in surgery he should be prepared and required to answer any reasonable question in surgical anatomy; also that examiners in anatomy might aid all surgeons somewhat more than they did by laying special stress on such a knowledge of anatomy as was calculated to prove really valuable to the physician or surgeon, and less on certain details which, though interesting to a professor of anatomy, could be of little value in practice.

The surgeon could not dispense with an intimate knowledge of anatomy, and there was as great a difference between the person who studied anatomy from models, casts, and drawings and a real anatomist as there was between the art critic who derived his knowledge from walking picture galleries and the real artist who had worked with his pencil and brush from boyhood. Anyone who would undertake to perform an important surgical operation without an accurate knowledge of the structures through which he was about to cut, or of the parts he was about to expose, might be likened to a mariner who attempted to navigate a dangerous coast without previous knowledge of its risks, or who was provided only with a chart of which he had good reason to doubt the accuracy. It was most requisite also that the surgeon should possess a knowledge of morbid anatomy in its strict sense. Closely associated with anatomy was physiology, or the science which treated of the natural functions of living organisms. But anatomy and physiology did not occupy the leading position chronologically in the curriculum of the medical student. Certain other sciences were placed in the forefront. These were biology, physics, and chemistry, all of which were essential, as experience proved, to surgery. Last, but by no means least, he should refer to the science of pathology, or the study of diseased conditions and processes which, strictly speaking, bore the same relation to morbid anatomy that physiology did to normal anatomy. So far as the study of diseased conditions in the living was concerned they were provided with ample material in clinical hospitals. On the other hand, it was with deep regret that he felt obliged to admit that the opportunities for the study of morbid anatomy and pathology were not all that was desirable. This was in part due to the natural prejudice, amounting almost to a superstition, that existed in Ireland against the performance of *post-mortem* examinations.

In his opinion it would be much better for the whole community at large if that state of things were altered. In many cases of death where the obedient coroner's jury brought in a verdict of "Death from heart disease" (often without the slightest medical evidence) would a carefully-conducted *post-mortem* examination reveal a totally different cause of death. He had long been fully persuaded that the extremely careless way in which burials were permitted in Ireland previous to registration, and often without proper certification, was a practice strongly to be deprecated, and calculated to be a direct incitement to crime, and it was certainly time that the authorities awoke to a proper sense of duty in this respect. There was, however, another aspect in which he wished to review this question, and that was the condition in which that and the sister colleges had been obliged to remain with regard to the teaching of pathology. It certainly would be an unpardonable evasion of duty on his part if he did not protest in the strongest manner at the neglect to which they had been subjected in that respect, and it certainly did not redound to the credit of successive Governments that, at a time when the importance of pathology in relation to the prevention and treatment of diseases had been recognised in all the civilised countries throughout the globe, it should be left to the respective governing bodies of the Queen's Colleges in Ireland to provide a teacher in pathology for their medical schools in order that they might not be behindhand. The manner in which the subject of pathology had been permitted to remain unendowed in the Cork Medical School at the end of the nineteenth century was nothing less than a national disgrace. Apart from its importance in relation to medical and surgical teaching, there was the advantage to the public of having a skilled pathologist in a fully-equipped laboratory, to whom to refer such questions as doubtful cases of rabies, the bacteriological examination of milk and water, and at the present moment doubtful cases of the much-dreaded plague. Reference was then made to surgery as an art, the importance of training in the manipulative part of surgery was emphasised, and in conclusion the means by which a knowledge of the science and art of surgery might best be acquired were described.

THE WAR IN SOUTH AFRICA.

IMPERIAL YEOMANRY HOSPITAL.

WE have received the following letter from Mr. C. Stonham, Chief Surgeon and Officer Commanding Imperial Yeomanry Field Hospital; Senior Surgeon, Westminster Hospital, etc.:

Barberton, September 20th.

I feel sure that you and our friends and colleagues at home will be interested to hear something of the doings of the Imperial Yeomanry Field Hospital and Bearer Company, occupying as they do a unique position as the only field hospital and bearer company which has ever left the country under civil auspices. Let us hope we shall but prove to be the pioneers of many such, should the needs of the Empire unfortunately require their services.

