GUY'S HOSPITAL REPORTS

(War Memorial Number)

EDITED BY

F. J. STEWARD,

AND

HERBERT FRENCH, C.B.E., M.D.

VOL. LXX.

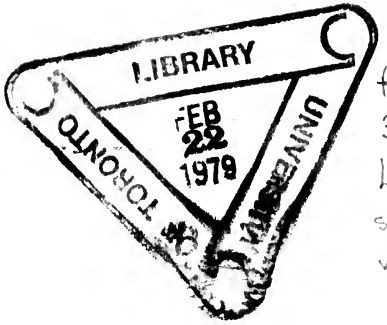
BEING

VOL. LV. OF THE THIRD SERIES.

LONDON:

J. & A. CHURCHILL, GREAT MARLBOROUGH STREET.

MDCCCCXXII.



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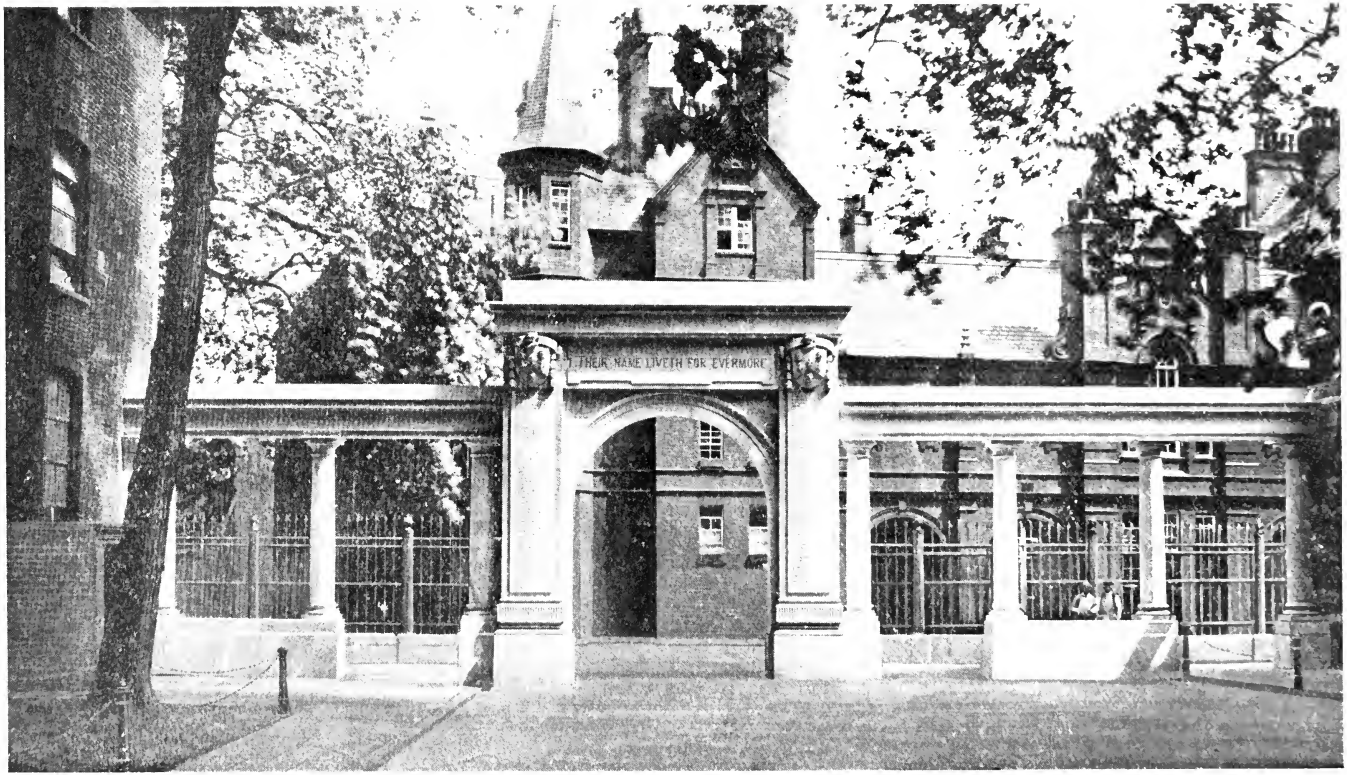

The Memorial Arch as seen from the Park.

PREFACE TO VOLUME LXX.

THE first volume of the GUY'S HOSPITAL REPORTS was published in 1836. With the issue of this —the seventieth—volume, annual publication ceases. A new series is already being published quarterly under the Editorship of Dr. A. F. HURST, assisted by a representative Editorial Committee.

The present volume is devoted to a special purpose. It is a part of the Guy's War Memorial, and it places on record the part played by Guy's men and women in the Great War of 1914—1918.

It opens with an account of the War Memorial Fund; of the Memorial Arch, and of its unveiling by H.R.H. THE DUKE OF YORK in July, 1921. The rest of the volume is sub-divided into three Parts.

Part I. is devoted to notices, with portraits, where available, of each of the hundred and thirty Guy's men and five Guy's women who lost their lives in the service of their country.

Part II. is a record of war services and honours, and Part III. contains papers dealing with some of the ways in which the War affected Guy's, and records some of the special experiences of, and work done by, Guy's men and women during the War.

Parts I. and II. have been compiled by Professor M. S. PEMBREY, the Hon. Secretary of the Guy's Hospital War Memorial Fund, assisted by Mr. J. H. E. WINSTON and by Miss MARGARET HOGG, C.B.E., the Matron of Guy's Hospital, who have spared themselves no trouble in order to make the records as complete as possible.

THE EDITORS.

January, 1922.

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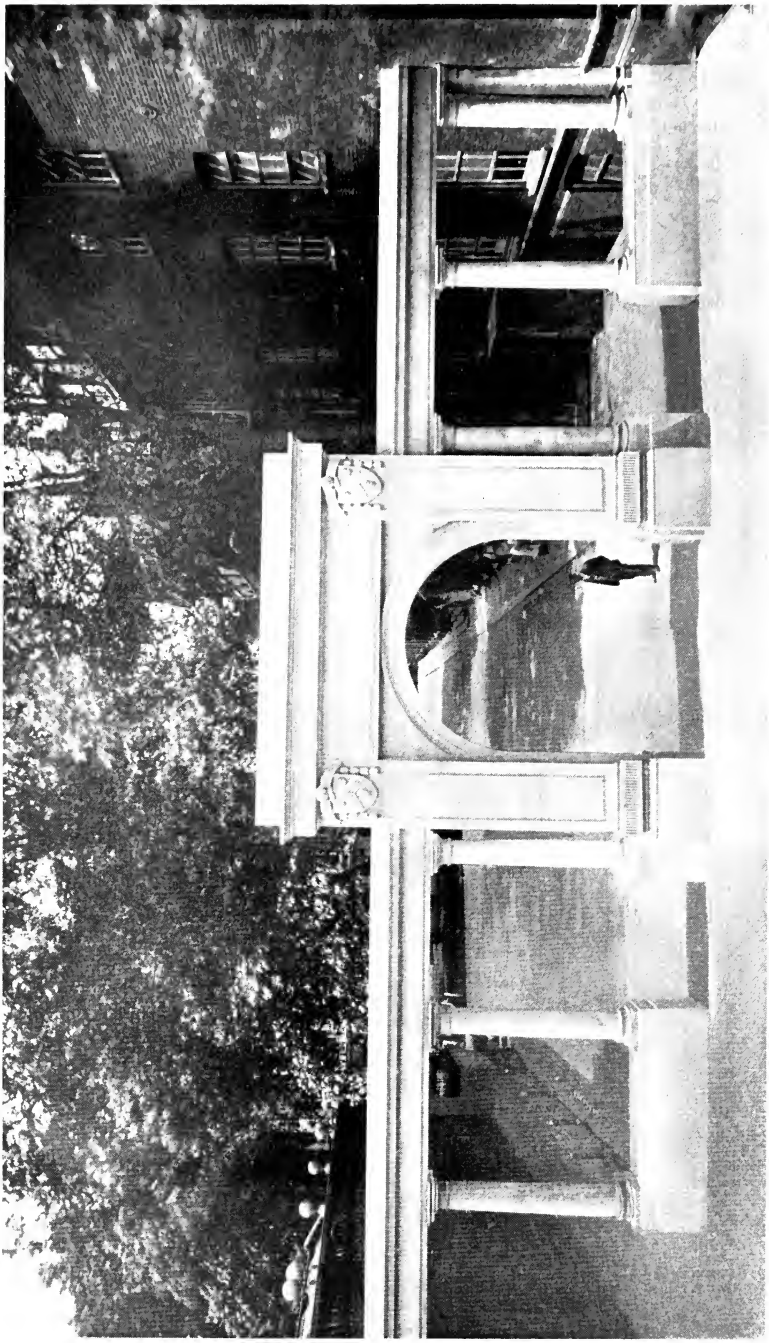


GUY'S HOSPITAL WAR MEMORIAL FUND.

