fact he did not know where they would have been without them. He recalled that the Secretary of State had recently recognized the services of the Volunteer Medical Corps at the front by incorporating them with the R.A.M.C. (Vol.) and abolishing the compound titles, a concession that had made the Brigade Bearer Companies a little jealous. Some of the speakers had referred to the want of discipline in the St. John Ambulance Brigade; he thought they were mixing up the Association with the Brigade, as there was strict discipline in the latter, the men being turned out at the end of the year if they did not make themselves efficient.

Surgeon-Major Hutton, in reply, said he was glad the paper had led to such an ample discussion. With regard to the division of orderly duties it was not such an easy question as some of the speakers had thought. No doubt it was desirable, especially in war time, and he felt that everything would be done to effect this. The main object of his paper was obtaining good recruits for the Royal Army Medical Corps as hospital orderlies, and in doing so to select men of good character, with a sense of duty, and thought the St. John Ambulance Association might be the means of supplying, through its classes all over the country, good recruits if encouraged by the authorities. No doubt the hospitals in London, and in the towns throughout the country, would be willing to afford assistance for St. John Ambulance men receiving some training in nursing duties to those men who wish it, and that would be a further inducement for the Royal Army Medical Corps to support and encourage the work of the St. John Ambulance Association.

THE TREATMENT OF ABDOMINAL WOUNDS IN WAR.

By Charles Roberts, M.B., B.S., F.R.C.S.,
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In discussing the treatment of abdominal wounds in war we have to consider (1) the nature of the injury, (2) the cases in which operative interference is indicated, and (3) to what extent the prospect of success of abdominal operations is diminished by the difficulties inseparable from campaigning. When the wound is caused by a high-velocity and mantled bullet of small calibre—as the Mauser and Lee-Metford—the extent of the visceral injury depends little, if at all, upon the range at which the bullet is fired, except in some instances in which the wound is complicated by injury to bone. At very long ranges, when the force is spent, and in ricochet wounds, the bullet may be retained. The course it takes within the abdomen is then lost, and the internal injuries may be widespread and with difficulty made out. Where both wounds of entry and exit are present, the track is always that of a straight line drawn between these two points, and from anatomical knowledge we are able to say what viscera may have been injured. Transverse wounds are more fatal than those passing in an antero-posterior direction. Wounds above the umbilicus are more favourable than those below. Direct antero-posterior wounds in the small intestine area are very unfavourable. Complete transverse wounds above the umbilicus are very unfavourable. That the small intestine area may be crossed without perforation occurring has been demonstrated:

1. By examination after death. In the published record of the work of the Portland Hospital in South Africa written by the professional staff a case is described the details of which were supplied by Mr. Cheatle. Two perforations were found in the caecum and sigmoid flexure of the colon, and though the bullet had undoubtedly crossed the area occupied by the small intestine, no wound of the bowel had occurred.

2. By examination during laparotomy. Mr. Makins in his work on his Surgical Experiences in South Africa gives an account of an operation in which two linear rents were found in the jejunum involving the peritoneal and muscular coats only. He also noted in other instances linear ecchymoses and wounds of the peritoneal and muscular coats alone associated with complete perforations. The view that the intestine escapes perforation in many of the cases that recover is supported by the fact that frequently so few abdominal symptoms are present.

It is difficult to believe, however, that in all cases no perforation is present, for in many shock is severe, frequent vomiting persists for two or three days, the temperature rises and the abdomen becomes rigid and painful, these symptoms being readily attributable to the shock of perforation and slight local peritoneal infection. The necropsy in Mr. Cheatle's case previously mentioned showed that no extravasation of faeces had occurred from a perforation of the caecum and in cases operated upon no free escape of faeces has been found before manipulation. Sometimes the presence of melaena has formed strong evidence of perforation. There is little doubt that a perforation may heal primarily or become shut off by adhesion to a neighbouring coil within a few hours.

In considering the cases in which operative interference is required we must first exclude those wounded who will die in the first twenty-four hours from intraperitoneal haemorrhage, or from the shock of the extensive internal injuries, and who are not amenable to surgical treatment. Their number is always considerable, probably from 20 per cent. to 30 per cent. of those wounded. Where increasing peritoneal haemorrhage is threatening life, and the surroundings and general condition of the patient allow of it, laparotomy must always be performed, and the bleeding arrested whether from torn vessels in the omentum or mesentery, or from laceration of the liver or spleen. Only too often, however, extensive visceral injuries will also be found, and a favourable result will not be obtained. Wounds of the liver, kidney, and spleen, as a rule, heal well, and when haemorrhage is not dangerous, require no operative treatment except for secondary complications, such as biliary fistula, hydronephrosis, or perinephric abscess. Laparotomy may be required when perforation of the stomach or bowel may have taken place.

