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THE WAR IN SOUTH AFRICA.

SURGICAL NOTES FROM THE MILITARY HOSPITALS IN SOUTH AFRICA.

[FROM OUR SPECIAL WAR CORRESPONDENT.]

GENERAL OBSERVATIONS ON SMALL-CALIBRE BULLET WOUNDS.

THE HOSPITALS AT WYNBERG.

DURING my stay at Capetown I had an opportunity of seeing Nos. 1 and 2 General Hospitals, established at Wynberg, in full work. A large number of wounded and a few—remarkably few—sick had been brought down from the field hospitals at the Modder River and Orange River, and the staff were busily engaged. Later on some 180 were brought in the hospital ship *Spartan* from Natal and accommodated at No. 3 General Hospital at Rondebosch, the officers being taken into the permanent hospital forming part of No. 1. There is no need for me to describe the hospitals, as your readers have already had full accounts of them, but a few impressions derived from a study of the cases may prove of interest.

Through the courtesy of Colonel Anthonisz, Colonel Duke, and Colonel Wood, in charge respectively of the three hospitals, I was enabled to study the cases minutely, and the R.A.M.C. officers and civil surgeons vied with each other in drawing attention to all the more remarkable cases. It is of course early to speak positively about patients who have only been a short time under treatment, but the general impression of their progress is decidedly favourable. The sanitary efficiency of both hospitals is so far unquestionable and the water supply good and abundant. At present the dry season is firmly established, and the doors and windows everywhere, in huts and tents alike, are perpetually open, to an extent indeed that at first rather amazes those unaccustomed to the climate and unaware of the slight risk that appears to be incurred by operating on patients and dressing wounds almost in the open air.

Wounds inflicted by the Mauser bullet heal very kindly, as favourably indeed as we are assured by those who ought to know, do wounds caused by the Lee-Enfield. If a Mauser bullet has merely inflicted a flesh wound through the shoulder, arm, or thigh, healing throughout by primary union can with certainty be looked for. It is uncommon to find any portions of clothing, buttons, etc., carried into the wound. In some cases, however, this does happen, and I was assured that in not a few that came under treatment at the field hospitals at the Modder River, portions of the Highlanders' kilts were embedded in the wounds, and were removed.

*WOUNDS BY THE "SPORTING MAUSER" BULLET, AND BY RICOCHET.

The vast majority of the wounds are inflicted by the Mauser bullet proper—that is, the familiar conical bullet sheathed completely in nickel. But wounds inflicted in our men by three other kinds of bullets have to be taken into account. The sporting Mauser bullet is of the same size and weight as the other, but the nickel does not entirely enclose the lead, being deficient at the fore part for about half an inch. The posterior point of the lead bullet being enclosed and tightly gripped in its nickel sheath, the lead on striking any hard substance—bone, for example—spreads out, or "mushrooms," as it is usually expressed. This involves much laceration of soft parts. There is yet a bullet occasionally used which is practically identical with the "Dum-dum," and in a very few instances the ordinary "Express" bullet has been extracted. To this list should be added the Mauser bullet as a ricochet shot. Not many of these are met with. Some that I have seen show bending of the bullet, or it may be twisted on its long axis. The nickel top may be intact, but the nickel sheath will probably be split and stripped off the lead core to a greater or less extent, so that the bullet resembles a moth with closely folded wings. Such missiles would be likely to deflect in their course, and they would obviously lacerate the parts through which they passed. An intact Mauser bullet nearly spent may be twisted and bent, and the nickel sheath split in a somewhat similar fashion if it strikes a hard bone. In such

cases the entrance wound is small and there is probably no exit wound, thus showing that the bullet was of normal shape when entering.

SHELL AND SHRAPNEL WOUNDS.

A few of the patients have injuries from shell splinters, one or two injuries from the 116 Nordenfolt projectile, and once in a way wounds inflicted by shrapnel are met with.

THE SMALL PROPORTION OF SEPTIC CASES.

It must be borne in mind that all the patients in the base hospitals have travelled far. When fit to be sent down from the field hospitals in the western frontier, or when the pressure necessitated their being moved away, they had a journey of at least twenty-eight hours in the hospital train to Wynberg; then the drive up to the base hospital is about a mile. Wounded sent down from Natal have their journey to Durban, and then the transit in the hospital ship to Capetown. After that they have about half an hour's journey by train from the docks to Wynberg or Rondebosch, followed in either case by a drive of about one mile. If the conditions, therefore, are considered, and it be remembered that many of the men had lain for hours on the field of battle before the ubiquitous bearer companies had access to them, it is not surprising that in a few cases the wounds had become septic before they reached Wynberg. Once there, however, and at rest, the septic condition as a rule rapidly mended. At one time during my stay at Capetown there were about 1,100 patients in hospital. The proportion of septic cases was marvellously insignificant.

THE SURGICAL WORK AT THE FRONT.

The mere mention of septicity seems to imply criticism if not censure. Nothing could be further from justice. The plain fact is that one and all are agreed that never perhaps in the history of warfare has better work been done at the front by the Medical Department than in this campaign. The bearer companies and ambulance department have already received the praise so well their due. I desire to bear witness also to the evidence of the excellent surgical work done at the front, examples in proof of which will be cited later on.

NATURE OF WOUNDS IN RELATION TO THE NATURE OF THE FIGHT.