Before leaving England, I heard it asserted more than once that, although civilians would prove of inestimable benefit in supplying the needs of stationary and base hospitals, they could not succeed in the more arduous and hazardous duties of caring for the wounded on the field, nor would they themselves be fitted to withstand the fatigues and hardships necessarily entailed by marching with an army at the front.

The career of our Field Hospital and Bearer Company has abundantly proved that doubts such as these are unfounded, and I venture to express the opinion that when the final verdict is passed upon our work, even the most captious must fain admit that the Field Hospital and Bearer Company have fully justified the most sanguine hopes of those who so patriotically equipped and sent them out.

THE STAFF.

I have the good luck to have associated with me Major G. E. Hale, D.S.O., R.A.M.C., who is in command of the Bearer Company. No man could be more agreeable as a companion and fellow-worker, and his expert knowledge of transport and camp life has been of the utmost service.

Our non-commissioned officers and men have, as a whole, worked hard and well, comparing most favourably with the men of the regular army, and as the majority of them are but 'prentice hands they are much to be commended.

In this and my succeeding letters I propose to give you a brief outline of the work we have done.

THE DIFFICULTIES OF THE WAR.

On leaving England our great anxiety was that the war would be over before we could reach Capetown; now our aspirations are in an opposite channel, and our thoughts are turned homewards. Our mental condition has undergone much the same change as did the lady's on her first voyage—for the first twenty-four hours she expressed fears that the ship would go down, during the next few days she was afraid it would not. By the way, our voyage was not propitious, for, as is well known, our transport, the *Winkfield*, collided with and sank the Union liner *Mexican* seventy miles from Table Bay.

Had we known the country to which we were going we should not have had any anxiety as to the speedy termination of the war. The British are fighting physical geography rather than a people, and those who have been out here and have seen what we have seen will be the most lenient in their judgment of reverses and checks which are so easily condemned by some who have only the morning paper as a source of information, and know only the physical characters of their own country.

THE WORK OF THE HOSPITAL.

Since we left England we have marched from Bloemfontein on May 28th up to the present date 1,150 miles, have been present at eleven engagements, and have afforded relief to 1,850 patients. We have admitted 650 men into hospital who have been carried by the Bearer Company's ambulances, sometimes for days and for long distances, until they could be sent

by sick convoy to the nearest stationary or base hospital. We arrived in Table Bay on April 6th, and, as our ship was considerably damaged in collision, we were at once sent into the dock instead of waiting our turn to disembark. I need not dwell upon the difficulties we experienced in Capetown in being sent on; at last they were overcome, and we entrained on April 29th to proceed north, although our actual destination was apparently unknown. However, in due course we arrived at Bloemfontein on May 2nd, having stopped for a few hours at Deelfontein to see the Yeomanry Base Hospital, and have breakfast with our numerous friends there. At fever-stricken Bloemfontein we were allotted camping ground in the foulest place which could be found, and here we waited till May 28th before we could get transport animals. We here packed our wagons, and made all ready for a start as soon as we should get orders.

The Action at Rhenoster River.

On May 28th we marched under orders to proceed to Kroonstadt. We were quite alone and had no escort; indeed we marched alone as far as Pretoria—a very different condition of things, as we were to find later, to forming part of an advancing army.

We arrived at Kroonstadt on June 4th, drew four days' rations, and started the next morning for Johannesburg, but we were not destined to reach there so quickly as we thought. It is now well known from my telegrams and letters (which we have seen in the *Daily Telegraph*) that we were present at the action of June 7th, when the Boers under General C. de Wet destroyed the line at Rhenoster River, cut up the 4th Derby Militia, and destroyed our mails, stores, warm clothing, and ammunition at Roodeval Station, which they eventually blew up. It was here that we first came under fire; the Boers, mistaking us for a convoy and reinforcements, firing on our waggons, but fortunately doing no harm. They, however, made no prisoners, but gave us every facility for carrying on our work, and showed us many kindnesses until they were driven back by Lord Methuen on June 11th, after which action we admitted to the hospital 12 wounded Yeomen.