If we exclude those who die in the first twenty-four hours we may estimate that of the cases of penetrating abdominal wounds amenable to surgical treatment, about 60 per cent. will recover. The recoveries, however, are chiefly amongst those cases in which the area of the small intestine is not crossed, and when this area is involved the mortality is probably very great. Too often, without exploration we cannot be sure whether perforation exists or not, and whilst a routine laparotomy is not justifiable in every case, it should be performed at the first evidence that perforation exists. Such evidence may be found in the persistence of shock, a steady increase in the rate of the pulse, and in the abdomen becoming increasingly rigid and tender, and especially is it probable if vomiting has persisted and the passage of flatus is arrested. Under these circumstances, and when the surroundings are such as not to expose the patient to fresh dangers, the operations should not be delayed, and the apertures may be dealt with by suturing, or the area of the wound may be resected, according to the condition found. Especially is the operation likely to be successful when the injury is localized, the patient is seen within six hours of being wounded, and transport has not been difficult. When the bullet is retained, or the track is a complete transverse one, the prognosis is far less favourable.

The results of laparotomy for gunshot wounds in war have been most unfavourable. In the Spanish-American war Senn reported that all cases he knew of that were operated on died. In the Tirah campaign, of 8 cases of penetrating wounds of the abdomen, 5 were operated on and all died. In the Boer war I only knew of 2 successful operations performed for wounds of the small intestine. In the American war in the Philippines Dr. Robinson reported that 5 cases were operated on and 4 died. The unfavourable results are attributable to various causes. The severity of the injuries, the delay in bringing in the wounded, difficult transport, and the unfavourable surroundings render abdominal operations at the front in most cases unpermissible. We are led to the following conclusions:

1. That as a rule the conditions in a field hospital are not suitable for performing laparotomy. Moreover many patients with penetrating abdominal wounds recover without operation, and in the majority of those who die the nature of the injury is such that death must result whatever be the conditions of operation, and an exploratory laparotomy may add a fresh danger to the patient.

2. When occasions arise in which the conditions of operation

approximate to those in civil practice laparotomy should be undertaken for increasing intraperitoneal haemorrhage endangering life, and when there is evidence that perforation of the stomach or bowel probably exists, provided that the patient is seen early enough.

Dr. Forbes Ross said that he had listened with great pleasure to Dr. Roberts's paper, which went to prove that the small-bore bullet was the most humane implement yet invented for war. The axiom "in abdominal small-bore bullet wounds do not operate" had now become a military medical actuality. In fact, the surgeon in these cases was more deadly than the enemy armed with the small-bore bullet. Mr. Clinton Dent at Ipswich, and Sir Frederick Treves had foreshadowed this result, which was now fairly accurately settled.

A FEW OBSERVATIONS MAINLY CONCERNING THE RED-CROSS BADGE.

By Deputy Inspector-General Porter, C.B., R.N.

In the late war in South Africa regrettable recriminations took place on both sides regarding alleged abuses of the Geneva Cross. These appear to have, in a great measure, originated in misunderstanding due to preventable causes, as well as in the changed conditions of modern warfare. Smokeless powder, the increased range of weapons, and the possibility of using artillery with precision against unseen adversaries have all combined to widen the modern battlefield. In this way not only the combatants but the necessary adjuncts of armies, medical and other, are brought under fire. At Magersfontein and at Paardeberg, to quote from personal experience, our field hospitals marked by Red Cross flags, and pitched on sites selected with a view to non-exposure, were shelled by the enemy. In the former case, even had the enemy distinguished the flags, he could not be charged with deliberately firing upon them, as he was shooting at extreme ranges of several thousand yards, and could not possibly locate his objective within a hundred yards less or more. In the latter case the formation of the ground precluded him from seeing his objective—a ridge intervened.

Consequently, in these days when an engagement is proceeding, the Cross is of value rather as a means of showing where aid can be obtained than as affording any specific protection to the wounded. Of course, when the fight is over the matter is different, and the wearers of the Cross have their definite protective rights and limits in their own sphere of action. These are fairly well understood by all men, although very few even amongst medical officers have ever read the official conditions laid down by the Geneva Conventions.