It is noteworthy that the different engagements were to a considerable extent characterised by particular classes of injuries. Thus at the action of Belmont, when our troops were for a great part of the fighting hours on their feet, the cases of wounds of the trunk and in particular of compound fracture of the thigh were numerous. At Magersfontein especially wounds of the head and shoulder and long tracking wounds were in the ascendant. These facts seem to imply not only good shooting on the part of the Boers but also opportunity for deliberate aim. Wounds about the shoulder, usually the left, were common, and I saw quite a number where the bullet had entered near the acromion process and passed out through the axilla. Many of these were complicated with nerve injury and of much interest, and I shall write more at length on them in my next letter.

WOUND OF KNEE BY LEE-ENFIELD BULLET: CONVALESCENCE: FRESH INJURIES: AMPUTATION.

The following are the notes of a case in which a Lee-Enfield bullet wound of the knee-joint appeared likely to do well, when an accident altered the progress of the case very much for the worse.

The patient was a field cornet, wounded at Elandslaagte by a Lee-Enfield bullet and taken prisoner. It entered the left popliteal space, and passed out through the patella, fracturing that bone transversely about the middle. The wound did well, and he was sent round to Capetown, and moved to No. 1 Hospital at Wynberg. He was a big, heavy man, weighing probably 16st. or 17st., but not very healthy-looking; in fact, his appearance rather suggested renal disease, and the action of the heart was feeble. Wiring the patella was suggested, but not performed. He recovered sufficiently (with a movable knee-joint) to leave his bed, and to move about on crutches. One day, however, he fell, tearing the anterior wound open. Extravasation occurred into the knee, and suppuration followed. When I saw him (about December 22nd)

openings had been made in various places about the joint, and there was cedema of the back of the thigh. The knee was flexed, and acutely painful. He was very hysterical, and though at first afraid of chloroform would not afterwards allow the dressings to be changed without an anæsthetic. The temperature was irregular, high, and obviously septic. He has wasted, having probably lost 3st. or 4st. in weight.

About December 24th the knee-joint was freely laid open and irrigated; commencing erosion of cartilages was observed. The temperature improved for a few days, but then began to rise and grow irregular again. He asked for amputation, and this was done by Mr. Makins about December 27th in the middle third of the thigh. The after-progress was satisfactory, and the prospect of rapid recovery almost certain.

SOME IMPRESSIONS OF MILITARY SURGERY IN SOUTH AFRICA.

By G. H. MAKINS, F.R.C.S.,

Consulting Surgeon to the Forces in South Africa.

I.—THE GENERAL CHARACTERS OF THE WOUNDS INFLICTED BY THE MAUSER RIFLE.

Wounds inflicted by the Mauser rifle possess very special characteristics, due in part to the velocity attained by, in part to the smallness of, the bullet. These characteristics are in a great measure shared by the wounds produced by the Lee-Metford, but the slightly greater size and weight, together with the blunter extremity of the Lee-Metford bullet, give rise to a slightly more serious injury than that resulting from the regulation Mauser. In all essentials, however, the wounds produced by the two rifles may be regarded as identical in nature.

The first striking physical peculiarity is the direct course of the wound track, due to the fact that the bullet, by reason of its small size and the great velocity at which it travels, is never materially diverted in its course through the body; indeed, there is no reason why the entire length of the body should not be traversed by a bullet fired from a short distance. The question of a wound track travelling around the wall of the thorax or abdomen has scarcely to be considered. The same conditions responsible for the directness and length of the tracks naturally explain the frequently multiple character of the visceral injuries sustained, for example, lung, stomach, liver; neck, thorax, and abdomen; and the common infliction of two or more separate tracks by one bullet, for example, arm and forearm with the elbow in a flexed position, both lower extremities, head and trunk, or one upper extremity and trunk.

The direction of the track is naturally dependent on the position of the body at the time of the reception of the injury, and the frequent assumption of the prone position in the present campaign has led to the occurrence of a large proportion of longitudinal tracks in the trunk, or trunk and head, which will be referred to later. Certain battles, in fact, have been characterised by the nature of the wounds sustained: thus, at Belmont and Graspan, where rapid advances were made in the erect position, fractured thighs were particularly numerous, while at Modder River, where the men for a great part of the time lay on the battlefield in the prone position, glancing wounds of the uplifted head or longitudinal tracks of the trunk and limbs were especially frequent.

Secondly, the tracks are of very small calibre, and hence produce remarkable individual injuries of narrow structures such as nerves and vessels, to be later remarked upon; while, on the other hand, the force of the bullet seems to be mainly exerted on the tissues immediately before it, so that only the area of tissue immediately surrounding the track is condensed as well as contused, and vital structures lying but a very short distance away escape any serious injury in a most surprising manner.

Thirdly, the apertures of entry and exit are extremely small, and in uncomplicated wounds of the soft parts often differ little in appearance. The apertures, however, present considerable variations in character, according to the angle at which the bullet impinges upon the surface, or if the bullet has been deformed by striking against some hard substance before entering the body; or, again, the distal portion of the

track and the wound of exit are materially modified when the bullet strikes a bone in its course.

When the bullet impinges on the surface at approximately a right angle the aperture of entry is circular and clean punched out, about a third of an inch in diameter, and the margin is slightly depressed and contused. The exit opening is usually more slit-like, and the surrounding contusion less marked, the size in uncomplicated cases not exceeding that of the aperture of entry, and there is rarely any appearance of starring.

