arranged for in all the ward coaches. Gas is used for cooking only, and is carried under the kitchen cars and one car adjoining each kitchen, the cylinders being coupled up together; thus the danger of fire is reduced to a minimum. Heating of the coaches is by steam from the engine, carried in overhead pipes suspended from the roof. While running the internal air current circulates the heat very evenly, and at the same time the floor space is clear of any obstacle which might get in the way of a bearer party while handling a cot. Sanitary arrangements are ample—about 10 per cent. of the carrying capacity of each train, and consist of water-sealed pans. Arrangements are made for "trapping" these while trains come to a halt for any length of time. Large storage capacity for water, domestic and sanitary, is supplied to each train. For administrative purposes a small office is fitted up centrally in the train, and contains typewriter, safe, and the usual office furniture.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

INTRAVENOUS INJECTION OF SODIUM BICARBONATE IN DELAYED CHLOROFORM POISONING.

On January 12th, 1916, I removed a gangrenous appendix from a soldier who had been gassed. The anaesthetist began with ether, as chloroform is avoided at this hospital in acute appendicitis and also in cases where there has been starvation or vomiting for some days before operation. It was soon found, however, that ether was dangerous in this case, causing extreme cyanosis and profuse bronchial secretion, owing probably to the bronchitis that still remained from the "gassing," and it was decided to continue with chloroform, which the patient took well.

Next day the temperature had fallen, the pulse was good, there had been little or no vomiting, the abdominal condition was quite satisfactory, and the patient seemed much better and was reading the newspaper on my arrival. He had been getting sodium bicarbonate by the mouth and was taking fluids well.

Two days after the operation the house-surgeon reported that the patient was very sleepy, and was beginning to get jaundiced. Calomel and enemata were given, but the drowsiness increased. On the third day he was very yellow and in a state of coma, from which he could not be roused; it was accompanied by restless movements of the head and body when attempts were made to examine the pupils or to pass the catheter. Urine and faeces were passed involuntarily, and no specimen was procured to be tested for acetone and diacetic acid. To all the surgeons who saw him the diagnosis seemed obvious—secondary chloroform poisoning—and the outlook hopeless. His relatives had come from another town to see him, but he could not be roused. Hoping for a temporary rally, I decided to inject intravenously a solution of sodium bicarbonate, as recommended by Langdon Brown in diabetic coma.

The incision was unnoticed by the patient, and two pints of sterile water containing five drachms in all of sodium bicarbonate were injected into the median basilic vein. Before leaving the table the patient drawled out the words "Oh, I say," again and again, but still could not be roused, and continued to pass urine and faeces unconsciously till next day, when a slight return to consciousness was noticed, and he tried to answer questions, but at first with no sign of understanding them. A pint of sodium bicarbonate solution was given subcutaneously every six hours and also occasionally by the rectum.

Two days after the intravenous injection the return to consciousness became more marked and he began to talk a little, but seemed childish. On the third day the mental condition was practically normal. The appendix wound healed by first intention, but convalescence was delayed somewhat by an abscess in the pectoral region caused by the repeated subcutaneous injections, when the patient was restless, making it difficult to avoid sepsis. Otherwise recovery was uneventful and complete.

The interest of the case lies in the fact that recovery took place even after the onset of coma with involuntary passage of urine and faeces. In most cases of delayed chloroform poisoning (of which I have, unfortunately, seen several), the pulse is rapid and weak, the patient is breathless before the onset of coma, and death is almost certain when this stage is reached. Whether intravenous injection of sodium bicarbonate solution can avert a fatal ending in any of these is doubtful, as in the case recorded above the pulse was never weak and running, but the treatment is, at any rate, worth a trial.

GEORGE G. FARQUHAR, F.R.C.S.,
Honorary Surgeon, Darlington Hospital.

CASE OF TETANUS SUCCESSFULLY TREATED WITH ANTITOXIN.

THE following case is interesting not only on account of the success of the treatment adopted, but also owing to the probable mode of infection. The patient was a boy, aged 16, who worked in the gardens of a reformatory school, and probably infected himself with tetanus by scratching irritable vaccination marks with fingers contaminated with garden soil:

He was vaccinated with calf lymph on August 29th. The vaccination ran an ordinary course until September 10th, when the two scabs were knocked off by a boy in play. On September 14th he complained to the nurse matron that his arm was painful. When it was found that the arm was swollen and inflamed and the vaccination sores were discharging pus, mild antiseptic dressings were applied, and in a few days the arm was apparently quite well.