The widespread desire amongst all connected with Guy's Hospital that a permanent Memorial should be established in memory of those from Guy's who lost their lives in the war was recognised at the School Meeting of November, 1917, when an Appeal Committee was appointed. The first meetings of this Committee, under the chairmanship of Mr. Cosmo Bonsor, the President of the Hospital, were concerned with the scope of the appeal and the constitution of the War Memorial Committee. The proposals which received most consideration were the following :—

(*a*) A Memorial recording the names of Guy's Medical and Dental men who have fallen in the War to be placed within the precincts of the Hospital.

(*b*) A Fund to enable the sons of Guy's men, who have fallen, or suffered by the War, to receive free or assisted education at Guy's Hospital Medical or Dental Schools.

(*c*) A Fund to enable the daughters or widows of Guy's men, who have fallen, or suffered by the War, to receive free or assisted education as Nurses or Pupils in the Special Departments (such as the Massage and Light Departments) of the Hospital which are open to Women.

(*d*) An Endowment Fund for Entrance Scholarships to be open, in the first place, to the sons of old Guy's men.

The War Memorial Committee was constituted as follows:—

A.—Governors' Representatives.

President of the Hospital (H. Cosmo O. Bonsor, Esq.)

Treasurer of the Hospital (The Rt. Hon. Viscount Goschen).

Chairman of the House Committee (F. P. Whitbread, Esq.).

Sir W. Cameron Gull, Bart,
Colonel F. A. Lucas.
R. E. Johnston, Esq.
A. C. Cole, Esq.
J. Robarts, Esq.
H. A. Trotter, Esq.
Major Oswald Magniac.

B.—Representatives of the Hospital and School Staff.

Sir W. Hale-White, K.B.E.
Mr. Golding-Bird.
Sir Charters Symonds, C.B., K.B.E.
Sir Arbuthnot Lane, Bart., C.B.
Mr. Higgens.
Mr. Maggs.
The Senior Physician (Dr. Shaw).
The Senior Surgeon (Sir Alfred Fripp).
Mr. Hopson.
Mr. Rowlands.
Dr. Cameron.
Mr. Bromley.
Dr. Eyre.
Dr. Laidlaw.
Mr. Ryffel.
The Hon. Dean (Sir Cooper Perry).
The Sub-Dean (Dr. Pembrey).

C.—Representative Guy's Men (Past and Present).

Mr. E. D. Bascombe.
Mr. W. A. Bulleid.
Mr. L. S. Debenham.
Dr. Wheelton Hind.
Dr. E. R. Mansell.
Dr. R. C. Mullins.
Sir Shirley Murphy.
Dr. C. D. Muspratt.
Dr. C. J. Pinching.
Mr. A. E. D. Prideaux.
Dr. R. J. Ryle.
Sir George Savage.
Mr. J. E. Spiller.
Dr. H. J. Spon.
Mr. Chas. Spurrell.
Mr. W. E. Wood.
*The President of ehe Residents.
*The Editor of "Guy's Hospital Gazette."

* *Ex-officio.*

The Joint Treasurers appointed were Mr. Cosmo Bonsor, Mr. Maggs, Dr. Shaw, and Sir Alfred Fripp; and Dr. Pembrey was made Honorary Secretary.

An appeal asking for subscriptions, suggestions, and expressions of opinions on the four proposals was issued in November, 1918. The question of the issue of a Special War Memorial Number of "Guy's Hospital Gazette" was referred to the Editor of the "Gazette," assisted by a Sub-Committee, composed of Dr. Shaw, Sir Alfred Fripp, Mr. Hopson, and the Honorary Secretary. The result was the publication of the War Memorial Double Number of the "Gazette" on December 28th, 1918.

At the meeting of the Committee on June 12th, 1919, it was announced that about 390 subscriptions had been received, but only 183 subscribers had returned the voting papers relating to the proposals (a), (b), (c), and (d) given above. It was thought well, in view of some objections to these proposals, to issue a further appeal in which the following additional suggestions were made :—

1. A portion of the fund to be devoted to the new "Clinical" Ward shortly to be built, which should be called the "War Memorial Clinical Ward," and have inscribed upon its walls the names of the Guy's men who have lost their lives owing to the war.

2. The adornment of the Dining Hall of the College, including memorial panels bearing the names of the Guy's men who have lost their lives in the war.

3. A portion of the fund to be allocated to form the nucleus for endowment of a Dental Research Scholarship.

At the same meeting it was decided that the Fund should be closed on September 30th, 1919, and a general meeting of subscribers called in October, 1919, to decide upon the form or forms which the Memorial should take.

The Committee held its final meeting on October 28th, 1919, when, after considering a statement of accounts and the results of the analysis of the preferences for the proposals set forth

in the first and second appeals, it decided to place before the General Meeting of the subscribers the following recommendations :—

(i.) To allocate the sum of £5,300 as follows :—

(*a*) £2,000 for the erection of a permanent memorial in the "Park."

(*b*) £1,000 for the assistance, if necessary, of the dependents of Guy's men, fallen in the war.

(*c*) £2,000 for the endowment of Scholarships, preferably for the sons of old Guy's men.

(*d*) £300 for the memorial adornment of the College Dining Hall.

(ii.) To appoint an Executive Committee to carry out the scheme.

The General Meeting of Subscribers held on the same day approved these recommendations and appointed the Executive Committee, constituted as follows :—Mr. Cosmo Bonsor, Sir William Hale-White, Mr. Maggs, Dr. Fawcett, Sir Alfred Fripp, Mr. Spurrell, The Dean, the President of the Residents, the Editor of "Guy's Hospital Gazette," and Dr. Pembrey (Honorary Secretary). Later on Mr. Eason and Mr. Walford were co-opted.

The Executive Committee held several meetings to consider the type of the Memorial and finally selected the plans of the Memorial Arch designed by Mr. Walford. There was much difficulty in making a list of the names to be inscribed upon the Arch, for there was no exact guide for the selection of the names; every case was considered as far as possible on its merits, and room was left for the inscription of new names, if it should be necessary.

At the request of the Committee and the School, the Governors of the Hospital accepted in trust the sum of

£3,000, and allocated to the Guy's War Memorial Trust Fund £3,519 1s. 3d. 5 per cent. War Stock 1929/47. In this way provision has been made for the assistance, if necessary, of the dependents of Guy's men, fallen in the war, and the endowment of Scholarships, preferably for the sons of old Guy's men.

The School accepted the suggestions of the Executive Committee that of the two War Memorial Scholarships tenable at Guy's, one should be for Medical and one for Dental students, and further agreed that a War Memorial Scholarship for Senior Medical Students should be included, the School to bear the charge as a contribution to the War Memorial Fund.

The Memorial Decoration of the Dining Hall of the College has been postponed pending possible extensions of the Club.

The subscriptions to the Fund have been acknowledged from time to time in the "Gazette," and this will be done in future, for it was arranged at the time of the first appeal that subscriptions could be spread over a period of five years. It is proposed to publish the audits of the accounts in the same way.

GUY'S HOSPITAL WAR MEMORIAL.

The Arch and Columnar Screen are the design of Mr. William J. Walford, F.R.I.B.A., the Hospital Architect, and have been carried out in solid stone from the Island of Portland. The old columns taken down from the Museum Building, which used to stand in the Park, have by consent of the Governors been incorporated in the design. The Memorial is 66 feet in width and the central Arch measures 21 feet 3 inches from the ground to the top of the cornice. Upon the central Arch are inscribed the names of the men who lost their lives, with the motto across the Arch "THEIR NAME LIVETH FOR EVERMORE." Across the outside of the Arch is the inscription, "ERECTED BY THE FRIENDS OF THE GUY'S MEN WHO GAVE THEIR LIVES IN THE GREAT WAR, 1914—1919," and the Hospital Crest has been carved upon the Arch.

