FIELD AMBULANCE WORK AT ANZAC.

BY

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It may be of interest to your readers to have a short note on the special difficulties and dangers which beset field ambulance work in the duties such a unit has to perform at Anzac.

The facts that all work had to be carried out under continuous shell and rifle fire, that the country is exceptionally rough and precipitous, and that no roads, and consequently no transport except hand carriage, is possible, render the rôle of the field ambulance uniquely difficult and dangerous.

We soon found that the protection afforded by the barricades of equipment was illusory, as shrapnel bullets came freely through the roof, and finally a shell came through a stationery box and burst inside the dressing station. We then built up the walls with sandbags to the height of about 7 ft., and by breaking up the shattered boats of the first landing party we got enough wood to cover in part of the roof; over this we heaped earth to the depth of about 9 in., and so made a dressing station that was proof against shrapnel bullets but, of course, useless against a direct hit.

We built in the same way other shelters, and after a lot of hard work and improvisation succeeded in making fairly safe cover for sixty stretcher cases. As the cases usually arrived at the beach within an hour or two of being wounded, and as the naval service for evacuating to the hospital ships was so good, no operations, except for the arrest of hæmorrhage, were done on the beach at this time. About fourteen days later, however, on making inquiries at the hospital ships, we found that the results in abdominal wounds were extremely bad. Whether the cases were treated by operation or otherwise seemed to make very little difference. At this time, also, the weather became rougher, and it was often impossible to get the wounded off to the ships at all without considerable delay and knocking about. In these circumstances we determined to erect an operating tent on the beach and try treatment ashore unless the conditions for evacuation were very favourable. From this time till June 16th we operated on almost all cases of penetrating abdominal wound, and kept the patients on shore from twenty-four hours to four days afterwards. The conditions for operating were good, except for shrapnel fire, to which the operating tent was quite exposed. The beach in front was shingly, so there was very little dust.

We found in about 60 per cent. of the cases operated on that the condition was almost hopeless, whether the wound was caused by bullet, shrapnel, or shell fragment. As a rule, the gut was perforated or torn in from seven to twenty places, and several of the mesenteric arterial branches were usually torn across. With shrapnel there was nearly always extensive destruction of tissue round the perforations, so much so that it was usually necessary to resect portions of gut. Most of these cases died in a short time, but a few of them we sent off to the ship some days later in a surprisingly good condition. About 25 per cent. of cases gave good hopes of a favourable result. In these—almost all bullet wounds—two or three clean perforations of the small intestine or stomach were found. These were easily and quickly closed and promised to do well when evacuated. In a few of them no wound of the viscera could be found, though the missile had certainly traversed the peritoneal cavity, usually from side to side. The remainder of these abdominal cases arrived in such a hopeless condition that nothing was done.

We operated on a considerable number of head injuries, principally depressed fractures and ruptured middle meningeal arteries. Of these last we saw a good number, one of which was especially interesting.

A private was brought in showing typical signs of compression of the brain. No wound could be discovered on the head till after it had been shaved. A small spot on the left side of the scalp, over the site of the middle meningeal, was all that could be found. A probe could be passed into this down to the bone, so we decided to turn down a flap and examine the skull. There was a tiny perforation of the skull, and on removing a disc of bone

we found a large clot pressing on the brain and hæmorrhage from the middle meningeal artery. Lying embedded in the dura was a small fragment of steel about half the size of a grain of rice. Speaking afterwards to the man who was beside him in the trench, I discovered that his bayonet had been struck by a bullet and shattered. Evidently a small piece had struck him on the head, but one would hardly have expected such a small fragment to have had sufficient momentum to do so much damage.

The immediate results of operation in these types of head injury are good, and most of them will recover. What the after-results are to be time will show. Most of the head wounds received in the trenches were inflicted at short range, and were very severe. In a large number the whole calvarium and contents were blown right off just as if they had been removed by a saw.

In nearly all cases of long range bullet wounds, when the bullet lodged it was completely reversed—that is, the point was towards the wound of entrance. Some clips of Turkish cartridges were discovered with the bullets reversed, but in the majority of cases the bullet apparently turned over immediately on striking. The nickel coating of the bullet is very thin, and sometimes it bursts and is found two or three inches nearer the wound of entrance than the lead.

