it was doubtful whether all the cases discharged from the yaws hospital were cured; probably many of them were capable of communicating the disease to others under certain conditions, even after the outward signs had disappeared. The treatment of cases with salvarsan was begun in 1912 with encouraging results. The number so treated was 55 in 1914 and 20 in 1915. The decrease was due to the stoppage