It was thought that the Archway might form the actual entrance gateway from Great Maze Pond, but lack of funds has prevented the requisite new wrought iron gates and enclosure.

The work has been executed by the Hospital Works Department.

The following are the names inscribed upon the Central Arch.

IN MEMORIAM.

Ackroyd, Harold
Allen, N.
Atkinson, N. M. H.

Ball, M. E.
Beale-Browne, T. R.
Bearblock, W. J.
Berry, Percy Haycroft
Blacklaws, A. S.
Bond, Alexander B.
Bouic, André
Box, T. H.
Brogden, I. R. R.
Browne, W. Denis

Card, L. O.
Chaning-Pearce, W. T.
Clifford, A. C.
Cocks, J. Stanley
Cole, A.
Collins, R. T.

Davies, Geraint
Dennett, T. F. P. T.
Dinan, G. A.
Dingley, William
Dix, Cyril Bernard

Eccles, Horace Dorset
Edmond, John A.
Evans, John Eric Rhys

Faulks, Edgar
Fitzmaurice, A. L.
Fraser, Eldred Leslie

Gardinner, Ivan J.
Gardner, Alfred Linton
Gatley, Charles A. R.
German, H. B.
Gibson, H. G.
Glaisby, Kenneth
Godsill, Stanley
Gough, B. B.
Green, C. L.

Hamilton. E. T. E.
Harris, W. A.
Harrison, Stanley S. B.
Hartnell. E. B.
Haynes, Charles G.
Hayward, Milward C.
Henderson. T. E.
Hennessey, P. W. H.
Hogben, H. F. T.
Hollands, Wilfrid G.
Hopkins, Herbert L.
Horton, J. H.
Howard, Charles R.
Hugh-Jones, K. H.

James, John S. H.
Jones, Evan Lawrence

Kelsey, A. E.
Kennedy, Ronald S.
King, Percy
Knaggs, F. H.
Knight, R. V.
Kynaston, Albert E. F.

Lacey, William Stocks
Lansdale, William M.
Leckie, M.
Liebson, Stephen A.
Llarena, E. F.
Logan, F. T. B.
Lowe, Frank Augustus

Marshall, Bernard G.
Marshall, Herbert M.
Martin, A.
Mash, Oswald N.
Maxwell, John Earle
Miller, G. S.
Monk, G. B.
Moore, L. W.
Morrish, D. B.

Neely, H. B.
Nicholls, W. H.

Oates, J. L.

Palmer, A. H.
Palmer, H. J.
Palmer, John Stanley
Parry-Jones, O. G.
Peacock, R.
Pearce, D. G.
Peatfield, S. J.
Pern, Montague
Pryn, W. R.

Reckitt, Charles E.
Rees, M. J.
Richards, Ernest H. R
Robertson, E. G.
Robertson, John C.
Robinson, William B.
Ross, John Hampden

Sandoe, M. W. A.
Saw, Noel H. W.
Scott-Pillow, H. M.
Seabrooke, A. S.
Shepherd-Turneham, N. P.
Shorland, George
Small, F. D.
Smith, D. W.
Snell, Herbert
Snell, Norris.
Snow, C. F.
Sowerby, Victor H.
Spong, R. W.
Stacey, J. B.
Stainer, C. H.
Stanwell, William A.
Start, S.
Stephen, L. H. Y.
Steyn, S. S. L.

Tilbury, A.
Tolhurst, St. J. A. M.
Townsend, T. A.
Traill, A. A.
Traill, Kenneth R.

Waghorn, Leonard P.
Watson, C. F. W.
Watt, N. L.
Wearing, D. G.
Webster, Edward M.
Weinberg, Albert
Weller, Charles
Whitworth, H. P.
Williamson, Gerald C.
Wyand, E. H.

The Unveiling of the War Memorial,

July 15th 1921.

The Prince of Wales, President of the Hospital, had arranged to unveil the Memorial on July 15th, but owing to his indisposition the ceremony was performed by the Duke of York. His Royal Highness was received in the Court Room by the Treasurer, Viscount Goschen, supported by the Governors of the Hospital and the Staff of the Hospital and Medical School, and, after certain presentations had been made, was conducted to a platform near the Memorial Arch and the stand reserved for the relatives of the Guy's men who had lost their lives during the War. Mr. H. Cosmo Bonsor, the Chairman of the Memorial Committee, opened the proceedings with the following speech:

"As Chairman of Guy's Hospital War Memorial Committee I have been instructed to open our proceedings.

We regret the cause that prevents His Royal Highness our President being with us to-day, and we express the hope that rest and care will soon restore his health and energy. We welcome your Royal Highness as a Governor of our Corporation, and are very grateful to you for coming at so short a notice to unveil the Memorial which has been erected by the friends of those belonging to Guy's Hospital and Medical School who lost their lives in the Great War.

Our Hospital and our Medical School are open to the whole world; we have no religious test. A large number of our students come from His Majesty's subjects in India and the Dominions; we had to be careful in our endeavours to please, not to give offence, and we could have no religious dedication.

THE ARRIVAL OF THE DUKE OF YORK. [*Photo by General Press Organisation.*]

Our Committee consulted our subscribers as to how their donations of upwards of £5,000 should be spent.

They decided that three-fifths of the amount should be vested in trustees, to provide assistance, if necessary, to the dependents of Guy's men who had fallen in the War, and to form a permanent War Memorial Scholarship for the relations of those who had lost their lives or been disabled in the War, who should have preferential claims in the examination to obtain it.

That the balance should be applied in erecting a Memorial in the Hospital Grounds.

Our Committee have handed to Trustees £2,000 for the purposes of the Scholarship, and the first Student has been elected.

When it came to the choice of a fitting Memorial we had many meetings. We consulted an eminent architect and inspected many designs: we were in a difficulty, and it was our Hospital Architect, Mr. Walford, who suggested that an arch should be erected through which all our Students both now and hereafter would pass.

Mr. Walford's proposal met with unanimous approval.

We are here to-day to express our gratitude to all those who came forward to join His Majesty's forces at the great crisis in the history of our Country: we appreciate their unselfishness and devotion in breaking off their medical studies, interrupting and probably damaging their future prospects for our safety and for their King and Country's Cause.

We tender to them our heartfelt thanks.

We are here also to honour and remember those who gave their lives for us.

Your Royal Highness, it is impossible for us who stayed at home, to put our feelings into words.

We have erected this archway with their names attached in order that their memory shall always be with us reminding us of their devotion and sacrifice and inspiring us to follow their example of putting their Country's good before personal ambitions."

Dr. FAWCETT then spoke as follows:—

"In consequence of holding the position of Senior Physician I am accorded the privilege of adding a few words to those offered to you, Sir, by Mr. Cosmo Bonsor.

Not only is there this Memorial Arch, under which Students and Staff will pass in their frequent "comings and goings" from Hospital to College, but also from our funds we have been enabled to allocate three other sums of money in accordance with the wishes of the majority of the subscribers, viz:—

(1) £1,000 for the assistance, if necessary, of the dependents of Guy's men who fell in the war.

(2) £2,000 for the endowment of Scholarships, with preference to the sons of Guy's men.

(3) £300 for a "memorial" adornment of the College Dining Hall.

You, Sir, will, I am sure, approve of our distribution of the funds, and in unveiling this memorial to-day, you add yet one more favour to those already conferred by your Royal House, His Royal Highness The Prince of Wales, our President, and your beloved Father and Grandfather, upon this great foundation, of which its sons are so proud.

All over this Empire of ours, Guy's men, their parents and sons, will thank you for the kindly thought and gracious act by which you to-day record in public your sympathy with us at Guy's in the loss of the men whose names are engraved on these columns, and who, giving up their lives "for King and Country," have exemplified in full the meaning of our motto

THE UNVEILING CEREMONY.

Photo by General Press Organisation.

Photo by Mr. Brattle

THE DUKE OF YORK SPEAKING AT UNVEILING CEREMONY.

of "Dare quam accipere." May we, who pass under this arch in future, never forget what we owe to them, and play our small part in life the better for the way they played theirs.

On behalf of the Staff and the Students may I ask you, Sir, to express to His Royal Highness the Prince of Wales our great regret at the cause which prevents him being present to-day, and our sincere wish that he may speedily be restored to that measure of health, vigour, and the power to enjoy life which we invariably associate with him, and by means of which he has already done such incalculable good in maintaining and promoting the spirit of peace and goodwill among men, without which our land cannot prosper."