After making all possible allowances cases of deliberate abuse of the Cross occurred during the late war. Perhaps the wonder is they were not more numerous when one remembers the lax discipline and the character of many of the mercenaries in the enemy's ranks. Besides, the badge being of no particular size or material, any one could fashion it, and wear or hide it away at will; for example, it enabled recruits for the Boers to cross the Portuguese frontier at Komati Poort. Again, the enemy when hard pressed by us, as at Jacobsdal, hid their Mausers, donned Red Cross badges, and so, evading capture, were able once more to fight against us.

What appears to be wanted is a uniform badge of strictly regulation pattern and materials; simple, and at the same time not capable of being easily counterfeited. This should be issued under proper authority to accredited wearers, who should at the same time be supplied with registered identification cards to be invariably carried on the person. This card might also have printed on it the few more important laws regulating the Cross, and the penalties of disobedience. In like manner, all Red Cross equipment such as ambulances, cases of medical and surgical appliances, comforts, and so forth, should be marked by authority, and limited to their proper use. In South Africa, the enemy had all manner of vehicles adorned with red crosses. A curious assortment fell into our hands after the fight at Modder, and were magnanimously restored to Cronjé, although it was generally asserted they had been used for many purposes—legitimate or otherwise, according to the urgent needs of the moment. So long as there is no punishment for painting a red cross on a case here and there, even amongst friends, the temptation to wrongdoing is great, for example, when the forced march is imminent, and personal baggage is reduced almost to the vanishing point. In the early days of our occupation of Bloemfontein, certain ladies, in virtue of wearing red cross badges they had fashioned for themselves, managed to get up by train all the way from Cape Town, at a time when the necessities of the military situation were extreme, and the meagre railway transport was being taxed to its utmost. These ladies were not nurses, but all that befell them was to be returned whence they came. Probably to this day they think they did a smart thing, and are in no way conscious of being guilty of a discreditable action.

In the next naval war the care of the wounded will fall mainly upon hospital ships and their ambulance steam launches serving under the flag of the Geneva Convention. Your modern ship of war is first and foremost a fighting machine, and so, while the best possible provision that the limited circumstances will admit of is made for the wounded, yet military necessity must remain paramount, and extensive space cannot be spared for hospital purposes. In the brutal business of war, methods which often appear harsh in the outset turn out to be really the most humane in the end. During an action there must be suffering; probably little more can be done for the wounded than to promptly get them out of the way of the men fighting the guns, relieve their pain, stop bleeding, and generally put them in the most favourable position for removal to the hospital ship after the engagement is over. Special ambulance boats will then steam alongside, and the wounded be promptly hoisted into them by such eminently suitable contrivances as the Kirker ambulance sleigh. Here I would call attention to an obvious defect in the Red Cross flag. When flying in the bows of a hospital boat, and at only a short distance off, it closely resembles the St. George's Cross, that is, the official badge of a British Admiral. It is quite conceivable in war time that the one might be mistaken for the other, and disastrous results ensue, say to a boat loaded with wounded. The badge of the Geneva Convention afloat should be clearly outside the pale of possible confusion with any combatant device whatsoever, and least of all an admiral's flag.

The Geneva Convention has laid down certain regulations regarding hospital ships fitted out by private enterprise for the aid of belligerents irrespective of side; but it is, I believe, silent regarding the rights of Government hospital ships. Are they liable to be made prizes of war? If so, will they first be permitted to convey their sick and wounded to their destination?

It would be well if some authoritative ruling could be arrived at as to what extent benevolent neutrality may go in the supply of aid to either belligerent. Our Continental neighbours recently decried us for being so cruel as to refuse them permission to send ambulances through our lines to the enemy. This at the time was specious; but we now know, in the light of after-events, the gift of ambulances would have been the reverse of humane, and would have served to prolong a useless struggle, with the certain consequence of increased bloodshed.

To sum up finally regarding the badge:

1. While easily recognizable, it should not be easily counterfeited, or be capable of confusion with any combatant device in use afloat or ashore.
2. It should be issued under authority only. When issued to individuals, they also should be provided with means of proving their identity to friend or foe.
3. Abuses of the badge should entail definite penalties, and, as a rule, these should be swift and severe.

In the last number of the Official Blue Book—the Health of the Navy for 1900—I dwelt at some length on the subject now discussed. As, however, Blue Books are to most men sealed books, and the matter is of importance, I have therefore taken the liberty of bringing it before you, and trust I have succeeded in making myself clear.

Lieutenant-Colonel Hyslop, D.S.O., P.M.O., Natal Volunteer Forces, agreed with the suggestions made that in view of