On September 23rd the boy reported himself sick to me, when I saw him for the first time since his admission. He complained of pain in the back, and that his vaccinated arm was sore; there was no pyrexia and the tongue was clean, but the vaccination marks showed as two ulcers with surrounding local inflammation, and the axillary glands were swollen and tender. He was sent into the school hospital for observation, and the arm was dressed with weak lysol. On September 25th he complained of severe pain in the back and stiffness in the muscles, which he said "passed off and then came back again." I was called in the afternoon and saw him at 6 p.m., when tetanus was evident. The spasms were characteristic, and risus sardonicus was present. Serum was not obtainable until 12.30 a.m., and then only 1,500 units. The dose was injected under the skin without chloroform anaesthesia. When I began to withdraw the needle it broke off in its entire length (1¼ in.) owing to a very violent spasm; the needle was left *in situ* (the skin of the thigh). On September 26th more serum was not available, but the boy's condition was worse, the spasms being more frequent and more intense. His temperature was 99.2°, pulse 100 to 120. Slides from the discharging sores on the arm showed club-shaped bacilli; these were recognized as "presumably *B. tetani*" by Mr. W. Gough of Leeds.

On September 27th serum was at last obtained; 3,000 units were given in the early morning and another 1,500 at night. All injections were given hypodermically under chloroform anaesthesia.

The boy had become progressively worse (twenty-eight spasms were noted within three hours at night), there was marked opisthotonos, and occasionally pleurothotonos was noted; there was cyanosis, most intense during the spasms, with profuse perspiration. The breathing was much embarrassed, and he had bitten his tongue, which was a source of much trouble in feeding. The temperature was 99.8° (the highest recorded during the illness), the pulse-rate 100 to 140; chloretone in 5-grain doses every two or three hours and chloroform inhalation during the spasms were ordered as the occasion required. On September 28th there was no change; 3,000 units were injected. The tongue was much swollen, with septic lacerations on either lateral margin; hydrogen peroxide and thymol were used frequently for swabbing, etc.

On September 29th the spasms were less frequent; he had begun to improve. On October 3rd he was covered with urticaria (13,500 units were injected from September 26th to October 2nd). On October 6th there were two spasms, the last recorded. After this he made an uneventful recovery. The broken needle was removed on October 20th through a superficial incision.

The great difficulty in treating this case was to obtain serum. There was a Zeppelin raid in progress on the night of September 25th; I only got serum, and that in an insufficient quantity, by motoring thirty-six miles; the night journey was enlivened by the activities of the Zeppelin, and the zeal of the policeman professional and otherwise.

In treating the case, the lacerated tongue rendered feeding most difficult; any form of gag—for example, a piece of wood or other substance—provoked spasm.

Chloretone made the spasms less painful, and chloroform inhalation was useful. I may here pay a tribute to the nursing, which was most excellent night and day throughout the critical time.

The incubation period was probably from nine to eleven days until the first local muscular rigidity, which I did not recognize as being due to tetanus until the superadded clonic spasm appeared on September 25th.

A "sore arm" after vaccination in this school is not uncommon by reason of the boys "ragging." This is the first case of tetanus recorded in the school since its institution in 1856.

Malton. NOEL C. FORSYTH, M.D.

The Services.

INDIAN MEDICAL SERVICE.

New Regulations as to Pay.

THE pay of officers of the Indian Medical Service in military employ, in common with that of officers of the Indian Army, consists of two parts: (1) "Grade pay," (2) "staff pay," and when an officer holds an appointment carrying specific staff pay, he draws the two together. For officers up to seven years' service there is a rate, higher than grade pay, somewhat inappropriately termed "unemployed pay," which is the minimum rate to be drawn by an officer who does not hold an appointment carrying specific staff pay.

These rates are as follows:

	Unemployed Pay.	Grade Pay.
Lieutenant	Rs. 420	Rs. 350
Captain	475	400
Captain after 5 years and under 7 years	475	450

The minimum rate of staff pay to be drawn with grade pay is Rs. 100, and in peace conditions an officer must pass the lower standard in Hindustani before he can draw any staff pay.