On June 7th we had 29 killed and 91 wounded, the latter keeping us hard at work for two days. Many of these men had been injured by fragments of shell, the wounds in some cases being exceedingly severe, the soft structures being lacerated and the bones much comminuted. Our arrival on the scene was providential; Dr. Buchanan, the regimental officer attached to the Derbys, was singlehanded, and had not the necessary equipment with him for dealing with so many severe cases, even had it been in the power of one man to do so.

Our experiences at Rhenoster were most interesting, and I think I may say unique; but as my letters already referred to have given a short account of them, I need not dwell on them further. It was most unfortunate that we had to move our camp on June 9th, a step rendered imperative by the impending action (June 11th), as De Wet meant to occupy the kopje beneath which we were. Moving the patients necessarily entailed considerable suffering and, I regret to say, cost some lives which would, I think, have otherwise been saved.

On June 11th, after the action, Lord Methuen came round the hospital, saw all the wounded men, and expressed his satisfaction with our arrangements. With the advent of such a large force we of course became very busy, as it soon became known that our equipment was all that could be desired.

On June 14th we sent a sick convoy of 106 by road to Kroonstadt, our ambulances taking them all under Major Hale's command. He returned on June 18th, and on the following day I took a further convoy of 102 by train, returning the next day.

Johannesburg and Pretoria.

On June 22nd we struck camp, and proceeded on the way to Johannesburg, arriving there on the 27th, and camped in the grounds of the Wanderers' Club.

On June 29th we set out for Pretoria, and reached there the next day, when I had an interview with Lord Roberts in reference to our experiences at Rhenoster River, as the result of which he wrote to General de Wet thanking him for his kindness to us during the time we were in his hands. We remained at Pretoria until July 7th (camping at Arcadia), when we received orders to march and join General Mahon's brigade, which was at Rietfontein near Irene. Failing to come up with him there, we were to continue our march until we found him. Accordingly we marched to Rietfontein, but the brigade had left, so the next day we determined to push on, although we had no means of finding out where General Mahon was; but an officer commanding a detachment of Irish Fusiliers, who were holding a position near our camp, told us he thought Mahon was at Bapsfontein. We eventually found the brigade, which had joined General Hutton, at Rietfontein No. 6; but on our way we nearly marched into the Boer lines, for we had taken a wrong road, and only discovered our mistake when we saw and questioned our own advanced outposts whose line we had passed through.

On July 9th, 10th, and 11th we sent out ambulances, as fighting was in progress; but we had very few casualties, the Boers being strictly on the defensive.

On July 12th the camp broke up and the force marched back to Pretoria. We, however, went with 50 sick to Springs, where we arrived late in the afternoon, and were lucky enough to be able to send the sick to Johannesburg the same evening by train. The following day we telegraphed to the P.M.O. Pretoria for instructions, and received orders to return to Pretoria at once. We marched on July 15th and arrived on the 17th.

Up to this time we had been marching by ourselves; but we were now to become part of an advancing force, particulars of which I shall give you in my next letter.

SPECIAL HOSPITALS IN SOUTH AFRICA.

THE WELSH HOSPITAL.

The Committee of the Welsh Hospital now in South Africa has received a telegram from Lord Roberts, through the War Office, expressing the hope that it might be possible for the hospital to remain for an additional three months. A special meeting of the Executive Committee of the hospital was held on November 3rd, under the presidency of Sir David Evans, when it was proposed by Sir John Williams and seconded by Mr. Edmund Owen:

That in accordance with the desire of Lord Roberts the Executive Committee hereby consents to the Welsh Hospital remaining in South Africa for a further period of three months.

Lord Roberts has been informed of the Committee's decision by telegram.

THE EDINBURGH HOSPITAL.

It has been arranged by the Hospital Committee that the reception to the returning staff of the Edinburgh and East of Scotland South Africa Hospital shall take place on Monday, November 19th, in the Quadrangle of the Old University. The ss. *Dilwara*, which is bringing the staff, is due to arrive at Southampton on November 16th, but, to prevent mishap to the arrangements, the reception is to be delayed till the date named. If time be kept, the staff should reach Edinburgh on Saturday, November 17th, or on the following day.