When the bullet impinges obliquely the aperture of entry is oval, that side of the entrance hole on which the bullet has rested sloping down in a shelving manner to the track; when such openings are supported by a firm floor, as the chest wall, or a bone, they are often of considerable size.

The most important modifications in the nature of the apertures in cases uncomplicated by bone injury are due to alterations in the shape of the bullet, consequent on its striking against a stone or some hard substance prior to entering the body.

In some instances the bullet is simply bent or curved; in others it is shortened, the unbroken sheath forming folds on the shortened lead core; in others the casing is torn or broken, forming a ragged envelope, projecting more or less widely. Several variations of the last condition occur: thus (1) the bullet may simply have the casing broken from the tip and be little altered; it has been suggested that this may, in some instances, have been done by the soldier before firing, with a view to the production of explosive effects. (2) The broken casing may be rolled back so as to form an irregular fringe, and this condition may reach such a degree that after entering the body the leaden core may entirely escape from the case and travel onwards, leaving the jagged case entangled in the deep part of the track. (3) The casing may be fissured longitudinally, the broken portion projecting from the side of the bullet like a knife edge.

In either of the latter instances the apertures both of entry and exit lose all special characteristics; they are large and irregular and the wound track is modified in a corresponding degree.

MEDICAL NEWS AND NEEDS IN NATAL.

[FROM OUR SPECIAL WAR CORRESPONDENT.]

Pietermaritzburg, Natal, January 12th.

FIRE AT A HOSPITAL AT MARITZBURG.

A SOMEWHAT serious fire occurred on the evening of January 8th, at the Lower Barrack Hospital at Maritzburg. Two wards, containing 50 beds, were completely burnt out. The building was of the usual type of wood and galvanised iron. Fortunately the patients were got out smartly, and no harm whatever has resulted to a y of them. The local papers stated that the wards were unoccupied at the time; this is incorrect. Some of the bedsteads were lost. Had there been a strong wind blowing the extension of the fire would only with difficulty have been prevented, for although there is a fire station within two hundred yards, the fire hose could not be got to work, owing to lack of water, until the huts were destroyed. There were plenty of empty beds in other parts of the hospital, and no serious inconvenience was occasioned. The result of inquiry as to the cause has not been made known, but the fire, as usual, is ascribed to the upsetting of a lamp.

THE GARRISON CHURCH AS A HOSPITAL.

Steps are now being taken to convert the garrison church into a hospital. The building will accommodate 50 or 60 beds. It is doubtful whether church buildings are ever, in a warm climate, well adapted for hospital purposes. The ventilation is not good, the windows being placed high and not opening freely enough, and there is no through current of air. Nor is the light all that could be desired. Moreover, it is a distinct disadvantage to mass so large a number of sick or wounded in one ward. Tents are only in use in the College Hospital at Maritzburg. So far the rainfall has been unusually light for the rainy season here, but doubtless during the summer months in Natal, where tremendous downpours of rain are as a rule frequent, hospital patients would be better off in huts. The progress of wounds here, speaking generally, is as satisfactory as could possibly be wished.

CONVALESCENT HOMES FOR OFFICERS.

There would seem to be a good opening for more convalescent homes for wounded officers, but apparently the necessary funds are not forthcoming. Should any pressure occur, the supply of beds for officers will hardly be adequate. At present the only convalescent hospital for officers is that under the management of Mrs. Gunning and Mrs. Graham, which accommodates but 6. Another similar institution to take 10 or 12 is talked of, but not yet established, and, if started, it will be by private enterprise. The officers are exceedingly keen to get back to the front the moment they are pronounced well enough, and it is to be feared that in some instances their chance may be lost owing to the necessity of providing a sufficiency of hospital beds and the absence of suitable provision for cases not well enough to return to duty, and yet too far advanced in convalescence to justify detention in hospital.

THE HOSPITAL SHIP "NUBIA."

By GEORGE ASHTON, M.B. Vict.,
Surgeon P. and O. S. N. Co.

CONVERSION FROM A TRANSPORT.

The conversion of the ss. *Spartan* from an ordinary passenger ship into a hospital ship, with accommodation for 130 patients, in Southampton last October, elicited favourable comments from the home papers. However, in the fitting-up of the transport *Nubia* for hospital purposes in Durban, with accommodation for nearly 500 patients, it may fairly be claimed that this young colony has shown its aged parent "how the thing ought to be done." The ss. *Nubia* belongs to the Peninsular and Oriental Steam Navigation Company. She is 430 feet long, 49 feet broad, and her registered tonnage is 5,914. She has a sea speed of 14 knots. The *Nubia* was engaged last summer in the conveyance of the company's mails to China, but in October she was chartered as a transport, and brought the Scots Guards to the Cape. She then proceeded to Durban, where she will remain until the present campaign is over.

THE WORK OF EIGHT DAYS.

On December 25th, 1899, a telegram was received by the naval authorities from the General Officer Commanding the Forces in Natal, requesting them to select and fit up a large steamer as a hospital ship with all possible speed. On the following day the *Nubia* was inspected, and, being deemed suitable, 130 carpenters, plumbers, painters, and electricians, most of whom were refugees from the Transvaal, were at once placed on board. By working day and night the ship's whole aspect was changed, and her interior completely rearranged, and in eight days she was converted into a floating hospital, replete in every detail, and was ready for the reception of patients on January 4th. The *Nubia* had been fitted for the carrying of 2,000 troops, and this entailed an additional amount of labour, as all the extensive troop fittings had to be removed ere the work could be begun. It speaks well for the resources of Durban and for the energy of those to whom the work was entrusted, that the change was completed in eight days, as the magnitude of the task will be fully appreciated when it is known that every fitting, every cot, etc., had to be procured or constructed locally.