In normal times a young officer of the Indian Medical Service began his service in India on so-called unemployed pay (Rs. 420 *per mensem*)—that is, the minimum rate when an officer holds no appointment carrying specific staff pay. His first advance is usually obtained by appointment to officiate in medical charge of a regiment, and he then receives, provided he has passed the lower standard, grade pay Rs. 350 *plus* staff pay Rs. 100 = Rs. 450. On attaining the permanent medical charge of a regiment, provided he has passed the lower standard, he receives, while a lieutenant, consolidated pay at Rs. 500 *per mensem*.

Hardships arose, when officers were ordered on field service, from restriction to "unemployed pay" through loss of opportunity of passing the language test, and of obtaining or retaining an officiating appointment; and in order to remove this hardship the Secretary of State decided that

> (*a*) an officer of less than two years' service who, when ordered on field service, was in receipt of minimum staff pay of Rs. 100 *per mensem*, or who, after proceeding on field service, obtained an appointment carrying minimum staff pay, should continue to receive it, even if afterwards transferred to employment on field service carrying no specific staff pay;
>
> (*b*) an officer of two years' service or over should receive, on field service, minimum staff pay, if no higher rate of staff pay were admissible to him.

The period of two years in (*b*) was adopted as being that within which an officer who passed the language test might reasonably expect to obtain Rs. 100 staff pay, and it was recognized that the language test could not be insisted on during war.

In the light of subsequent experience these arrangements have been amplified, and, with retrospective effect from the beginning of the war, officers in class (*a*) if once in receipt of minimum staff pay continue to receive it if, when returning to India, they are placed on duty carrying ordinarily no specific staff pay, and officers in class (*b*) of less than seven years' service receive minimum staff pay whether on field service or not.

With a view to providing for officers of seven years' service and over who may not hold an appointment carrying specific staff pay it has now been further decided (also with effect from the beginning of the war) that any such officer on military duty is to receive as a minimum the substantive pay of an officer of his seniority in permanent medical charge of a regiment. An officer recalled from civil employ who before his transfer to a civil department had held permanent medical charge of a regiment receives, of course, on recall, the pay of such permanent charge, even if he has not completed seven years' service. The consolidated monthly pay of a lieutenant or captain in permanent medical charge of a regiment is as follows:

	Per Mensem.
Lieutenant	Rs. 500
Captain	550
Captain after 5 and under 7 years' service...	600
Captain after 7 and under 10 years' service.	650
Captain after 10 years' service	700

In addition to the above rates of pay, horse allowance may be drawn in certain circumstances which are detailed in Army Regulations, India.

SLOW PROMOTION.

I.M.S. writes: The officers of the Indian Army have been given accelerated promotion all round owing to war conditions. The officers of the R.A.M.C. have long since had accelerated promotion owing to the automatic increase in their cadre due to war conditions. The officers of the I.M.S. have been left severely alone. Up to the present over 150 temporary commissions have been given in the I.M.S., and its cadre increased accordingly. No promotion, however, has been made on that account. Officers of the I.M.S. find themselves serving under officers of the R.A.M.C. junior to them in service but senior in date of army rank due to this accelerated promotion. The officers of the I.M.S. deeply resent the treatment meted out to them at present.

Universities and Colleges.

SOCIETY OF APOTHECARIES OF LONDON.

THE following candidates have been approved in the subjects indicated:

SURGERY.—*†E. W. Diggett, *D. E. Hearn, *†T. F. Reason, *F. A. Unwin, *†L. J. Vincent.
MEDICINE.—*†G. W. Coombes, †F. A. Unwin, *†C. G. G. Winter.
FORENSIC MEDICINE.—G. W. Coombes, W. H. A. Pratt.
MIDWIFERY.—C. A. W. Chapman.

* Section I. † Section II.

The diploma of the society has been granted to C. G. G. Winter.

Medical News.

DR. PIERRE MARIE has been appointed to the chair of clinical neurology in the University of Paris in succession to the late Professor Dejerine.

THE University of the Cape of Good Hope has conferred the degree of Doctor of Medicine upon Dr. H. Fielden Briggs, an elected member of the Transvaal Medical Council.

THE Oliver-Sharpey Lectures will be given before the Royal College of Physicians of London by Dr. Charles Bolton on Tuesday and Thursday next, May 1st and May 3rd, at the College at 5 p.m. on each day. The subject is "Observations on the pathology of cardiac dropsy."