Sir ALFRED FRIPP made the following speech:—

"Your Royal Highness, My Lord, Ladies and Gentlemen,—It is characteristic of the kindness and consideration to which all of us who serve under the Governors have become accustomed, that their spokesman should wish on this memorable occasion to be associated with representatives of the Schools which are so intimately connected with the work of the Hospital. The Senior Physician and the Senior Surgeon have therefore the honour to offer to you, Sir, the thanks of all our colleagues for your kindness in coming to-day.

Professor Pembrey is really the man upon whom fell the brunt of the work of carrying through this Memorial. As Acting-Dean during the War he took up the Secretaryship of the Memorial Committee, and has discharged the difficult and delicate duties with great tact and ability. We are very grateful to him and congratulate him upon the success attained.

Well, Sir, this solemn occasion is also a very proud one, and indeed represents one of the milestones in the successful development of the foundation of Thomas Guy. As we have already been reminded it is exactly 25 years since that other occurrence—epoch making in the history of Guy's—when His

late Majesty, King Edward, came to the rescue of our Hospital, and becoming our first Royal President, initiated a policy of reconstruction and re-endowment which has been completed under the Presidencies of his Son, King George, and his Grandson, the Prince of Wales.

Under these three successive Royal Presidents the Governors of the Hospital, represented with rare tact, judgment, and enterprise by Mr. Cosmo Bonsor, who at the same time—25 years ago—took up the Treasurership, and by Viscount Goschen, who followed him, and served whole-heartedly by that great master and pioneer in hospital administration, Sir Cooper Perry, have succeeded in maintaining the Hospital and Schools, in the forefront of medical, surgical, and dental education and practice.

This quarter of a century has been an eventful period, not only in the history of the world, but also in the amazing rapidity of development of our profession and the sciences upon which it is founded. Great and rapid as have been the changes that have marked this dramatic era, they are nowhere greater than in the field of our own profession, and we are thankful that our Governors have proved themselves to be of the kind that they know the importance of changing with the times. It is to their prevision and understanding that we owe the healthiness and the happiness to-day of all the large family whose destinies are in their hands, and also the fact that when the war broke out Guy's was found ready to act its proper part.

We who have lived through are proud of the part played by the sons and daughters of Guy's. You, Sir, are about to unveil the list of those who made the great sacrifice in the War, and while we all to-day mourn with their relatives, we believe that the honour and love they felt for their Alma Mater, were no less than the honour and love they felt for their Country.

These names—upwards of a hundred—represent the flower of the generations of students which matured during the eventful quarter of a century to which I have alluded. The in-

Unveiling of the War Memorial.

THE DUKE OF YORK SPEAKING AT UNVEILING CEREMONY.

[*Photo by General Press Organisation.*]

timacy and confidence, and the mutual consideration and forbearance which have marked the relationship of the various estates of our family, have resulted in that high degree of happiness and *esprit de corps*, which is at once our most treasured possession and our strongest bond. Perhaps the world-wide kinship of Guy's is knit all the closer by the loss of those whom to-day we are assembled in our old home to honour—for families are wont to knit closer by grievous loss.

We are proud of our memories of them as well as of the other splendid achievement of Guy's men since our foundation two centuries ago. We are happy both in the work and in the sports of our healthy, vigorous, and successful present, and happy in the confidence that our future will be no less successful under Governors no less enlightened, and happy also in the knowledge that whenever occasion demands we shall be helped and encouraged by one of the members of your Royal House, who have so often honoured us as you, Sir, have to-day, when you so kindly came among us, and took up your membership of the Guy's family, and filled the place left vacant by the much-regretted indisposition of our President, the Prince of Wales."

The Duke of York then left the dais, stood in front of the Archway, and by drawing the ropes of two large Union Jacks unveiled the Arch inscribed with the names of the fallen. The Duke of York said: "My brother, the Prince of Wales, wishes me to say how very deeply he regrets that his temporary indisposition has prevented him from being here this afternoon to perform this important ceremony. In his unavoidable absence it has been my great privilege to unveil this Memorial to commemorate the gallant men of Guy's Hospital, who gave their lives during the Great War, and I would like to take this opportunity of expressing my sincere sympathy with the relatives and friends of those whose names figure in your long Roll of Honour."

PART I.

OBITUARY.

ACKROYD, HAROLD, Capt., V.C., M.C., M.D. Son of Mr. Edward Ackroyd, of Southport. Educated at Shrewsbury, Cambridge, and Guy's Hospital. He took Cambridge B.A. in 1899, and subsequently proceeded to his M.A., B.Ch., M.D., and other medical degrees. For some years he was engaged in research work at Cambridge, while holding a British Medical Association Scholarship. In February, 1915, he joined the R.A.M.C. as a Temp. Lieut., and was subsequently promoted Captain. He went to France in August, 1915, and gained the M.C. for conspicuous gallantry as a Battalion Doctor. He was slightly wounded July 31st, 1917, but, remaining on duty, was killed in action August 11th, 1917. After his death he was awarded the V.C., which, together with his M.C., was presented to his widow and small son at Buckingham Palace.

Captain Harold Ackroyd, V.C., M.C., M.D., late R.A.M.C. (attached R. Berks Regt.), was the son of Mr. Edward Ackroyd, for many years chairman of the Southport and Cheshire Lines Extension Railway Company. He received his education at Mr. Clough's School, Mintholme College, Park Crescent, Southport, and then proceeded to Shrewsbury, and Gonville and Caius College, Cambridge, where he took his B.A. in 1899, and subsequently proceeded to his M.A., B.C., M.D., and other medical degrees. He was never in private practice. For some time he was at Guy's Hospital, London, and later was the House-Surgeon at Queen's Hospital, Birmingham. Then for a period he was at the David Lewis Northern Hospital, Liverpool. After this he secured a British Medical Association Scholarship, and for some years was engaged in research work at Cambridge. In February, 1915, he was commissioned as a Temporary Lieutenant in the R.A.M.C., being afterwards promoted Captain. He went to France in August, 1915, and was invalided home in August, 1916, and went out again about November. In the meantime he received the notification that he had been awarded the Military Cross for conspicuous bravery as a battalion doctor. Captain Ackroyd was married in 1908, and up to that time he resided in Southport, since when he has resided at Royston, in Hertfordshire.

After his death Capt. Ackroyd was awarded the V.C., and at a recent investiture at Buckingham Palace his widow and small son

received both it and the Military Cross. The London "Gazette" describes the actions for which he was granted the V.C. as follows:—

"Utterly regardless of danger he worked continuously for many hours up and down and in front of the line tending the wounded and saving the lives of officers and men. In so doing he had to move across the open under heavy machine gun, rifle, and shell fire. He carried a wounded officer to a place of safety under very heavy fire. On another occasion he went some way in front of our advanced line and brought in a wounded man under continuous sniping and machine gun fire. His heroism was the means of saving many lives, and provided a magnificent example of courage, cheerfulness, and determination to the fighting men in whose midst he was carrying out his splendid work. This gallant officer has since been killed in action."

[Reprinted from *The Guy's Hospital Gazette*, October 20th, 1917.]

ALLEN NORMAN, Capt., Royal Warwickshire Regiment. Entered Guy's as a Dental Student in May, 1913, and had only completed his 1st Professional Exam. when he joined up in September, 1914. Killed in action, April 14th, 1918.

Norman Allen entered Guy's as a Dental Student in May, 1913. He passed his first examinations shortly after the outbreak of war. In September, 1914, he enlisted in the Artists' Rifles and proceeded to France a few months later. In May, 1915, he obtained a Commission in the 2nd batt. Royal Warwick Regt., and was wounded in the Battle of Loos on September 28th. He was in England until the following September when he was again ordered to France, being at this time attached to the 14th batt.

He was promoted Captain in July, 1917. The 14th batt. was ordered to Italy in November, 1917, and remained there until March, 1918, when it was again sent to France to assist in stemming the German offensive of that period.

Capt. Allen fell while "gallantly rallying his men in an attack upon a German outpost" on April 14th, 1918.

[Reprinted from *The Guy's Hospital Gazette*, July 26th, 1919.]

ATKINSON, N. M. H., Lieut., younger son of Dr. T. R. Atkinson, an old Guy's man, was for a time a student at Guy's Hospital. On the outbreak of war he enlisted. He subsequently obtained a commission, and was attached to the Royal Flying Corps. He was accidentally killed at the Aerodrome, near Cirencester, December 27th, 1916.

