11. For convenience the powder has been called "Eupad" and the solution of hypochlorous acid "Eusol."

This investigation was undertaken at the request of the Medical Research Committee.

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HINTS ON WAR SURGERY.

BY

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THIS unpretentious paper, made up of hints derived from practical experience, has been written at the suggestion of some of my young friends who have been called to serve almost immediately after receiving their qualification to practise, and of others who have been engaged in general practice for years but have felt it their duty to offer their services to the State in this time of great national need.

Practically all the injuries requiring attention are gunshot wounds due to rifle bullets, pieces of shell or shrapnel bullets—the first being pointed, the second irregular in shape and size, and the third round.

The wounds from rifle bullets are frequently small and aseptic, but if the missile has turned on its axis, has been diverted in its course, or has first struck the ground, it may make a very large wound, and in the last case may be septic.

The velocity of a rifle bullet in the first thousand yards being very great, a hard bone if it be struck will be shattered, and the separate fragments of bone may have so much force transmitted to them that each becomes a mischievous projectile.

Tincture of iodine seems to be the best antiseptic for use in the fighting line. Every soldier should therefore have a small quantity with him, so that he can apply a little to the wounds and to the skin for half an inch around them before applying the protective gauze pads.

The first dressing should not, as a rule, be disturbed until a hospital is reached unless there be haemorrhage, in which case it will be advisable to change it at the first dressing station in order to arrest the bleeding; if the haemorrhage is only slight, compression over the first dressing may suffice until a hospital is reached.

If, on reaching a hospital, the first dressing is dry and sticking to the wound, and there is neither pain nor bleeding, the dressing need not be disturbed.

Unless absolutely necessary, as for haemorrhage or other emergency, it is undesirable to perform set operations on the field or in transit, whether on a hospital ship or train.

Although bullet wounds are frequently aseptic and do not require a change of dressing, yet, if the wound be extensive or septic, they should be treated like shell wounds.

Shell and shrapnel wounds are, as a rule, septic, and should be freely irrigated and drained, the irrigation being subsequently repeated twice or thrice daily if possible. The best fluid for irrigation is normal saline solution, but sea water drawn from the hot-water service taps on board the hospital ships or taken up from the sea two miles from shore, or plain boiled water, or weak iodine water, or a light pink solution of potassium permanganate may be equally well used. After irrigation and free drainage the wound may be filled with a 10 per cent. saline solution or with hydrogen peroxide solution 5 to 10 per cent., but it is senseless waste to use an expensive antiseptic solution to irrigate wounds.

If the drainage is not free the wound must be enlarged or a counter opening made. The dressings must be applied in such a way as not to occlude the drainage tubes.

The removal of bullets and pieces of shell is not necessary unless the foreign bodies are causing pain, keeping up suppuration, or lying in positions dangerous to vessels, nerves, or joints.

The greater number of nerve injuries recover spontaneously, therefore early operations on nerves are to be deprecated.

In primary or recurrent haemorrhage on the field pressure should, as a rule, be adopted, and only in exceptional cases is it necessary or desirable to ligature vessels, but if the pressure has not effected its purpose the bleeding vessel or vessels must be ligatured at the first dressing station.

In secondary haemorrhage it is not well to wait for repeated bleedings but to ligature the bleeding vessel without delay, as the next haemorrhage may be fatal or may so far reduce the strength of the patient that amputation may be necessary, or possibly further treatment may even be impossible.

If, owing to unavoidable delay or to deficient drainage, gas gangrene threatens or has actually developed, a 10 per cent. solution of hydrogen peroxide should be injected deeply into the tissues at various points beyond the infected area and free incision made into the gangrenous tissues and thorough irrigation and drainage carried out.

In gas gangrene of the extremities subsequent to the treatment just mentioned the arm or leg bath can be advantageously employed, but where that is impracticable boric or iodized water poultices can be used and changed every four hours.

The application of sutures to lacerated or infected wounds should be avoided.

In abdominal injuries a morphine injection should be given or a tabloid of morphine administered by the mouth immediately the patient is discovered. It is desirable to avoid giving food, and, as far as possible, even fluid, by the mouth. Thirst may be quenched by rectal injections of normal saline fluid. These cases nearly always die if transported far in an early stage, therefore let them remain as long as possible near the front.

If peritonitis supervenes, the patient should be propped up in the Fowler position, and drained above the pubes. The operation can be carried out under local anaesthesia in a few minutes. The abdomen should not be washed, and any long operation should be avoided until the base hospital is reached, when, should anything be called for, it can be done under the most favourable conditions.

Serious head injuries bear transport badly, and must be operated on as soon as possible for the removal of blood clot and depressed bone causing pressure on the brain.

Fracture of the long bones and injuries to joints should be immobilized by splints or some temporary apparatus, obtained on the spot before removal from the field.

Conservatism is the rule of treatment for fractures, and amputation should be avoided or rarely adopted as the only possible alternative. Immediate amputation is only called for in case of complete smashing or almost total tearing off of a limb.

Later, amputation may be required for traumatic gangrene or for rapid extension of gas gangrene, and, rarely, for extensive diffused aneurysm, or for serious wound complications attended with osteomyelitis and extensive suppuration.

In all shell wounds or septic bullet wounds a dose of antitetanic serum should be administered as a prophylactic as early as possible after the injury.

In erysipelas or any streptococcal infection the use of antistreptococcal serum should not be omitted.

THE late Surgeon-General Arthur James Payne left unsettled property to the value of £49,983.

THE governors of the Tower Hamlets Dispensary, an institution founded in 1792, and carried on until recently in Stepney, resolved a few months ago to close it. This resolve was due partly to the difficulty of collecting funds, and partly to the diminution in the number of patients attributed to the Insurance Act, and to the establishment of tuberculosis dispensaries, and of medical treatment centres for school children. At a meeting on July 12th the governors received a deputation from the Stepney Board of Guardians, who desired that the dispensary should be continued, and promised an increased subscription from the board. Dr. Corner said that medical practitioners in the district regretted the closing of the dispensary, but the chairman held that that matter could not be reopened, the only question to be determined being the best method of disposing of the sum of £450, the net cash balance in the hands of the governors, who, however, also own the building, valued at £650. The meeting appears to have separated without coming to any definite decision.