

SURGERY ON THE GALLIPOLI PENINSULA.

BY JOHN MORLEY, CH.M., F.R.C.S.,
CAPTAIN R.A.M.C.(T.F.); MEDITERRANEAN EXPEDITIONARY
FORCE;

HONORARY SURGEON, ANCOATS HOSPITAL, MANCHESTER, AND
MANCHESTER CHILDREN'S HOSPITAL; LECTURER IN
CLINICAL ANATOMY, MANCHESTER UNIVERSITY.

It would be hard to find a more striking contrast than that between the administrative problems involved in the treatment and evacuation of wounded from our front in Flanders on the one hand, and from the Gallipoli Peninsula on the other. In Flanders good roads and abundant motor transport to the railroad have permitted evacuation to be on the whole so rapid that all cases requiring operative treatment can be removed, if not to a base hospital, at least to some stationary hospital or casualty clearing station out of the zone of artillery fire, without any such delay as would be prejudicial to their prospects. On the southern end of the Gallipoli Peninsula, during the three and a half months that the present writer has been stationed here, and up to the date of writing (August 21st), the situation has been as follows:

The front line of our trenches extends across the peninsula in an approximately straight line. The field ambulances working with the British forces at the southern end of the peninsula collect their wounded from the regimental aid posts, and evacuate them, first by hand and for the latter part of the journey by horse or motor ambulance, to the casualty clearing stations. The more important of the clearing stations, and the one with which our field ambulance has had to deal, is situated near Lancashire Landing. A very serious drawback to the surgical point of view lies in the fact that the dust inevitable in a great base camp during these long months of dry weather is blown up in great clouds by the prevailing breeze, and often makes operative work during the daytime almost impossible.

From the clearing station the wounded are embarked on lighters at a landing stage that is perforce used also for the unloading of ammunition and supplies for the army. These lighters are towed by steam pinnaces to the hospital ship that lies a mile or two off the shore, and, without changing stretchers, are slung on to the ship by cranes. Except during and shortly after an action, the wounded are sent off to the hospital ship twice in the twenty-four hours. The hospital ships fill up in "peace times," as the weeks of siege warfare by artillery and sniping in the intervals between assault are called, in a week or ten days (after an action much more rapidly), and then leave for Egypt or Malta, taking three or four days respectively to reach the base. Minor cases are not taken to the hospital ships at all, but are either detained in the field ambulances or sent in small boats to be treated in stationary hospitals.

This brief account of the general position is given to show how circumstances have forced a good deal of surgical work on to the field ambulance, to which the writer is attached. The army medical authorities as a rule discourage surgical enterprise in field ambulances. The importance of speedy evacuation of wounded is ever most prominently before their minds, and they prefer that the field ambulance should devote its energies primarily to evacuation and only secondarily to treatment, and that all but the most urgent operative measures should be deferred until the casualty clearing station, or even the base hospital, is reached. The advantage of this system, by which the most experienced surgeons and best surgical equipment can be concentrated at the clearing station or further back, is obvious. But the advantage is dependent on two conditions: That circumstances should be favourable as regards absence of shell fire and dust, and that the wounded should be brought down from the firing line so quickly as not to prejudice the results of operations. The second condition involves no difficulty here, for wounded reach the clearing station within two or three hours from the trenches, but, as we have seen, there is no escape from shell and dust, and these disturbing elements are so serious at the clearing station as often to reduce operative work to a minimum. The hospital ships, no matter how well staffed and equipped, cannot entirely solve the problem,

because there must usually be some delay at the clearing station, and it is often twelve hours or more from the infliction of their wounds before patients can be got on board. Though this would formerly have been considered early enough, the experience of this war has taught us that for badly soiled wounds twelve hours is far too long to wait.

When the field ambulance came ashore at the beginning of May, within a fortnight of the historic landing of our army, we were fortunate in securing a site on the Aegean shore, less than a mile from the Lancashire Landing. Here a series of little gulleys, dry during the summer, fall steeply away from the plateau to end on the cliff below, which drops sheer some 60 ft. to the sea. The deepest of these gulleys, by dint of much excavating and levelling with picks and shovels, was so altered in two days that it could house 40 stretcher cases. A deep little bay off the main gully, with walls worn smooth by the torrential rains of winter, formed an operating theatre readily screened from the patients (see photograph), and the whole place, when roofed over with tenting and wagon covers, gave us an improvised field hospital, invisible to the Turks, that enabled our A Section tent subdivision to get to work.