Second Lt. Noël Mitford Hanson Atkinson, younger son of Dr. T. R. Atkinson. He was educated at Chigwell School, and obtained his colours for cricket and football; he won many swimming prizes, and was a colour-sergeant in the School O.T.C.

He passed the London Matriculation, and entered Guy's. After a year at the Hospital he decided on a business career and obtained a clerkship in the Hong Kong and Shanghai Bank.

On the outbreak of war he enlisted in the U.P.S. Battalion Royal Fusiliers, where he was soon after joined by his elder brother who came over from British Columbia to enlist.

In November, 1915, they were sent out to France, and spent the winter in the trenches. He became a sergeant. Early in 1916 they were sent home for commissions, were at Balliol College, Oxford, and finally posted to the East Lanes. Regt. The elder, Guy, was sent to France again in October, 1916, was wounded at the battle of the Ancre, and died of gas gangrene on October 30th. The younger, Noël, had become attached to the R.F.C., and whilst training, having passed his examinations for a pilot, was accidentally killed at the aerodrome near Cirencester on December 27th, 1916.

[Reprinted from *The Guy's Hospital Gazette*, February 22nd, 1919.]

BALL, M. E., Lt., R.A.M.C. Qualified M.R.C.S., L.R.C.P. in 1908, continuing a year later to M.B., B.S. (London). Acted in capacity of Editor of the Gazette. Commissioned in R.A.M.C. September, 1915. Served in Gallipoli and Mesopotamia. Later on the Tigris Front; he was severely wounded on April 9th, 1916, and died next day at the 16th C.C.S., Orah, Mesopotamia. He leaves a widow and two children.

Lieutenant Malcolm Edward Ball, R.A.M.C., was the fourth son of Edward Ball, J.P., and Mrs. Ball, of Lewisham Hill, London, S.E.

Educated at the Roan School and New College Margate, he entered Guy's Hospital as a student, and qualified M.R.C.S., L.R.C.P. in 1908, continuing a year later to M.B., B.S. London.

Only last year in response to the urgent appeals of the British Medical Association he offered his services to the Royal Army Medical Corps and was given a commission in September. At Suvla Bay he contracted dysentery and was invalided to Malta. On recovery he was attached to the Worcester Regiment and proceeded to the Tigris front, where, on April 9th, 1916, he was severely wounded and died next day.

[Reprinted from *The Guy's Hospital Gazette,* June 3rd, 1916.]

BEALE-BROWNE, T. R., West African Medical Staff. Lost at sea, 1918.

After leaving Dean Close School, Cheltenham, Thomas Richard Beale-Browne entered Guy's in 1895 and qualified in 1901. He was always keen on sports of all kinds, and while at Guy's took several prizes.

He afterwards distinguished himself in rifle-shooting both at home and in Nigeria. After a few years spent in lunacy work at Taunton and the County Asylum of Northampton, he entered the West African Medical Service, and on his first tour, 1907—08, accompanied the Anglo-German Boundary Commission and afterwards did good work as medical officer in various districts of West Africa. He was always greatly interested in microscopical work, and while stationed at Yaba, near Lagos, made some interesting investigations with his friend Dr. Counal, Director of the Research Institute. His chief work there, however, was in connection with leprosy when, after months of special treatment, he had the satisfaction of noting improvement in several cases, and in one case an apparent cure which at least lasted for two years, but unfortunately he lost sight of this patient after that time.

Since January, 1917, he was stationed at Victoria in the Cameroons, and after a prolonged and strenuous tour was on his way home for leave, but within a few hours of landing his boat, the s.s. "Burutu," owing to storm and the war condition of no lights under which they were sailing, came in collision with the s.s. "City of Calcutta," and he with many other passengers was drowned.

He was the eldest son of Colonel and Mrs. Beale-Browne, Doddeswell House, Gloucestershire, and in 1910 married Helen Heron Hay, daughter of the late Donald MacDonald, Edinburgh, and is survived by her. His untimely death entails a very great loss to the W.A.M.S. and to his many relatives and friends.

[Reprinted from *The Guy's Hospital Gazette*, December 14th, 1918.]

BEARBLOCK, WALTER JAMES, Surgeon-Commander, R.N. Entered Guy's in October, 1883, and obtained the Conjoint Diploma in 1887. For a short time he was Assistant House-Surgeon at the Royal Albert Hospital, Devonport.

During the war he served on H.M.S. *Invincible* and was awarded the medal for the Falkland Islands Battle.

BERRY, PERCY HAYCROFT, Lieut. He entered 1910, qualified L.R.C.P., M.R.C.S., 1913, M.B. (Cantab.), 1913. Held appointment as A.H.S., 1914. Served with the R.A.M.C. and Western Frontier Force, Egypt. Drowned in attempting to save another man.

Dear Sir,—I have received numerous letters of inquiry from his friends as to how P. H. Berry met his death. The following are a few particulars about the latter part of his career which I feel very many of his contemporaries are anxious to know:—

Percy Berry left general practice to join the R.A.M.C. on May 1st, 1915, and shortly afterwards left Aldershot for Alexandria with a draft. He was appointed to the hospital ship "Assaye," and was engaged in transporting the wounded from Gallipoli through the summer and autumn. Subsequently he was attached as M.O. to the Berkshire Yeomanry, and with them joined the Western Frontier Force of Egypt in the campaign against the Senussi. In this he was completely happy, and declared that he had at last found the ideal form of warfare.

The official account of his death states: "On 10th March, at Berrani, seeing man drowning, plunged off rock into heavy surf with all clothes on to rescue. Immediately big wave broke over him, and he disappeared. Body found five hours later with large wounds, head, apparently ante-mortem. Buried 11th March, at Berrani, with military honours."

All who knew him well will remember how typical the end was of the man.

Berry was too well known to require any attempt at description in a hospital paper.—Yours faithfully,

1, Mildred Avenue, V. GLENDINING.
Watford, Herts.
24th March, 1916.

[Reprinted from *The Guy's Hospital Gazette*, April 8th, 1916.]

BLACKLAWS, ALEC. STUART, son of Mr. David Blacklaws, City Councillor of Kimberley, South Africa, entered Guy's Hospital in May, 1914, as a third year Dental Student.

During his studentship at Hospital he showed himself an enthusiast in all branches of sport and was very conspicuous as a member of the Hospital football eleven.

He qualified for the L.D.S. in May, 1916. He immediately joined the Officers' Training Corps, and was appointed 2nd Lieutenant to the Royal Field Artillery on 12th March, 1917. For gallantry and distinguished service in the field he was awarded the Military Cross.

He was killed in action in France on the 7th January, 1918.

BOND, ALEXANDER BECKETT, Capt., R.A.M.C. Educated at Bradfield College and Guy's. He entered Guy's as a Medical Student in 1910, gaining the Guy's Arts Scholarship. He was concussed while playing football in 1913, and was obliged in consequence to give up Medicine. In 1915 he sailed for Australia, where he took up a post as schoolmaster. To the surprise and admiration of his friends, he returned to England in January, 1917, with an Australian Contingent. He succumbed November 5th, 1917, while a prisoner of war in Germany, to wounds received in France during April of that year.

He combined with his knowledge of the classics a true appreciation of good music and painting. He was the possessor of a very pleasant voice, and although his shyness prevented him from performing at hospital concerts, he overcame this when his more intimate friends visited him at his home.

Another name has been added to Guy's Roll of Honour, and we feel sure that all those who knew him will join us in expressing our deepest sympathy with his family in their great loss.

[Reprinted from *The Guy's Hospital Gazette*, September 21st, 1918.]

BOUIC, ANDRÉ, Lieut. Entered Guy's as a Medical Student in 1914. Having passed the 2nd Conjoint in the early part of 1916, he joined the forces. He was killed in a flying accident while holding the rank of Lieut. in the Royal Flying Corps.

All those who have known him must feel deeply grieved at the death of Lieut. André Bouic in the Royal Flying Corps. He passed his Second Conjoint at the beginning of last year, and though he was perfectly justified in staying on at the hospital, he felt it his absolute duty to join the forces. He did so, leaving behind great affections, above all his fiancée, to whom he had only a few days previously become engaged. His sense of duty and uprightness was so great that once he had made up his mind he never hesitated. No one who knew him could fail to appreciate his most charming and attractive personality. His brilliant intellect, combined with his devotion to his friends made him a great favourite wherever he happened to be.