THE WARDS.

Altogether there is accommodation for 474 sick, wounded, or convalescent patients. These are distributed into seven wards, named A to G, beginning in the fore part of the ship with Ward A, and finishing in the stern with Ward G. A Ward contains 100 convalescents; B, 26 cot cases; C, 32 cot cases; D, 200 convalescents; E, 28 cot cases; F, 30 cot cases; G, 30 cot cases; whilst 28 convalescent officers have the use of the passengers' cabins, in which only the lower berths will be used, the upper ones having been removed to make more room. The convalescent men will sleep in hammocks. The wards are all between decks, and can be completely separated from one another by closing the watertight doors. In Wards F and G, which will be used for the most serious cases, swinging cots are provided, so that when the ship proceeds to sea the motion will be reduced to a minimum, thereby conducing to the comfort of these patients. The ward floors have all been varnished and the sides matchboarded and painted

white, which adds an air of brightness and cleanliness to their appearance. The vessel throughout is ventilated by steam ventilators and electric fans; as a result the wards are always delightfully fresh and cool, even in the middle of the day when the heat is sometimes oppressive.

THE OPERATING THEATRE AND ADMINISTRATIVE OFFICES.

The operating theatre is situated on the main deck aft, and is provided with all the latest appliances for the proper pursuit of antiseptic surgery. Further aft still a mortuary is situated, where *post-mortem* examinations will be conducted, and the plentiful supply of fresh water which is so necessary has been provided. The dispensary is attached to Ward E, and a washhouse and laundry are situated on the main deck amidships. The approaches to the wards from the upper decks have been made easier and more adapted to the needs of invalids by having the steps broader and less perpendicular than is usual on board a ship. Two lifts have also been fitted for the use of helpless patients. They are worked by hand, and are so contrived as to be free from jerking.

THE STAFF.

The medical staff consist of 6 doctors, 7 nursing sisters, and 35 attendants. A guard of 10 marines and a corporal are attached; they are from H.M.S. *Terrible* stationed here, and their duties consist in keeping sentry at the gangway, seeing that due order and discipline are maintained, and that no convalescents leave the ship without permission. During the conversion of the ship Sir William MacCormac paid a visit. He expressed his satisfaction with the excellence of the work, and gave several hints and suggestions.

COMFORTS FOR THE PATIENTS.

The ladies of Durban came forward with their usual munificence and supplied numbers of deck chairs, small tables and screens, as well as many hanging ferns and palms; these enormously enhance the general comfort and cheerful aspect of the wards. Every day baskets of flowers and fruit, together with bundles of newspaper and illustrated periodicals, arrive. These contributions show that Tommy has won a large circle of sympathetic friends who are only too pleased to avail themselves of this opportunity to tender him a token of their appreciation.

CLIMATE.

The patients will be brought down from the base hospitals at Maritzburg and Frere, and will travel in trains specially fitted up for the purpose. These trains are made conspicuous by having the Red Cross painted on the carriages. The soldiers will be kept on board until able to resume their duties at the front, or if incapacitated from further service they will be sent home when they are fit to travel. Cloudless blue skies from week's end to week's end, with now and then an occasional shower of rain to relieve any possible monotony, cool breezes from the south-west, the fresh salt smell of the sea, and an equable temperature day and night, may be trusted soon to bring back health and strength to these invalids, who, having been shedding their blood in their country's cause, are now justly entitled to every care and comfort that a grateful country can provide.

Durban, January 13th, 1900.

SICKNESS AT THE MODDER RIVER.

[FROM A CORRESPONDENT.]

TYPHOID FEVER AND DIARRHOEA.

THERE has been no severe fighting since my last communication to you. In that letter I stated that the troops were in excellent health; I regret to be unable to send such a good report this mail. Typhoid fever has broken out and many men have already died of the disease. In addition the troops are much troubled with a very severe form of diarrhoea. The illness begins very suddenly, the stools are quite liquid and of a light green colour, the liquid is very acid and very frothy, showing rapid fermentation. At the commencement as well as at the close of the disease a little blood and much mucus are often passed. The patient complains of severe scalding about the anus for ten minutes after defecation. The malady seldom lasts more than a week, but leaves the patient very weak. The temperature is seldom or never raised. I

have found the best treatment to be rigid milk diet and a daily injection into the rectum of cold boiled water in which have been dissolved a tabloid of ipecacuanha and 10 minims of chlorodyne. I can speak well of the above treatment, which I have practised on myself, having had the malady twice and been invalided with it once.

The cause of the diarrhoea I believe to be a subacute enteritis following the ingestion of particles of sand. Seldom a day passes without the camp being attacked by a "devil." This is the popular name for a dustspout or sand storm. These storms may last from a quarter of an hour to a whole day and make life a perfect misery. The quantity of silica one is compelled to breathe and to swallow is enormous, and it is to the irritation of the bowel membranes by these particles of silica that I attribute a large percentage of our cases of diarrhoea.