The road along which our field ambulance evacuated wounded from the regimental aid posts through the advanced dressing stations to the casualty clearing station does not pass by this cliff hospital, but runs a quarter of a mile inland. From the dressing station only those wounded who need operation or rest and observation for a day or so are diverted to the cliff. The main stream of cases passes straight down to the clearing station. In the comparatively quiet weeks of trench warfare our tent subdivision can deal with all the cases passing through our field ambulance that require early operation. Such cases are sent on via the clearing station in one, two, or three days' time, as seems advisable. When a considerable action takes place we can, to the extent of our capacity (40 cases), relieve the clearing station of some of the urgent cases, which are apt to be crowded down on them in such numbers as to make some delay in giving them appropriate treatment almost inevitable.

So much has been written on the treatment of wounds from the western theatre of war, that one can hardly pretend to say anything fresh on the problems that confront us. In a general sense, however, it may be of value to describe the principles on which various classes of wounds have been dealt with in our "dug-out" hospital.

LACERATED WOUNDS.

The considerable experience of soiled and lacerated wounds that one gets in an industrial town such as Manchester has long convinced me that for such cases no antiseptic lotion can possibly, by its mere application to the soiled tissues, ensure healing without suppuration. In a contused and lacerated wound, such as we get from bombs, high explosive shells, and often from shrapnel, nothing short of complete excision of the soiled and devitalized tissues can be relied on to secure the healing by first intention that should always be regarded as our ideal. This local excision of soiled tissues is of no avail when once enough time has elapsed to permit the multiplication of organisms in the wound, and then invasion of the lymphatics; to put it in another way, the prospect of securing primary healing of these wounds varies inversely with the time that elapses between the infliction of the wound and operation. Another factor of no less importance is the completeness with which excision of the wound is possible. If no vital part is involved the operation can be complete; and, given early operation (say within two to four hours) and sound technique, results will be uniformly satisfactory. But if the presence of some important vessel, nerve, or other organ in the wound prevents complete excision, results become less satisfactory at once.

The conditions to be dealt with vary so widely with the locality and nature of the wounds that one can hardly describe a uniform technique. Local infiltration with eucaine and adrenalin is preferred to a general anaesthetic whenever possible. The surrounding skin is cleaned and dried with spirit and painted with tincture of iodine. Iodine is swabbed into the wound and a clean excision made of the contused tissues, every care being taken to avoid contact of the new clean surface of the wound with

the parts excised. The wound is then swabbed out thoroughly with a solution of hydrogen peroxide, closed as far as the local conditions permit, and drained. In a case where our ideals have been achieved (as regards early operation and thoroughness), there will be no fear of suppuration, and, of course, none of gas gangrene or tetanus. The drainage tube or tubes can be removed in forty-eight hours, and the wound will heal by first intention. But since we can only hope for an approximation to the ideal in most cases antitetanus serum is always given, and where a complete excision has not been possible the wound is not closed, but lightly packed with gauze soaked in hydrogen peroxide, which is changed once or twice in the twenty-four hours.

By these means not only are such tragedies as gas gangrene and tetanus avoided, but in cases where no limb is lost or permanently put out of action, the shortening of convalescence by avoidance of suppuration is of the greatest value from the point of view of the army. By dissecting out superficial lacerated shell and shrapnel wounds and converting them into linear sutured incisions, I have frequently sent back to duty in ten days, with their wounds soundly healed, men who would otherwise have been condemned to a convalescence of at least four or six weeks, while the slow process of suppuration and granulation went on. I am convinced that the importance of very early operation as a time saving factor in these cases is not sufficiently realized. A recent official pamphlet, entitled *Hints on War Surgery*, issued to medical officers, contains the statement: "Shell wounds are septic, and should be treated by free irrigation and drainage." Our experience in this field ambulance shows definitely that such teaching as this, though undoubtedly true of many and perhaps most shell wounds, loses sight of an often attainable ideal, and is only true of all cases when operation is unfortunately delayed.