He died gloriously, serving his country and in a manner becoming his generous nature. We can only wish he could see how his memory is dear to all he left.

[Reprinted from *The Guy's Hospital Gazette,* April 21st, 1917.]

BOX, T. H. Formerly Junior Clerk in the Counting House. Served in the Northumberland Fusiliers as a Lance-Corporal and was killed in action, May 4th, 1917.

BROGDEN, I. R. R., Lieut., R.A.M.C. Was educated at Marlborough, Cambridge, and Guy's. He entered the Wards in 1914, and after qualifying held appointments as Out-Patient Officer and H.S. to Mr. Dunn. On completing the latter appointment he joined the R.A.M.C., and shortly afterwards, while proceeding abroad to Egypt, was drowned on the *Arcadian* on April 15th, 1917.

It was with great regret that all his friends heard that Lieut. I. R. R. Brogden was reported by the War Office as "missing, believed drowned," on April 15th. He had been in the R.A.M.C. for some six weeks only and was on his way to Egypt.

Lieut. Brogden was 24 years of age and was educated at Marlborough, Clare College, Cambridge, and Guy's. He entered the wards here in January, 1914, and, after doing the usual ward appointments, was appointed Out-Patient Officer and later House-Surgeon to Mr. Dunn. On completing the latter appointment he entered the R.A.M.C. and as he was passed fit for garrison service abroad was being sent to Egypt when he met his death. No details have up to the present been heard, but it is thought that he was probably lost on the *Arcadian*.

[Reprinted from *The Guy's Hospital Gazette*, May 19th, 1917.]

BROWNE, W. DENIS, Lieut., Royal Naval Division. Educated at Rugby and Clare College, Cambridge, he came to Guy's in January, 1913, and succeeded Clive Carey as organist to the hospital and conductor of the musical society. He took part in the Antwerp Expedition. Killed in action at the Dardanelles on June 7th, 1915.

He was educated at Rugby school and Clare College, Cambridge, where he held a classical and two musical scholarships, and was already marked as a musician of exceptional promise.

His compositions included a short ballet and a few admirable songs, and some Latin church music which has been performed at Westminster Cathedral.

He joined the Royal Naval Division in September, 1914, with his friend Rupert Brooke, and took part in the Antwerp Expedition. He was slightly wounded at the Dardanelles on May 8th, 1915, and had only just rejoined his battalion when he was killed.

His singular charm of character had gained him many friends, and he will be long remembered by all who met him at Guy's.

[Reprinted from *The Guy's Hospital Gazette*, July 17th, 1915.]

CARD, LEWIS OSWALD. Entered Guy's in 1897, but left before taking any professional examination to join the Regular Army. He served through the Boer War between 1899—1903, with the Border Horse and the Imperial Light Horse, and obtained two medals with seven clasps. In 1906 he served with the Transvaal Mounted Rifles in the Zululand Rebellion, where he obtained the medal and clasps. Between 1906 and 1914 he was a member of the H.Q. Squad of the Northern Mounted Rifles—was a first class shot and was a member of the Loyd-Londry team of the H.Q. Squadron. During the war he was promoted to the rank of Corporal and would have taken his commission, but died from wounds whilst serving with the R.A.S.C.

CHANING-PEARCE, WILFRID THOMAS, Temp. Capt., M.C. and Bar, R.A.M.C. Was educated at Rugby, Cambridge, and Guy's. He qualified early in 1911. Soon after commencement of hostilities he joined the R.A.M.C., and was serving in France until the time of his death. He received the Military Cross in 1917. He met his death on October 1st, 1917, being shot by a German at close range while nobly carrying out his duty.

It is with very deep regret that we have to announce in the casualty list the name of Temp. Capt. Wilfrid Chaning-Pearce, M.C., R.A.M.C., the third son of Dr. and the late Mrs. Chaning-Pearce, of Montague House, Ramsgate. He was educated at "Lindenthorp,"

Broadstairs, and Rugby, and later entered Emmanuel College, Cambridge, where he took his Science Tripos and commenced his medical studies. Continuing at Guy's in 1908 he held numerous appointments and was held in very great esteem by all with whom he was associated in any way during that time, until his departure on qualifying early in 1911.

Soon after the commencement of hostilities he joined the R.A.M.C., and had been serving in France practically since that time.

No mention of how the Military Cross was gained has been received by the family, except in the bare official announcement that it had been bestowed early in September, 1917.

[Reprinted from *The Guy's Hospital Gazette,* November 3rd, 1917.]

CLIFFORD, A. C., 2nd Lieut., 3rd Dragoon Guards. Educated at Marlborough and Emmanuel College, Cambridge. Qualified M.B., B.C. (Cantab.); M.R.C.S., L.R.C.P. Was President of the Residents. Killed in action at Ypres, June 1st, 1915.

COCKS, J. STANLEY, Capt., R.A.M.C. Died from typhus, at Beyrut, 1919.

To many Guy's men the news of the death of J. S. Cocks at Beyrut following typhus will be a source of profound regret. Those who knew him intimately will mourn one of those rare and lovable characters whom it is a privilege and a pleasure to know. Those who knew him more casually will miss the merry, quaintly humorous, yet withal serious, figure of their hospital days.

He was decidedly a shy and sensitive man. On first acquaintance he often passed as a quiet, retiring fellow of no very remarkable parts. What a tremendous misconception! He had force and determination the casual observer would never dream he possessed. If Jack Cocks made up his mind to do a thing nothing would deter him, provided he thought it the right and proper thing to do. He wouldn't argue about it or explain, but simply did it.

[Reprinted from *The Guy's Hospital Gazette,* March 8th, 1919.]

COLE A., Pte. Employed in the Works Department. Joined the 8th Royal Berks. Regt., and died on service, May 22nd, 1918.

COLLINS, R. T., Lieut.-Col. D.S.O., R.A.M.C. Qualified at Guy's in 1902. Entered R.A.M.C. in 1903, became a Capt. in 1907, Major in 1915, and Temp. Lieut.-Col in 1916. Received D.S.O. in 1918, and also gained the Croix de Guerre. Killed in action on September 18th, 1918.

Lieut.-Col. Reginald Thomas Collins, D.S.O., R.A.M.C., was killed in action on September 18th, aged 38. He was born on December 22nd, 1879, the only son of Dr. Wolfenden Collins, late of Sydenham, and was educated at Guy's Hospital, taking the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1902. He entered the R.A.M.C. as lieutenant on August 31st, 1903, became captain on February 28th, 1907, major on February 28th, 1915, and temporary lieut.-col. on September 11th, 1916. He received the D.S.O. on January 1st, 1918, and also had gained the Croix de Guerre.

[Reprinted from *The Guy's Hospital Gazette,* November 30th, 1918.

DAVIES, GERAINT, Capt., 9th Northumberland Fusiliers. Elder son of Dr. Morgan Davies, M.D., F.R.C.S., Goring Street, St. Mary Axe, was mortally wounded, gallantly leading his men in a counter attack near Neuve Eglise at dawn, Sunday morning, the 14th April, 1918.

Passing the Matriculation in January, 1914, he entered Guy's Hospital for the M.B. course the following October, and passed in "First Medical" in July, 1915. Relinquishing the profession for which he had so many aptitudes he joined the Artists' Rifles O.T.C., November, 1915. On the 15th of July, 1916, he was gazetted Second Lieutenant to the 4th (Res.) Battalion Northumberland Fusiliers, and on October 14th, 1916, he passed over to France, where he was attached to the 9th Northumberland Fusiliers, in which battalion he remained until the end. The story thence onwards is the story of being continually engaged holding various points along the fighting front—at Les Bœufs, Le Transloy, Sailly-Saillisel, St. Leger, Monchy-le-Preux, Gavrelli, Hargicourt, Poel Capelle, Wancourt, Hevin, Armentièrs, and Bailleul. From Second Lieutenant he was gazetted full Captain on December 27th, 1917—ample testimony of his capacity and sagacity as an officer.

DENNETT, T. F. P. T., Lieut., Queen's Royal West Surrey Regt. (attached R.F.C.). He was educated at Whitgift School and Guy's. At the outbreak of war he joined the Surrey Yeomanry, and went out to Egypt and the Dardanelles in the 29th Division. In March, 1916, he left for France, where he served for some time. In December, 1916, he obtained a commission in the Royal West Surrey Regt. He was again sent to France, attached to the Royal Flying Corps. On August 4th, 1917, he died of wounds received during a flight over the German lines.