Modder River, January 12th.

THE PORTLAND HOSPITAL.

Mr. Anthony A. Bowlby has sent to the *St. Bartholomew's Hospital Journal* a letter dated January 9th, describing the establishment of the Portland Hospital at Rondebosch, about six miles from Capetown. The staff arrived at Capetown on December 29th, 1899; the whole of the equipment and stores did not reach Rondebosch until January 3rd, but five days later the tents were pitched, including one tent for operations, one for a dispensary, and one for an office. The site chosen for the hospital is a sandy soil on an open piece of ground, and is described as "perfect both from a scenic and a sanitary point of view."

The first cases were admitted on January 8th. They comprised 3 officers and 30 men, mostly from the cavalry and artillery of General French's column at Colesberg. In most cases the wounds had been received on January 4th, but in some on January 1st and 2nd. All had been dressed with the field dressing, or at the field hospitals, or in the train by which they were brought down. Mr. Bowlby states that "most of the wounds were quite aseptic, though the skin was often as dirty as dust, powder, and sweat could make it, and in spite of much oozing in many cases."

In concluding his letter, Mr. Bowlby writes: "I should like to say that the general arrangements for the dressing of wounded men on the field of battle, and for their transference by train, are probably better than anything ever before achieved by any nation, and reflect the greatest possible credit on the R.A.M.C., who have saved our soldiers untold sufferings and many lives."

The Honorary Secretary of the hospital has this week received a telegram stating that "the hospital is now full of patients and in thorough working order, doing excellent work."

THE MEDICAL ASPECTS OF THE WAR.

BY A SOUTH AFRICAN CAMPAIGNER.

XII.

CAMP SANITATION.

FROM the Modder River during the past week information with reference to the sanitary condition and the health of both camps has reached us. Thus Reuter's telegram of Sunday, January 28th, states that "our medical officers here believe from various indications that the Boers are suffering from enteric and dysentery owing to the insanitary condition of their trenches, which are reported to be reeking with disease. In addition to this the general demoralisation caused by the heavy shelling, which is sufficiently erratic to keep the enemy always on the *qui vive*, together with the scarcity of food and the difficulties of transport, make the existence of the Boers at Magersfontein one of abject misery." It will be interesting to know what the indications referred to may be, but we have little doubt that diseases which are causing such havoc among our troops at Ladysmith are thinning the ranks at Magersfontein. Magersfontein is well known to me, and knowing both this position and our own position on the Modder, I have no hesitation in saying that that held by our troops is much healthier, and in every way more desirable for a camp than that occupied by the Boers. The water supply at Magersfontein is limited, and no doubt has to be carried

for considerable distances to various portions of the Boer lines. The Boers as a rule are very slovenly in their camp arrangements, and when they come to be massed in large numbers I have little doubt that their sanitation is extremely deficient. From our own camp on the Modder we learn that instructions have been issued that in future wells must be sunk to supply water for drinking purposes, while the river water is to be used only for washing and watering the horses, mules, and oxen. This is doubtless an admirable precaution, and one most likely to be effectual in checking the typhoid fever which already threatens that camp. The water of the river, which is practically stationary, being held in large dams or reaches, is almost bound to be polluted from the camp on its bank.

LOSSES IN GENERAL BULLER'S SECOND ATTACK.

The total losses from General Buller's second attack on the position held by the Boers north of the Tugela have been compiled from various sources by the *Daily Mail*, and are given as follows:

Date.	Officers.		Non-commissioned Officers and Men.			Totals.
	Killed.	Wounded.	Killed.	Wounded.	Missing.	
January 18—Acton Homes (Dundonald)	—	1	2	1	—	4
January 17, 19, 20—Venterspruit, etc.	1	17	31	274	2	325
January 20th—Lyttleton (Potgieter's Drift)	—	1	2	13	1	17
January 21—(Hart, etc.)	—	7	22	216	4	251
January 22—(Hart)	—	1	1	19	—	21
January 23—(Hart)	—	—	1	14	—	16
January 24—Spion Kop, etc.	30	33	157	532	310	1,062
January 25—(Hart)	—	—	—	10	—	10
January 26—(Hart)	—	—	—	3	—	3
January 27—Miscellaneous casualties	—	1	1	33	—	35
	34	61	217	1,115	317	1,744

This gives a total of 251 actually killed and 1,176 wounded; of those returned as wounded we may take it that about 8 per cent. will die and the rest recover. Judging from previous experiences of wounds from the Mauser bullet, two-thirds of the men will be able to rejoin the forces within three weeks, and for the remaining third the period of healing is not likely to be a very prolonged one. The proportion of killed to wounded is again shown in these engagements to be apparently very small, many of our men having been sniped by the Boers at long ranges. The Boers hid themselves in all sorts of positions among the rocks on the Tugela heights. The ultimate result, then, of this attack will probably be the loss of between 300 and 400 lives. Considering the duration of the fighting, the number of men engaged, and the fierceness of the contest, we must admit that these losses cannot be regarded as unduly large.

GENERAL BOTHA AND OUR AMBULANCE.