Owing to the position of the operating tent, and to the fact that a very large number of men were wounded on the beach within a few yards of it, we were often able to have a man on the table within a minute of the time he was hit. In this way we saved, by ligation of vessels, a good many who otherwise must inevitably have died. One man, struck by a shrapnel bullet near the door of the operating tent, had his jaw broken on the left side, the bullet passed the base of his tongue, and lay under the skin over the sterno-mastoid on the right side. A hæmatoma immediately commenced to form on the right side of the neck, and continued swelling rapidly, just like a toy balloon being blown up. We cut down immediately on the carotid, and found both the facial and lingual arteries cut close to their origin. These were ligatured, and he made a speedy recovery. Dyspnoea had been very urgent, and but for immediate assistance he must have died from suffocation.

After cases left the shore it was impossible to get any news as to their progress. They were distributed through the hospitals of Egypt, Malta, and Britain, and could only be traced by a persevering search of the records. Some way by which the results of a particular line of treatment could be traced, and the information made use of, would be the greatest assistance to the medical officers who have the responsibility of early treatment.

The conclusions we draw from our experience of abdominal wounds are:

1. Early operation if conditions are favourable and the operator is experienced in abdominal surgery. By early operation is meant any time up to six hours.
2. Rest at the place of operation for three or four days afterwards.

If these conditions are not available operation is contra-indicated, and ordinary medical treatment must be adopted. In this event, however, our experience would indicate that with Turkish bullets, shrapnel, or shell wounds the results are extremely bad.

By June 26th the operating tent was riddled with bullets and a number of the orderlies and patients had been hit, so we came to the conclusion that cases, and incidentally ourselves, ran so much risk of further injury that operative procedures in the tent were unjustifiable. We set to work to excavate a room underground, as timber was now available, and by the evening of June 26th had an operating room fitted up and lighted with acetylene gas. We considered this comparatively safe, but at 5 a.m. the next morning a 4.7 high-explosive shell penetrated and wrecked it. The beach being enfiladed from both ends, we decided we would have to seek safer quarters for the patients, so we moved up as close as possible to the Turkish trenches. We found a suitable spot protected from bullets by a fold of the ground. It was too close to the Turkish lines to be shelled from long range, and the only discomforts were an occasional sprinkling of shrapnel from a premature burst and a few lumps of iron from high explosives dropping on the cliff

above. Here operations were out of the question owing to the dust and flies. The mules were quartered in a gully close by, and the plague of flies was quite beyond description.

As very many of the men had artificial teeth, and these were constantly getting broken or lost, it was necessary that some steps should be taken to stop the wastage of men from this cause. We had a dentist attached to the ambulance, so we sent to Egypt and got a complete outfit for making dentures. In a small dug-out beside the dressing station the dental officer, with two mechanics, kept the teeth of the whole division in repair, and also made new dentures for those who required them, either from loss or breakage of teeth. The biscuit was so hard that artificial, or sometimes even natural, teeth were liable to injury.

In conclusion, I would like to make quite clear that, so far as we could see, the Turks did not deliberately fire at the medical personnel. The position we occupied on the beach was such that we could not expect to be spared. Indeed, for the greater part of the time we flew no flag, being of opinion that to do so was unjustifiable owing to the proximity of various points of military importance.

The tows of wounded going off to the hospital ships and the hospital ships themselves were never shelled. Only once to my knowledge was a tow of wounded fired on, and that was by a machine gun which was presumably manned by Germans. This incident occurred immediately after a successful attack in which the Turks had lost very heavily and it was not repeated.

THE RECRUIT'S HEART.

BY

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AFTER the outbreak of war numbers of young men were sent to me for my opinion, as they had been rejected for the army because of some affection of the heart. Most of them were perfectly healthy, and their rejection was due to the presence of some manifestations, physiological in character, which the medical examiner had taken for a sign of disease. I drew up a memorandum embodying the more prominent signs which were liable to be misunderstood, and giving in brief compass simple methods for differentiating the manifestations of a healthy heart from those due to disease. As I was desirous, like every other man, of contributing what little my special knowledge might help the common cause, I submitted this memorandum to the head of the medical staff at the War Office, scarcely daring to hope that any notice would be taken of it. It came, therefore, as a surprise when Sir Alfred Keogh suggested the issuing of the memorandum to the medical examiners of recruits.