Lieut. T. F. P. T. Dennett was educated at the Whitgift School, Croydon, and Guy's Hospital. On the outbreak of war he joined the Surrey Yeomanry and went out to Egypt and the Dardanelles with the 29th Division. In March, 1916, he left for France, where he served for some time. In August, 1916, he returned to England to obtain a commission, and on December 19th, 1916, was gazetted to the Royal West Surrey Regiment. He was again sent to France, and was soon attached to the Flying Corps. On August 4th, 1917, he died of wounds received during a flight over the German lines. His squadron commander thought very highly of him, and he was extremely popular among all with whom he came in contact. In his work he was absolutely fearless. Though not at Guy's for very long, he was much liked by his contemporaries, to whom his death will be a source of great sorrow.

[Reprinted from *The Guy's Hospital Gazette,* September 8th, 1917.]

DINAN, G. A., 2nd Lieut., Royal Dublin Fusiliers. Educated at University College, Cork, and Guy's. He was well-known in cricket circles. Commissioned in January, 1916, to Royal Dublin Fusiliers. Killed, September 9th, 1916.

Second Lieutenant George Albert Dinan, Royal Dublin Fusiliers, killed on September 9th, was the fourth son of Mr. John Dinan, of Knockeven, Rushbrooke, Queenstown, Ireland. Born in April, 1891, he was educated at the Benedictine College, Ramsgate, and was subsequently a student of University College, Cork, and of Guy's Hospital, London. He was well known in cricket circles. He received his commission in January of this year and was gazetted to the Royal Dublin Fusiliers.

[Reprinted from *The Guy's Hospital Gazette,* October 7th, 1916.]

DINGLEY, WILLIAM, 2nd Lieut. Born at Barnet, September, 1895, youngest son of Mr. W. Dingley, Tufnell Park. Joined the U.P.S. in September, 1914, went with the Brigade to France, November, 1915, was gazetted to the 7th Suffolks, July, 1916. After fighting on the Somme, was killed near Arras gallantly leading his platoon, April 29th, 1917.

DIX, CYRIL BERNARD, Lieut. Entered Hospital 2nd October, 1914. Voluntarily enlisted in the Artists' Rifles, November 22nd, 1915, and gained commissioned rank as 2nd Lieut. 8th East Surreys, in May, 1917. Killed in action while leading his platoon to attack at Zillebeke (Belgium), August 10th, 1917. Age 20.

ECCLES, HORACE DORSET, Capt., R.A.M.C. Entered Guy's in 1888 and qualified in 1893. After qualifying, he practised in South Africa for about three years, subsequently migrating to New Zealand where he established himself in a practice in North Island. He served in the Boer War with the 8th New Zealand Contingent as Surgeon-Captain. At the outbreak of the present war he offered his services to the Home Government in either a combatant or medical capacity, and was granted a Captaincy in the R.A.M.C. He was attached as Medical Officer to the 13th Royal Irish Rifles, with whom he remained until his death, late in 1917. He was mentioned in despatches a few weeks before his death.

Eccles was of a most kind and lovable nature and will long be remembered with affection by his many friends in the Old Country and in the Colony. He was an all-round sportsman, a good shot, and a keen fly fisherman. While in the Medical School he won the three-mile race on one occasion. Like most sportsmen he was very fond of animals.

[Reprinted from *The Guy's Hospital Gazette*. December 1st, 1917.]

EDMOND, JOHN ADAMSON, Capt., R.A.M.C. Entered Guy's, 1905. Qualified, 1910. Later held appointments as A.H.S. to Mr. Turner, then Out-Patient Officer and later H.S. to Sir Alfred Fripp. Appointed anæsthetist to the Hospital in 1913. Joined R.A.M.C. in May, 1916. Killed in France in December, 1917, while attending to wounded under heavy shell fire at an advanced Dressing Station.

To the already long Roll of Honour of Guy's men one has reluctantly to add another well-known and familiar name, that of John Adamson Edmond. Born on May 20th, 1887, he was the younger son of J. A. Edmond, Esq., late of the Civil Service.

He was educated at a preparatory school and the City of London School, and entered Guy's in October, 1905, passing his Second M.B. in January, 1908. In 1913 he obtained his M.B., B.S., and was appointed Anæsthetist to the Hospital in January, 1916, having previously been Resident Medical Officer in Bright.

In 1915 he entered into partnership with Robert and the late Arthur Tilbury, R.A.M.C. He had only a short period of private practice, but he was fast making himself a favourite on account of his personality and his powers as a general practitioner.

In May, 1916, he was given a commission in the R.A.M.C., and served first on an ambulance train in France. He was then transferred to a Field Ambulance with which he remained until the time of his death.

We offer our heartfelt sympathy to his wife (Sister Tilbury, late Sister Cornelius) and his small daughter on the great loss they have sustained.

[Reprinted from *The Guy's Hospital Gazette,* January 12th, 1918.]

EVANS, JOHN ERIC RHYS. Entered Guy's 1908. Qualified L.D.S. 1912. Killed in action, Dardanelles.

FAULKS, EDGAR, Lieut., R.A.M.C. Entered in 1897, qualified L.R.C.P., M.R.C.S., 1902. Held House Appointments as A.H.S. and H.S. in 1903. Died of wounds in France, September 27th, 1915, while attached to the 95th Brigade, R.F.A.

FITZMAURICE, A. L., Colonial Medical Service. Died on service, 1915.

We regret to announce the death of A. L. Fitzmaurice, which took place in Somaliland.

Born on April 18th, 1885, he was educated at Belvedere School, Hayward's Heath, and matriculated into London University in June, 1903. He entered Guy's in October of the same year and passed the Final Conjoint in 1909. He held various house appointments, being A.H.S. to Mr. Fagge from January to June, 1910, and H.P. to Dr. Shaw from July to December. As a resident he gained much appreciation as an anæsthetist, and his popularity with his colleagues was such that he became Vice-President of the Residents.

In February, 1911, he went to the Bagthorpe Infirmary, Nottingham, where he remained for about eighteen months. He next held an appointment at the South Eastern Hospital, New Cross, from August, 1912, till early in 1914. He took the M.B., B.S. degree in May, 1913. After a course at the London Tropical School of Medicine he joined the Colonial Medical Service, and left England for Berbera, British Somaliland, on April 30th last. The date and circumstances of his death are not yet known; the last letter received was written from Burao, where he had been attending to Indian troops wounded in the recent fighting in the interior of the Somaliland Protectorate. He was then in the best of health and spirits.

[Reprinted from *The Guy's Hospital Gazette*, January 30th, 1915.]

FRASER, ELDRED LESLIE, 2nd Lieut., Tank Corps. Entered 1909, qualified L.D.S., 1912. Killed in action, 20th November, 1917.

GARDINNER, IVAN JEPHSON, Lieut. (21 years). Younger twin son of Dr. Gardinner, King's Lynn. Served in Egypt, 1916, with 1/5th Norfolks. Trained for R.F.C. in Egypt, acted as Observer in Palestine, 1917, and was Lecturer in No. 3, S.M.A., Cairo, 1917—18. Invalided home. Lost at sea through the torpedoing of the *Leasowe Castle*, May 28th, 1918.

GARDNER, ALFRED LINTON, Capt., R.A.M.C. Entered 1901, qualified L.R.C.P., M.R.C.S., 1912. Killed in action, 1918.

Born at Ilfracombe in 1882, the son of the late John T. Gardner, a practitioner of that town, he followed his father and two uncles as a student at Guy's Hospital, entering in the year 1901. He was dresser for Sir Arbuthnot Lane and Mr. Dunn, and, after qualifying, became Assistant Medical Officer at the Sick Asylum, Bromley-by-Bow, where he stayed for about one year, and then, having married, settled in the family practice at Ilfracombe.

He was a musician of no mean merit; a brilliant pianist and a composer of quite good music. In addition to composing the music for the Guy's theatricals for three years in succession, he brought out a quintet for strings and a fugue, which were performed in a west-end concert hall, and he was assistant organist at Christ Church, Chelsea. In spite of his great talent as a musician, however, he was always ready to indulge his audience in any music to their taste, and, as the present writer knows from experience was a most inspiriting accompanist.

In January, 1917, he joined the R.A.M.C., and immediately was sent to France, and while on temporary duty with the 4th North Staffs. Regt., was killed on the 10th of April while reposing in a cellar which served as the regimental aid post of his battalion.