After the battle of Spion Kop the Maritzburg correspondent of the *Daily Mail* tells us that one of our officers who asked permission to remove the wounded and bury the dead was directed to General Botha, the Boer commander, who refused to give permission. He said that previous to the war it had been said that England was going to meet a nation of barbarians, whereas the reverse had been the case. He mentioned instances of the Red Cross flag having been disrespected in Cape Colony by the British, and added that now he had the opportunity he would insist upon some guarantee being given that these acts should be discontinued before he surrendered the wounded. Our officer expressed ignorance of the instances mentioned, and pointed out that some of our ambulance men had been killed that day. Botha replied that the bearers had no right on the battlefield until two hours after the cessation of hostilities. Subsequently Botha gave up the wounded. If this be an accurate description of what occurred after the fight, I submit that the action of General Botha was both inhuman and unwarranted. His

statement that the bearers had no right on the battlefield until after the cessation of hostilities is not borne out by any clause in the Geneva Convention, and it is obviously a flagrant violation of all the dictates of humanity and the requirements of ambulance work. The Geneva Convention is short and simple; it contains only nine articles, and the whole spirit of the instrument is to facilitate aid to the suffering in every possible way. Article 2 is the one most directly bearing on the question, and reads as follows:

Persons employed in hospitals and ambulances, comprising the staff for superintendence, medical service, administration, transport of wounded, as well as chaplains, shall participate in the benefit of neutrality whilst so employed, and so long as there remain any wounded to bring in or to succour.

The original Geneva Convention, to which all the civilised Powers of Europe are signatories, came into force in 1864; a supplementary one was signed in 1868. The latter part of the first article in this reads as follows:

"When they"—that is, the persons referred to in Article 2 of the 1864 Convention already quoted—"request to withdraw, the commander of the occupying troops shall fix the time of departure, which he shall only be allowed to delay for a short time in case of military necessity."

The restrictions which any combatant officer may put upon the ambulance staff are thus clearly and sharply limited, and I think there is no question that General Botha exceeded the rights of a civilised combatant when he said that bearers had no right on the battlefield until two hours after the cessation of hostilities. There is certainly no mention either in the convention or the supplementary convention of such a restriction as he referred to. With regard to the alleged charges of disrespect to the Red Cross flag by the British in Cape Colony we must await further information, but it may be borne in mind that cases have been reported in connection with the hostilities on the western border of the Free State where the Boers are said to have fired upon our troops from waggons carrying the Red Cross. Such attacks may have drawn forth retaliation in kind, though it is to be hoped they have not. The final attempt of the Boer leader, as reported by the *Daily Telegraph* correspondent, to make the ambulance party on Spion Kop prisoners until we returned 25 Boers, who were taken as prisoners of war by our cavalry, is pretty conclusive evidence that good faith was not the guiding principle of General Botha's interference with our succour to the wounded.

Khaki Suits.

The *Pall Mall Gazette* of February 1st has a statement that khaki suits have been found not of sufficient protection for men when sleeping on the field, and the Government have placed extensive orders with Glasgow manufacturers for woollen khaki uniforms. It may be observed that the word "khaki" signifies a colour (that of mud) and not a material. In one of my previous letters I took occasion to point out that cotton khaki, although excellent material in a blazing sun, was very poor protection in cold weather, and more particularly when wet. I wore khaki for many years off and on in South Africa, but latterly never used it without having it lined with flannel, and never used it at all in wet weather. The soldier, to my mind, should always be provided with woollen or serge suits in addition to his cotton khaki. In selecting equipment for a corps recently formed for South Africa, a committee of which I was a member provided all tunics of khaki-coloured serge. If men have their shirts made of khaki-coloured flannel they can in hot weather march or patrol in their shirtsleeves—an excellent fighting costume.

CAPE METEOROLOGICAL RETURNS.

I have been favoured by Surgeon-Major Black with some notes on the weather of 1898, as observed by the Meteorologist of Cape Colony. From this it appears that the mean temperature in the shade at all the meteorological stations was 69.8°, with the comparatively small mean range of 19.1°. As showing the great variations of temperature in the summer months, it may be noted that in January, 1898, the maximum temperature at Graaf Reinet was 108°, the minimum for the same month was 40°. At Kenilworth, which is the De Beers village outside Kimberley, and the site of Mr. Rhodes's famous siege avenue recently laid out, the maximum black bulb in the sun was 159.8°, the highest shade temperature being 94.7°; the minimum black bulb on the grass was 39.1°, the lowest shade temperature being 44°. Here, again, the great difference between the noontide temperature and the

temperature at night is very marked. Similar observations are recorded for February.

A POSTHUMOUS LETTER.

G. W. Steevens's letter to the *Daily Mail* of February 3rd has a pathetic interest for readers to-day. Apart from its military and deep human interest, it throws a lurid light on the conditions which doubtless played a great part in the production of dysentery and typhoid among the garrison. If the siege seemed a long one in November, how much longer is it to-day! Yet even then men had to dwell "where no people should be—in the clefts at the river bank," "in overgrown ditches,"—all were alive with men and beasts. "The place that a month ago was only fit to pitch empty meat tins into is now priceless stable room." "The most worthless rock heap below a perpendicular slope is now the choicest of town lots." What chance had sanitation here?

LETTER FROM BASE HOSPITAL.

I have just received a letter from one of the civil surgeons attached to the field force, from which I take the following extracts:

No. 5 General Hospital, January 17th, 1900.