IN response to an appeal on behalf of the research fund of the pathological institute of the Middlesex Hospital, a donation of £1,000 has been received by the treasurer from Sir John and Lady Bland-Sutton, and a gift of £250 from Mr. G. Vaughan Morgan.

DR. FRANK R. LOGAN has given to the University of Chicago a fund providing an income of £600 a year for the endowment of three research fellowships—one in pathology and bacteriology, one in medicine, and one in surgery.

AT the eleventh annual meeting of the British Science Guild, which is to be held at the Mansion House, London, on Monday next at 4 p.m., with the Lord Mayor in the chair, Lord Sydenham will give an address on national reconstruction. Among the speakers will be the Minister of Education and Mr. H. G. Wells.

MR. DELISSA JOSEPH, F.R.I.B.A., the architect concerned in the rebuilding of No. 299, Oxford Street, formerly the premises of the General Medical Council, came across the original foundation stone during the demolition of the old building, and presented it to the Council. It has now been placed in its new premises. The stone bears the following inscription: "This stone was laid by His Royal Highness Prince Albert for the laboratories of the Royal College of Chemistry in presence of the council and members, June 16th, 1846."

THE annual meeting of the Professional Classes War Relief Council (Incorporated) was held on April 18th, at the Mansion House, under the chairmanship of the Lord Mayor, President of the Council. Among others supporting him were Major Leonard Darwin, Chairman of the Council, Dr. Samuel West, President of the Royal Medical Benevolent Fund, and many other members of the council and of committees representing professional associations. The report for 1916 showed that 177 babies were born in the maternity home during the year; a sum of £7,000 was spent on the education of children; and the total amount expended in the relief of members of the professional classes was more than £30,000.

THE first number of a new periodical devoted—as its title, *La Chirurgia degli Organi di Movimento*, imports—to the surgery of the organs of movement, has recently appeared in Italy. It is published by Licinio Capelli of Bologna (Via Farini, 6) under the editorship of Professor V. Putti. The first number contains among other papers one by the editor on the surgical mobilization of ankylosis of the knee and another by A. Serra on the histology of bone transplantation.

THE council of the British Hospitals Association, 14, Victoria Street, London, S.W., has published its report for the year 1916. The objects of the association are the consideration and discussion of matters connected with hospital management and administration. The continuance of the war has again seriously affected the work of the association, and has necessitated the suspension of the annual conference, but the general work has been carried on. Various problems in connexion with the position of voluntary hospitals have been considered by the council. Viscount Sandhurst, treasurer of St. Bartholomew's Hospital, has accepted the office of president of the association, of which the honorary secretaries are Mr. J. Courtney Buchanan and Mr. Conrad W. Thies.

THERE is a shortage of facilities for the collection, cartage, and destruction of domestic refuse, and the proposal that refuse should be totally consumed by fire on the premises on which it is produced has much to commend it from the hygienic point of view. The April issue of "A Thousand and One Uses for Gas," published by the British Commercial Gas Association of 47, Victoria Street, Westminster, S.W. 1, describes how this may be simply and economically accomplished with the aid of specially designed gas apparatus, or the coke furnaces commonly used for water heating, and it is suggested that local authorities would find it profitable to offer some rebate to householders thus destroying their domestic refuse.

THE annual report for 1916 of the Kashmir Medical Mission, by Dr. Ernest F. Neve, gives a brief record of a busy year's work accomplished in spite of shortage of staff and other difficulties due to the war. A large number of operations, both major and minor, were performed, and the clinical laboratory and *x*-ray apparatus were kept busy. Dr. Neve writes significantly: "Tuberculosis appears to be still rapidly increasing in Kashmir, and the mortality is appalling." The Kashmir Estate Leper Asylum, in connexion with the mission hospital, contained on an average more than a hundred in-patients daily through the year. Nastin was used systematically in one early case with distinct benefit. Several patients were treated with chaulmoogra oil, but with no apparent success.

THE Health of Munition Workers Committee has prepared a form of medical certificate for use in respect of munition workers. It becomes immediately applicable to national factories, and copies will be supplied to medical practitioners in the neighbourhood. It is hoped that controlled establishments will take the same course. The certificate will furnish the information required to avoid difficulties which at present arise in dealing with absences of munition workers on account of illness. It will also, it is considered, have the incidental advantage of providing a basis for the collection of valuable data as to the incidence of different types of illness and as to periods of absence involved. In the covering letter there is no statement to the effect that national factories and controlled establishments are prepared to pay a fee for the certificate, but we may presume that this point has not been overlooked.