In the memorandum I had endeavoured to give, in clear and concise language, the results of long years of careful investigation, because in the circumstances any more elaborate statement would not be likely to receive much attention. Many people have told me that they have found this memorandum of the greatest service, but others have criticized, and in doing so have contrived to muddle up that which I tried to make clear. Under ordinary circumstances I should not have taken notice of these criticisms, because it was evident that the critics neither understood the grounds on which the statements in the memorandum were made, nor appreciated their practical significance. But in the *JOURNAL* of November 20th (p. 744) Sir James Fowler has felt called upon to muddle up things still more, and as he occupies an official position connected with the War Office, and it seems that doubtful heart cases are referred to him, his remarks call for notice.

In dealing with his comments I must go outside the subject under immediate discussion, and show that Sir James Fowler's views are not based on observations that really bring the essential facts to light.

The manner in which I acquired the information which is summarized in the memorandum was as follows: When I entered general practice in 1879, I did so with the airy confidence of the young man fresh from the medical school imagining that I was well equipped for my work.

In a very short time I realized that I was ignorant of the very essentials of my work. In heart work, like other young men, I flattered myself on my cleverness with the stethoscope in detecting and naming all sorts of murmurs, but when it came to telling their significance, I was completely at fault. I turned to my books for instruction, to find that this very essential knowledge had been ignored. Realizing my ignorance of the meaning of the simplest symptoms, I set myself the task of finding them out.

To do this, I took careful note of my patients who presented any abnormal sign. I carefully differentiated each phenomenon from allied conditions. I noted all associated phenomena. I kept a large number of people under observation, watching them for a great many years, noting how they bore themselves through the strain and stress of life, in their labours and in their illnesses. As years went on, I found it necessary to seek other methods of investigation, and had to devise them. In this work I followed a large number of individuals for ten, fifteen, twenty, or even thirty years to find out the significance of some sign.

I was continually analysing my results and testing my conclusions, so that, at last, out of all this work, some clear issues were perceived. I was able to recognize why certain people with murmurs and irregularities enjoyed perfect health and lived laborious days with no sign of weakness; I was able to recognize also why others drifted to death or lived in a state of impaired health; in other words, I was able, in a great many cases, to make good that deficiency in my education, and was able to estimate the value of many signs and symptoms. I am still engaged in this work, for every day I realize my ignorance.

I want each reader who is capable of reasoning to consider the meaning of the methods I pursued. Knowledge in medicine is not limited to the perception of an abnormal sign, nor to the detection of its cause, but should include the knowledge of what effect the cause of an abnormal sign has on the individual's future life. Every reasonable person must accept that as a prime necessity in a physician. By what other means than that which I adopted could this necessary knowledge be acquired? It is because physicians do not adopt these methods that the profession is absolutely ignorant of the prognostic significance of any sign that may be present for a long period of years.

Compare the method I adopted to acquire a knowledge of the meaning of symptoms with that of Sir James Fowler, as recorded in his article in the *JOURNAL*. At the time he wrote this article (twenty-five years ago) he was placing on record the basis of a belief which has apparently been his guide up to the present. The article itself is characteristic of the writings of that period—vague, immature, insisting on the immaterial, and neglecting entirely the essential. It is evident from the fact that Sir James Fowler now quotes this article that he is unaware of the great advance that has been made during the last twenty-five years in affections of the heart.

To bring clearly before the reader the futility of Sir James Fowler's conception, let him consider what is the essential question which the doctor has to answer when the individual presents himself for examination—the recruit for instance. A great many people do not realize what this essential is. If a murmur is detected, the essential question is, What bearing has the cause of this murmur on the recruit's future? Or, more precisely, Does this murmur indicate heart failure or does its presence foreshadow its occurrence? These are really the imperative questions (directly asked or implied) demanded from every medical examiner.

If the reader will turn to Sir James Fowler's article and take that portion written in his youth, or the whole matter with the comments added in his maturer years, he will find that he can get no suggestion of help to answer these essential questions, nor is there the slightest indication how the value of a murmur should be estimated.

As illustrating how firmly established is the superstition that a heart to be normal must be free from murmurs and irregularity, I cite two recent cases, not by any means exceptional.

In August, 1914, a lad of 19 was sent to me by his doctor with the statement that he had been rejected for the