I arrived, on board the British India steamship, in Table Bay on the evening of January 7th. I need say little about the voyage. The news we received at St. Vincent, the capital of the Cape Verde Islands, was that Buller's reverse amounted to 1,100 casualties and that Roberts and Kitchener were to sail immediately for the Cape. The other civilian surgeon on board and myself had little to do; a great many men, however, suffered from a low epidemic form of influenza characterised by pains in the back and head, general prostration and coryza. At least 50 per cent. of the troops, including the officers and surgeons, were victims. The troopers had an opportunity of being inoculated against enteric fever. Some twelve or so out of over 1,400 men only were done. Apart from slight *malaise* for twenty-four hours, local tenderness, swollen and painful inguinal and axillary glands (inoculation into the flank) and a rise of temperature from 100° to 102° F. on the evening after the operation nothing noticeable occurred. Lord Roberts and Kitchener arrived yesterday. I met them driving about town to-day. The destination of No. 5 General Hospital, to which I am attached, is at present unknown, and meanwhile those members belonging to it who are in the Cape are temporarily attached to No. 2 Hospital at Wynberg. Both No. 1 and No. 2 Hospitals are stationed among the pine trees at Wynberg; the wards of the former being the old tin wards (lined by wood) of the Wynberg Permanent Hospital, while the wards of the latter are simply marquee tents.

The medical officers of No. 1 live in small tin shanties, while those of No. 2 are under canvas. Hence the present moment (I am in the interim attached to No. 2), finds me sitting in my solitary bell tent writing on a collapsible table. A tent to one's self makes quite a pleasant and cheery chamber (well furnished, too, with chair, table, and bed) for camp life. Wynberg is thickly wooded with high pine trees (*Pinus sylvestris*) which flourish luxuriantly, and the wards composed of marquees and tin sheds are scattered about between the trees. The arrangement of the hospital is hence an ideal one; any proximity of the wards being avoided. The atmosphere at Wynberg, situated high up on the side of the mountains, is delightfully fresh and exhilarating, as evinced by the rapid improvement of the patients. The administration is good. The patients, both Tommies and officers, are well cared for and fed on the fat of the land.

Sir William MacCormac and Mr. Makins are at present out here. Mr. Treves assisted at the operation at Wynberg when Mr. Knight, the war correspondent, had his right arm amputated at the shoulder joint.

To-day I was taken on to the staff, for temporary duty only, of No. 2 Hospital; two marquee wards have been allotted to me on the medical side. I was told to-day that I would have to be attached to No. 1 Hospital in the place of one who is taking a trip home in the *Majestic*; he may be away for two months. This is rather annoying, as I was hoping to go further inland when the remainder of No. 5 Hospital had arrived.

I have only seen a few of the old cases—the results of Magersfontein—so can say little about the injuries inflicted by the Mauser bullet. Those cases, however, which I have seen show very small entrance and exit wounds, the former often only the size of a threepenny bit or smaller, and the latter a little larger. The injury to bone is at times considerable, for by the time the bullet has penetrated some distance into such a hard structure the metal expands, and so the posterior portion of the bone is considerably shattered and splintered, while usually the entrance wound into the bone is round and cleanly-cut. The long Mauser bullet, unless it impinge mathematically perpendicular to the surface of the bone struck, is very apt to become deflected and so skid off the surface of the bone. Examples are found in the cases out here; thus, in several cases where the bullet has impinged on a rib it has failed to perforate the bone, but has instead slid over it and reappeared even at the other side of the body. Again, in several instances the bullet has struck the smooth skull and travelled over its surface for some distance and then made its exit. Injury to the brain from concussion and fracture of the inner table from the great force of impact are not uncommon complications of such head injuries.

Work is quiet in hospital at present, as there are no big engagements at the front. Roberts will possibly make matters somewhat more lively. May the articles on the war, in the *BRITISH MEDICAL JOURNAL*, by "An Old Campaigner" long continue to appear! The news we get at the Cape is scrappy, scanty, and unreliable.

VOLUNTEER BEARER COMPANY AND MEDICAL STAFF.

We learn that the War Office has approved of the employment of the Volunteer Brigade Bearer Company and Volun-

teer Medical Staff Corps, both in South Africa and for home service, and an army order will be issued immediately, upon which men will be enlisted for South Africa, and then despatched to Aldershot for instruction previous to sailing. Those for home service will assemble at their headquarters, and be detailed to home stations. In either case the respective units will be kept as much together as the exigencies of the service will allow.

TRANSFERS AND APPOINTMENTS.

Major Blenkinsop, R.A.M.C., has been ordered to Aldershot for duty with No. 20 Field Hospital, and Captains Waring and Kelly are to do duty with No. 7 General Hospital.

Lieutenant-Colonel R. T. Beamish, R.A.M.C., has been selected for the charge of No. 8 General Hospital.

Army orders at Capetown, dated January 24th, state that Colonel Williams, Principal Medical Officer of the New South Wales Contingent, has been appointed Principal Medical Officer for all the Australian contingents at present in South Africa. Colonel Williams is a brother of Mr. Campbell Williams, F.R.C.S., of Queen Anne Street, W.

THE REPORT OF THE MEDICAL OFFICER OF HEALTH FOR LONDON FOR 1898.

II.

OVERCROWDING.