A MEMORANDUM has been issued by the Child Study Society, London, on the educational principles upon which all future school reform should be based. In his introduction Professor John Adams, vice-president of the society, argues that the present time is exceptionally favourable to the course of educational reform, owing to the awakening of general interest in education in spite of the war. In the division of labour between the various committees investigating the subject, the Child Study Society has limited itself largely to the more scientific and psychological aspects. The memorandum consists of five sections, the contributors to which agree with the council that it would be best for the results of joint deliberation to be published impersonally. The pamphlet concludes with a series of practical recommendations arising out of the memorandum. It can be obtained from the offices of the Society, 90, Buckingham Palace Road, S.W.1, price 4d., including postage.

Letters, Notes, and Answers.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C., on receipt of proof.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand, London;* telephone, 2631, Gerrard. (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London;* telephone, 2630, Gerrard. (3) MEDICAL SECRETARY, *Medisecra, Westrand, London;* telephone, 2634, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin.

LETTERS, NOTES, ETC.

GLYCERINE IN DISPENSING.

NOW that the Government has refused permission for the supply of glycerine to pharmacists for dispensing purposes, the presence of glycerine, and preparations containing glycerine, as ingredients in medical prescriptions, is a source of embarrassment to dispensing chemists. Glycerine now being no longer available, the proper course for the chemist to take, when a prescription containing it is brought to him, would be to communicate with the prescriber, and ask whether it is his wish that the glycerine should be omitted, or replaced with a "glycerine substitute." At any time this procedure would involve delay and inconvenience, but now that so many practitioners are carrying on work at home under increasing stress, the dispenser's duty is far from clear. We should be glad to hear the views of our readers upon the matter, which presents certain real difficulties.

THE TREATMENT OF CANCER BY CUPRASE.

DR. CASSIO DE REZENDE (Guaratinguetá, Brazil) writes: Having read the article on cuprase by Dr. Cooper (BRITISH MEDICAL JOURNAL, January 13th, 1917, p. 48) and the correspondence following it, it seemed to me to be useful to record my own experience with that remedy. My case, similar to that mentioned by Dr. A. Christie Reid in the BRITISH MEDICAL JOURNAL, January 20th, was one of multiple melanotic sarcomata in a man aged 46 years. The development of the tumours assumed a very acute form, and, since I had nothing to oppose to such a condition, I suggested the use of cuprase. As I knew from a friend that the injections were extremely painful, I took the precaution of first injecting at the site a little stovaine, leaving the needle in place, and through it injecting cuprase. In this way I prevented pains, but I could not prevent my patient from dying in a very short time.

A MEDICAL PRACTITIONER'S CONVICTION QUASHED.

IN the Court of Criminal Appeal, before the Lord Chief Justice and Justices Ridley and Avory, an appeal was made by Dr. William Birch Caley against his conviction and sentence of eighteen months' imprisonment in the second division in February last at the Central Criminal Court on the charge of conspiracy. Appellant was a member of the White City Medical Board, and it was alleged at his trial that he was a party to a conspiracy whereby recruits who were willing to pay were placed in a lower classification than they should have been under the Military Service Acts, or were rejected as unfit for military service; and, further, that he participated in bribes paid by recruits to obtain priority in medical examination in contravention of the Prevention of Corruption Act, 1906. In support of Dr. Caley's appeal it was argued that there was no evidence against him to give to the jury, and that even if there was evidence the learned judge failed in his summing up to give proper direction to the jury. The Lord Chief Justice, in giving judgement, said it was difficult to find evidence which it was said proved sufficiently that Dr. Caley was a party to the conspiracy. There was no evidence that he received a penny of the money which Mitchell had accepted, and in which the other persons charged had shared, or that he did anything which would show that he knew the medical reports he gave were false. In two of the five cases which formed the subject of the charge against Dr. Caley he did not classify the men at all, and two others were detectives, one of whom, as a matter of fact, Dr. Caley classified "A," as fit for active service. The court was satisfied that the evidence against Dr. Caley was not sufficient, and the conviction was therefore quashed.