IMPERIAL YEOMANRY HOSPITALS.

Lieutenant-Colonel Sloggett, R.A.M.C., Commandant and Principal Medical Officer of the hospital at Deelfontein, has reported that, on October 15th, 8 officers and 597 non-commissioned officers and men remained in the hospital, of whom 2 officers and 405 men belonged to the Imperial Yeomanry.

Captain Turner, R.A.M.C., Principal Medical Officer of the Maitland Hospital, has reported that, on October 12th, 3 officers and 128 men were under his care, all of whom belonged to the Yeomanry.

Surgeon-Major Kilkelly, Commandant and Principal Medical Officer of the hospital at Pretoria, has reported that 35 officers and 348 non-commissioned officers and men remained in that hospital. He has also stated that Majors Stonham and Hale, with the staffs of the Imperial Yeomanry Field Hospital and Bearer Company, had, after arduous marches, returned to Pretoria all well.

THE PREVENTION OF TUBERCULOSIS.

CONSUMPTION AND TUBERCULOUS MILK.

A CONFERENCE was held at Wakefield on October 24th between the Sanitary Committee of the West Riding County Council and a deputation representing the Urban and Rural District Councils of the Riding to consider the relation of the milk supply to public health, and the treatment of consumption in the human being. The want of unanimity amongst the various councils on the adoption of the "model milk clauses" suggested the desirability of an appeal to Parliament for general legislation on the lines of the Public Health (Scotland) Act of 1897. The education of Parliament being, however, a costly undertaking, it was decided to invite the representatives of the county boroughs to a friendly conference at which the whole subject of tuberculosis in milk and in human beings will be considered.

SANATORIUM FOR CONSUMPTIVES FOR PORTSMOUTH.

The Portsmouth Board of Guardians have recently had before them the question of the fresh-air treatment of consumption. The medical officers of the infirmary having considered the matter, Dr. Gaston reported that with certain alterations two of the existing wards of the infirmary might be made suitable for the purpose. Drs. Knott and H. W. Morley, though agreeing that the two wards selected were the best available in the infirmary, considered that the treatment should be carried out in a specially constructed sanatorium and under a specially trained staff of nurses and medical officers who could carry out the necessary discipline. The Board, after consideration, agreed with this view of the matter, and unanimously passed a resolution in the following terms:

That in the opinion of this Board accommodation for the isolation and treatment of persons suffering from consumption should be provided by sanitary authorities, and that the whole of the Boards of Guardians in the county be requested to join this Board in petitioning the Hants County Council to provide a sanatorium to which Boards of Guardians may send patients at a fixed rate.

CONSUMPTIVE HOSPITAL FOR PERTH.

The Committee of Management of the Society for the Treatment and Relief of Incurables and Chronic Ailments and Care of Convalescents in Perth and Perthshire have secured ground on the Barnhill Slope, 300 feet above sea level, for the erection of a sanatorium for consumptives. The building, which will accommodate from 16 to 20 patients, will have a southern aspect and be well sheltered from the north and east. Sir Robert and Lady Pullar have provided the necessary funds to build the sanatorium. A bazaar, supported by many persons of rank and influence, is to be held in Perth in September, 1901, to raise the remainder of the sum of £10,000 required for endowment, nearly half of which has already been subscribed.

THE PREVENTION OF TUBERCULOSIS IN LANCASHIRE.

The Lancashire County Council having decided—as that of the West Riding of Yorkshire and other councils have already done—to consider the question of a systematic campaign against tuberculosis, the Public Health Committee of that body requested the county medical officer to prepare information which would place the Committee and the County Council in a proper position for giving this very important subject the thoughtful consideration it deserves. Dr. Edward Sergeant has accordingly prepared a report on the prevalence and prevention of tuberculous, with special reference to the establishment of sanatoria. He points out that in the administrative county of Lancashire the deaths from phthisis during the year 1899 numbered 2,305, representing a total of from 6,000 to 7,000 persons suffering from the disease. If the phthisis mortality of the county could be reduced by a quarter—which is well within the possibilities of sanatorium treatment—the saving to the county might be represented by £75,000 per annum, after allowing a good sum towards the cost and maintenance of patients whilst under treatment.