AMPUTATIONS.

The same principles guide us in cases of shattered limbs, where the need for amputation is not in doubt. Amputation is performed as early as possible, and, as a rule, through healthy uninjured tissues. A great deal depends on securing primary union, and that it is an attainable ideal in most cases our experience here shows. It is my custom to keep all amputations (and as far as possible most other major cases) under observation for two or three days after operation, so that before losing sight of them we can see the course the wound is taking, and it is usually found to be healing by primary union at the end of this period.

In cases of very severe injuries to the limb, as where a shell has blown off one leg, and perhaps lacerated the other, shock is profound, and it is often a difficult matter to judge whether the patient will stand operation or not. It is my custom, with a badly shocked patient, to give morphine on arrival, if not already administered, and copious saline infusions into the axillae. About an hour after the saline infusion is usually the most favourable time for amputation, and by this means one avoids waiting an indefinite time for reaction from shock. But in spite of all precautions many patients with these terrible injuries succumb to shock, often without operation being feasible.

HEAD INJURIES.

The extent of injury to the skull by a penetrating bullet varies remarkably. In some cases the bullet drills a clean hole of entrance and exit. More often there is considerable splintering and fissuring of the skull. But these bullets at short range appear to have a disintegrating effect on the semifluid brain matter that is altogether out of proportion to the injury to the bone, if one may judge by the large quantity of brain matter that frequently escapes.

In clean penetrating rifle bullet wounds involving the brain, unless there is some urgent indication, such as signs of compression, I do not as a rule trephine, but merely shave the scalp locally and sterilize the wounds of exit and entrance with iodine. The majority of these cases die within the first forty-eight hours, and those with a large escape of disintegrated brain matter are the most rapidly fatal. But occasionally one is surprised by a rapid revival in some case that one had regarded as almost moribund.

The head is almost the only part of the body where shell and shrapnel often offer a better prognosis than rifle

or machine gun wounds, by reason of their lesser tendency to penetrate the skull. Shrapnel bullets from a shell that bursts rather high have no great velocity, and will often cause a local depressed fracture without penetrating the brain, and fragments of high explosive shell, if they have travelled some distance from the burst, are often partially resisted by the scalp and skull. It is in these compound depressed fractures, without laceration of the dura, that I have obtained the most satisfactory results. The essential points are early operation, complete excision of the contused edges of the scalp wound, removal of all depressed and soiled fragments of bone by trephining where necessary, and the rounding off of the gap in the skull with gouge forceps. The wound is drained as a precautionary measure, but suppuration is rare if operation has been early, and one can easily remove the tube in forty-eight hours. Concerning the late results of these cases, one has, of course, no opportunity of forming a judgement here.