By representing "overcrowding" as the proportion of the population of each district occupying tenements of one, two, three, and four rooms, in which there were more than two persons to a room, according to the census of 1891, Mr. Shirley Murphy shows graphically how the phthisis mortality at each age increases with overcrowding. The figures, however, do not suffice to show whether the overcrowding caused phthisis, or whether the disease by adding to family expenditure or by diminishing the wage-earning power left less money available for rent and thus led to the overcrowding, or whether, again, overcrowding may not be associated with some other condition or conditions which are favourable to disease. In order to determine whether overcrowding bears a similar relationship to the mortality from diseases other than phthisis, and, if so, whether the increase of mortality from these diseases in association with overcrowding especially manifests itself at the same ages as in phthisis, a comparison is made between phthisis and tabes mesenterica, tuberculous meningitis, diarrhoea, the principal zymotic diseases excluding diarrhoea, and cancer. Mr. Shirley Murphy shows that the mortality from tuberculous meningitis does not correspond to the extent of overcrowding so closely as phthisis, and that from tabes mesenterica still less so; the relation of overcrowding to mortality from diarrhoea and the principal zymotic diseases is not particularly apparent; while the mortality from cancer does not appear to have any relation whatever to overcrowding.

THE SPREAD OF INFECTIOUS DISEASES BY SCHOOLS.

The sufficiency of the various measures which can be taken for the limitation of the spread of infectious diseases at schools are critically reviewed, and Mr. Shirley Murphy advocates a step the value of which many of those connected with the public health service have recognised for some years. Like many others, he is satisfied "that inasmuch as attendance at school is a considerable cause of spread of infectious disease, the examination of school children should be undertaken in any school attendance at which is suspected to be causing prevalence of disease." This examination becomes necessary at school, because it is not practicable to examine numerous school children quickly in their own homes. It is contended that the medical officer of health, or some medical man acting on his behalf, should make these examinations, since the health officer is more acquainted with the behaviour of infectious disease in the neighbourhood of the school, and the knowledge of the condition of children in the school would be of material value to him in determining what action is required by his authority to limit the extension of the disease. Mr. Murphy observes that "London school children have not yet had extended to them this protection which they so urgently need."

BACTERIOLOGY AS AN AID TO DIAGNOSIS.

The employment of bacteriological methods for the diagnosis of obscure cases of diphtheria and typhoid fever is shown by

the report to be on the increase; nearly one-half of the sanitary areas in the metropolis afforded facilities for such diagnosis in 1898, and no doubt the provision is already much more general. At Westminster an incubator, steriliser, and microscope are provided for the use of those practitioners who have the leisure or the special knowledge and training to make a satisfactory examination for themselves.

SMOKE NUISANCES.

Among a mass of information upon various nuisances, the subject of smoke nuisances may be selected for brief reference, for all will be anxious to learn whether local authorities are maintaining the serious attempt to deal with the offence which the past two years have given some promise of. It appears that considerable smoke nuisance arose in London during 1888, and the circumstance is attributed to the use of inferior coal, which resulted from the failure of the supply of Welsh coal. The steamboats on the river seriously contributed to the nuisance, and the Medical Officer of Health of the Port of London states that 265 notices were served, and in two instances the defendants were prosecuted and fined. The Chief Officer of the Public Control Department of the Council reports that in the twelve months beginning April 1st, 1898, no fewer than 1,338 cases of smoke nuisance were brought to the notice of sanitary authorities.

HOUSE REFUSE.

The results of the Council's efforts to secure a weekly collection of house refuse throughout London by means of the dust cart calling at each house has been attended with considerable success. By degrees the old fixed dustbins of an unlimited size are being replaced by movable receptacles, and a frequent and complete removal is thereby much facilitated. The need for better vehicles as dustcarts, and for the exercise of greater care in the removal of house refuse, is appreciated by the Council, who offered a prize of £25 for the best designed dustcart which would enable house refuse to be removed without nuisance. The result of the competition brought out several suggestions for improvement. The ultimate disposal of this house refuse is becoming a serious question with most London sanitary authorities; the days of "shoots" are numbered, as the available sites for many miles round the metropolis are becoming fewer each year, and the necessity of the adoption of the method of destruction by fire is gradually being recognised.

HOUSING OF THE WORKING CLASSES.

During 1898 the work of carrying out various schemes for the improvement of unhealthy areas was proceeded with, and several schemes were undertaken by the Council under Part I of the Act. The Housing of the Working Classes Committee also instructed the officers to report on the desirability of the Council acquiring large plots of land and building cottages thereon in the outskirts of London. The decision at the time was adverse to the proposal, for the reasons that such action was calculated to check the work of private persons who built for profit, and the Council, by undertaking the construction and management of such cottages, would incur a far greater expense; that the amount of provision required is so great that the demand could only be very partially met by such a measure; and that the best results towards the housing of the working classes would be obtained by the development of means of communication between Central London and the outskirts.

DISINFECTION.

The subject of disinfection, as practised in the different sanitary areas within the metropolis, is fully set out in a report by Dr. Young, which appears in the appendix. In several districts the use of formic aldehyde for the disinfection of rooms, either as a gas or a spray, has superseded the use of sulphur dioxide; in the large majority of London districts, however, sulphur is retained, though chlorine is employed in exceptional cases. The Cleansing of Persons Act had been put in force in a few districts, and only in Marylebone, where special provision under this Act has been made, has there been any real demand for baths and other facilities for cleansing.

WE regret to learn that Mr. Jameson Johnston, Surgeon to the City of Dublin Hospital, is suffering from diphtheria contracted while performing tracheotomy.