Dr. Sergeant gives examples of sanatoria in England and on the Continent to show what has already been done. He finds that the usual cost of treatment in these sanatoria varies from £3 to £5 a week with extras, and is therefore prohibitive to the vast majority of sufferers. The Grabowsee Sanatorium, about 20 miles north of Berlin, which has been in existence four and a-half years, and is intended for the poorer class, shows that the average daily cost for each patient can be brought down to about 3s. This institution, which was described and illustrated in the BRITISH MEDICAL JOURNAL of July 29th, 1899, p. 283, consists of a dozen to eighteen Döcker huts, each capable of accommodating eight patients, By the establishment of a colony of such huts the cost of a sanatorium need not exceed £150 to £300 per bed. This amount will, however, necessarily vary according to the number of patients to be provided for and the character of the building.

Although Boards of Guardians appear to have the power to provide sanatoria, it is a question whether similar power belongs to county councils. Dr. Sergeant, however, points out that under the Isolation Hospitals Act, 1893, it is the duty of county councils to provide hospitals for those suffering from "infectious diseases," including certain diseases specifically mentioned in the Notification Act and any other infectious disease, by order of the Council. It seems therefore permissible under this Act for county councils to erect sanatoria for consumptives.

THE DOSAGE OF DIPHTHERIA ANTITOXIN.

[FROM A CORRESPONDENT].

IT appears from inquiries which have recently been addressed to the BRITISH MEDICAL JOURNAL, that the question of the dosage of diphtheria antitoxin is one which still presents difficulties to some practitioners. Nor is this surprising. In the first place the dosage of the serum remedies is based upon principles very different from those which hold in ordinary pharmacy; we have to deal with units instead of grains or minims. In the second place, in some parts of the country diphtheria is rare, so that a practitioner resident therein may have had no occasion to treat a single case since the introduction of the remedy into this country in 1894. Consequently, the following remarks, based upon an experience of a very large number of cases extending over six years, may be found useful, and are offered in the hope that they may prove of service to some practitioner whose experience of the treatment of the disease since the introduction of antitoxin has been limited.

GENERAL CONSIDERATIONS.

In the first place, it must be pointed out that it is impossible to give a fatal overdose of antitoxin; it is not like opium and strychnine and such drugs, to the dose of which there is a definite limit. Why not, therefore, it may be asked, give a large dose straight away in every case, whatever its degree of severity? Against this there are three reasons. First, the volume to be injected is large with very big doses, which increases the discomfort at the seat of injection, and is more likely than a small dose to give rise to the rash and febrile disturbance which is often met with a week or so later. Secondly, the expense of the treatment is increased, especially if, to lessen the volume, a concentrated serum be employed. Thirdly, it is quite unnecessary to inject a large dose in a mild case. Even in the severe forms of the disease there is a limit dose, to exceed which is merely to waste the material. Out of these considerations arise the questions, What is a mild case of diphtheria, and what are the minimum and maximum doses?

MILD CASES IN CHILDREN.

In answering the former in any given case the age of the patient is of the highest importance. Before the introduction of the antitoxin treatment half the patients under 5 years of age admitted to the hospitals of the Metropolitan Asylums Board died, and many of the remaining half narrowly escaped death. Diphtheria in children under 5 is an exceedingly serious disease, it is very serious up to 10 (28 per cent. mortality), and is still serious from 10 to 15 (10 per cent. mortality). After that age it becomes less serious (4 to 5 per cent. mortality) up to the age of 40, when it again rises. Therefore every child under 15 should certainly be treated with antitoxin. If the case is a mild one—that is to say, if the exudation or membrane is limited to a part of one or both tonsils, and there is no nasal discharge or evidence of laryngeal implication; and, further, if there is little or no glandular