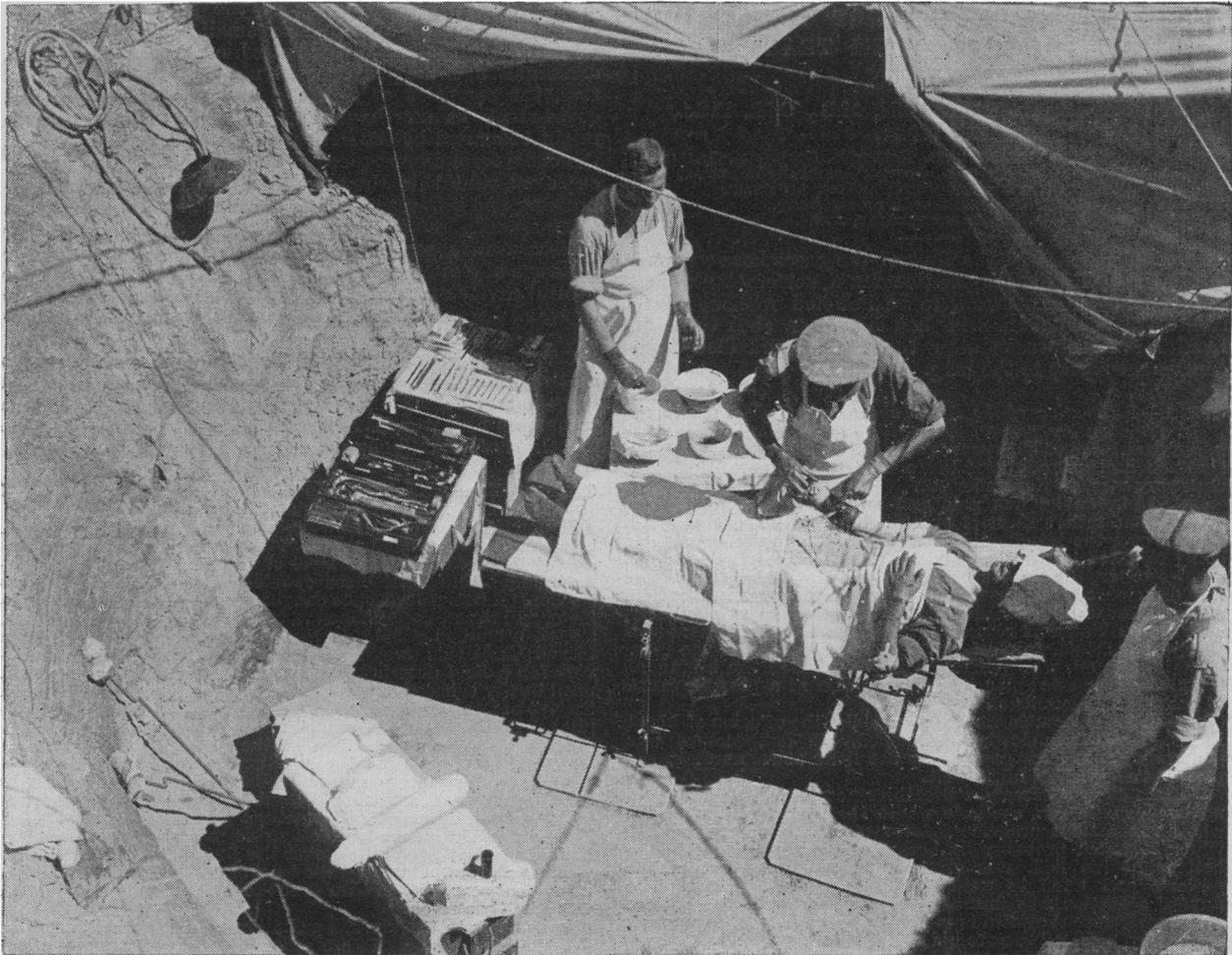
PENETRATING ABDOMINAL WOUNDS.

These wounds fall into two fairly distinct categories:

1. Rifle or machine gun wounds, with an equally small wound of entrance and exit.
2. Penetrating shrapnel or shell wounds, or rifle bullet wounds with wound of entrance only, or with a large wound of exit.

1. It can generally be assumed, where the wound of exit, like that of entrance, is the typical small puncture of the modern rifle bullet, that the bullet will have drilled through the intervening viscera, causing holes no greater than those in the skin, and that the redundant mucosa of the stomach or intestines will plug up the holes, and prevent the escape of their contents until plastic adhesions have completed the healing process. If the stomach is distended at the time, or if the patient drinks freely, or is roughly handled, there may be enough escape of stomach or intestinal contents to set up general peritonitis. But given morphine and rest, with nothing by mouth for the first twenty-four hours, the great majority of these cases make an uninterrupted recovery. The chief exceptions are cases of death from internal haemorrhage, where the bullet has caught a large blood vessel. The question has been a good deal discussed whether these cases of "clean" rifle wounds of the abdomen should be kept at rest under morphine in some advanced dressing station close to the trenches or brought down to the main dressing station where the operative work of the field ambulance is performed. My own feeling is decidedly in favour of the latter course. The chief difficulties in carrying the patients will be encountered in the twists and turns round the traverses of the narrow trenches through which they must in any case be brought before they reach the advanced dressing station; and I do not think that (after a dose of morphine) an extra hour's journey on a carefully carried stretcher down an open road will add perceptibly to the risk, though I hold it of importance that these patients should be hand carried all the way, and not put into a jolting ambulance van on uneven and shell-pitted roads. The advantage of bringing them at once to the main dressing station, or field hospital, where the best trained nursing orderlies are concentrated, and where, should indications arise, operation can be performed without delay, is sufficiently obvious. The routine treatment that we adopt for these cases consists in morphine, the Fowler position, nothing by mouth for twenty-four hours, and saline when necessary. The saline is usually given by subcutaneous infusion into the axillae, as rectal salines might involve danger of leaking from a perforation in the colon. The patient is allowed to rinse his mouth out frequently with water, and is warned of the danger of drinking any. One injection of saline at the end of twelve hours will generally tide him over without great thirst to the end of the first twenty-four hours, when fluids are first given by the mouth. Given these precautions general peritonitis will rarely supervene, and for this class of case rapid recovery without any need for operative interference may be expected as a rule.

2. Penetrating shell and shrapnel wounds of the abdomen, on the other hand, involve an infinitely graver prognosis. The jagged sharp fragments of metal thrown off by a high explosive shell have often great penetrating power, and cut terrible rents in the hollow viscera which no plastic adhesions could possibly heal. Indeed, I have



A DUG-OUT OPERATING THEATRE, GALLIPOLI.

(Official photograph circulated for the Press Bureau by the Central News.)

seen several cases where the gut has been practically divided by a small fragment of shell.

The following was a striking instance of the penetrating power of these shell fragments :

Lieutenant D. was one of seven men wounded by a "Jack Johnson" shell that also killed two other men outright. He was admitted less than half an hour after the explosion with an apparently insignificant wound on each buttock, neither of which would admit more than a finger tip. There were signs, however, of general "peritonism" with haematuria. The abdomen was opened without delay, and it was found that one of the fragments had passed up through the pelvis, making a tear 2 in. wide in the peritoneal surface of the bladder, had lacerated the small intestine in over a dozen places, traversed the stomach, and lodged somewhere in the liver. Resection of 6 in. of small intestine had to be performed, with end-to-end union, holes in the intestine and stomach were sutured, and the bladder sutured and drained supra pubes. The patient rallied well from the operation, but died after forty-eight hours of general peritonitis.

Only less grave are the injuries inflicted in the abdomen by shrapnel bullets. There is a good deal of variation in the size of the bullets from Turkish shrapnel. The heaviest shells carry round leaden bullets almost as large as walnuts; the 75 mm. field guns throw bullets the size of small marbles. But even the smallest of these cause rents in the intestines and stomach that are vastly more severe than those left by the conical rifle bullet. It may be regarded as a rule to which there are few exceptions that if a shrapnel bullet penetrates the gut, general peritonitis will supervene unless it is prevented by timely operative interference.

Operation consists in opening the abdomen by an appropriate incision, suturing all perforations, or resecting gut where it is too badly damaged for mere suture, ligaturing bleeding vessels, and swabbing the peritoneum dry. In early cases, where operation is performed within six hours or so, I usually close the peritoneum completely, and

content myself with draining the abdominal wall, as it is there, if anywhere, that suppuration may occur.

I do not propose at present to deal statistically with the prognosis in these cases, but it may be said with general accuracy (assuming early operation) that the prognosis is bad in proportion to the number of perforations rather than the amount of extravasation of intestinal contents, and that perforations of the colon are the most fatal of all. Where there are many perforations the operation is necessarily long and tedious, and this is an additional handicap when one has often to operate at night in our "dug-out" theatre, with a cool breeze blowing down on to the exposed viscera. But early operation gives them their only chance, and though I have had many disappointing cases, I have never regretted operating. Some few have recovered that would otherwise have had no chance, and in nearly all the fatal cases the injuries disclosed at operation have been so grave that the prognosis, apart from surgical help, must have been quite hopeless.

I have placed in the same category with shell and shrapnel wounds those in which a rifle bullet at long range has penetrated the abdomen, but has not emerged. Without the evidence of a wound of exit one has no means of telling whether the bullet has turned over in its course and cut through the viscera broadside on. The right course in such cases is to keep them under observation for a short time, and, if there are definite signs of peritoneal irritation, explore. An early operation does not in any case prejudice their chances, and in some cases will save life. Similarly where a rifle bullet has caused a large wound of exit one must be guided by the degree of tenderness and rigidity in deciding whether operation is necessary. Needless to say, the primitive conditions under which these operations in the field must be conducted render it all the more important that they should not be undertaken by officers who are not thoroughly familiar with the technique of modern abdominal surgery.