He leaves a widow to mourn his loss, and one little son.

[Reprinted from *The Guy's Hospital Gazette,* May 18th, 1918.]

GATLEY, CHARLES ALEXANDER ROBERTSON, Capt., R.A.M.C. Entered 1907, qualified L.R.C.P., M.R.C.S. 1912. Held House appointments as A.H.S., 1912, H.S. 1913. O.P.O. 1913. M.O., Hall Walker's Hospital for Officers, 1914—15. 55th F.A. and 7th Buffs., B.E.F., 1916—17. Died from the after-effects of wounds.

GERMAN, H. B., Major, M.C., R.A.M.C. Entered 1898, qualified L.R.C.P., M.R.C.S., 1904. While a student, gained his Soccer blue on several occasions, and was the finest squash racket player in his time at Guy's. Joined Naval Medical Service May, 1904. Killed in action September 17th, 1918.

Yet another Guy's man has made the supreme sacrifice. The letter which follows bears witness to the high esteem in which Major German was held, both by his colleagues at the Front and by his old friends at Guy's, who will join with us in expressing our deep sympathy with his widow and family in their sorrow.

Mrs. German has received the following letter and we are indebted to her for kindness in allowing us to publish it:—

It is with the deepest sympathy that I write to tell you of the death in action of your husband, Major German, M.C. Major German and myself established an advanced Dressing Station on the night of 17th September, and during the following day were suddenly

heavily shelled. Several men were hit including the Senior Roman Catholic Chaplain of the Division, and it was while going to the assistance of the latter that your husband met his death. I knew Major German for over two years, and he and myself were close friends. He was held in the deepest esteem and respect by all ranks and was fearless and untiring in his efforts for the wounded.

In deepest sympathy with you in your great loss, believe me to remain, Yours faithfully,

F. H. L. MOLLAND,
Major, R.A.M.C..

[Reprinted from *The Guy's Hospital Gazette*, November 30th, 1918.]

GIBSON, HOWARD GRAEME, Major, R.A.M.C., Mentioned for War Services. Entered Guy's in January, 1902, and qualified M.R.C.S., L.R.C.P. in January, 1907. He joined the R.A.M.C. soon after taking his diploma, and served with that Corps throughout the war. Died, December 2nd, 1919.

GLAISBY, KENNETH, Lieut., R.F.A. Younger son of Mr. Walter Glaisby of York. Educated at Aysgarth and Uppingham, where he was a member of the Shooting Eight. He received a commission in August, 1915, at the age of 19, after one term at Guy's Hospital. He went to the Front in February, 1917, and was killed in action on November 1st of the same year.

Lieut. Kenneth Glaisby, R.F.A. (killed in action on November 1st), was twenty-one years of age and younger son of Mr. Walter Glaisby, of 4, St. Leonards, York. Educated at Aysgarth and Uppingham, he was in the running and shooting eight at Uppingham, and shot for the School at Bisley in 1913. He received his commission in August, 1915, at the age of nineteen, after one term at Guy's Hospital as a medical student, where he passed his first professional examination. He went to the front in February of this year and was gazetted lieutenant in July. His Commanding Officers have written to his parents as follows:—"May we say that, although he had only been a short time in the battery, his loss has come as a great blow to us, both for personal reasons, as he had a charming disposition, and also for military reasons, as he was a most capable officer, and willing to do more than his own share of work. We were much struck by his soldier-like qualities, keenness and sound commonsense. We feel that we have lost a good officer, and we can ill-afford to lose such."

[Reprinted from *The Guy's Hospital Gazette*, November 17th, 1917.]

GODSILL, STANLEY, Lieut., London Irish Regt. Entered Guy's in April, 1914. After 18 months at Hospital, he joined

the London University O.T.C., and was granted a commission in the London Irish Regiment. After seeing active service in France, Egypt and Salonika, he was sent to Palestine in 1917. Took part in capture of Jerusalem. Killed in action on December 23rd, 1917, aged 21.

We regret to announce the death of Stanley Godsill, who was killed in action in Palestine on the 23rd December, 1917.

Stanley Godsill was educated at Berkhamsted School, where he was a good athlete and a keen member of the School O.T.C.

On leaving School in April, 1914, he entered Guy's Hospital as a Medical and Dental Student. After completing eighteen months at the Hospital, he joined the London University O.T.C. and was immediately granted a commission in the London Irish Regiment. After seeing active service in France, Salonika, and Egypt, he was finally sent to Palestine in 1917. Here he saw severe fighting, taking part in the engagements that led to the capture of Jerusalem, and was with the troops who subsequently entered.

He was killed in action on 23rd December at the age of 21. In the words of his General, "He was a very fine young officer of the very best type, who died leading his men with unflinching gallantry and devotion."

[Reprinted from *The Guy's Hospital Gazette*, March 23rd, 1918.]

GOUGH, B. B., Lieut., R.A.M.C. Entered Guy's as a student in 1892. Qualified 1897. Was in general practice in Somerset until June, 1915, when he obtained a commission in the R.A.M.C. After being at the Front little more than a week, he was killed while attending wounded in a dug-out, February, 1916. He was at the time Medical Officer to the 8th Battalion South Staffordshire Regiment.

Lieut. Bernard Bradly Gough was born at Stockwell on September 14th, 1873, and was educated at Reigate Grammar School and at St. Andrew's, Caterham. He entered Guy's Hospital as a student in 1892, and was admitted M.R.C.S. and L.R.C.P. in 1897. He held hospital appointments at Burton-on-Trent, Wolverhampton, and Great Grimsby. After practising for a short time at Capel and Oakamoor, Staffordshire, he acquired a general practice at Compton Martin, Somerset, in 1902, where he resided until 1915.

Col. Julian sends the following letter to the relatives of Lieut. Gough:—

"I deeply regret to inform you that on the evening of the 15th inst., whilst Lieut. B. B. Gough, R.A.M.C., was attending wounded in a dug-out near the trenches, a German shell fell into the dug-out and burst, instantaneously killing him and nine wounded, one of whom was an officer. He died doing his duty to his utmost in the service of his King and country, and we, his comrades, lament his loss, and

offer you our sincerest sympathy in your sad bereavement. He was at the time with the 8th Batt. South Staffordshire Regiment as their medical officer, to which battalion he had gone a few days before from the 51st Field Ambulance, in relief of a medical officer who had had to be sent to hospital ill. When found he had still a dressing and pair of scissors in his hands. His letters and effects have been taken over by the battalion, from whom you will doubtless hear in a few days. I enclose a letter and post card which have been delivered at my office."

[Reprinted from *The Guy's Hospital Gazette*, March 11th, 1916.]

GREEN, C. L., Second-Lieut., Essex Regt., attached R.F.C., the elder son of Dr. and Mrs. Green, Woodside, S.E., was born on December 5th, 1894. He was educated at Durlston Court, Swanage, and afterwards at St. Bees School (S.H. 1908—11). After passing the London Matriculation he entered Guy's as a Medical Student, and later went to Edinburgh University. When the war broke out he joined the Edinburgh O.T.C. Having passed his examinations, he then joined the 1st Sportsman Battalion as a private. Shortly after he was made a corporal. In December, 1914, he was given a Commission in the 11th Essex. In October, 1915, he went to France and was in the trenches till August, 1916. He was wounded in the hand by a bomb, but quickly recovered. He returned to

England and was transferred to the R.F.C. Whilst flying on January 7th he had a crash near Southend, Bromley, for want of petrol, and he was taken up unconscious. He recovered, however, and rejoined at Hounslow on March 16th and soon got his wings. On June 6th, 1917, he left for France, and was killed in action on June 9th.

HAMILTON, E. T. E., Temp. Major, R.A.M.C. Served in German South West African Campaign, 1914—15. Mentioned for war services. Died on service.

We regret to announce the death of Dr. Hamilton which took place on March 8th at his residence in Johannesburg, South Africa. The son of a Naval Surgeon, he was born at Rathgar, near Dublin, in 1867. Entering Guy's in 1886 he became a distinguished student, taking honours in Physiology at the B.Sc. Examination in 1889. He took the Conjoint Qualification in 1891. At London University he took the M.B., B.S. (Honours in Medicine and Forensic Medicine) in 1892; M.D. in 1893 and M.S. in 1895; and F.R.C.S. in 1893.

After serving an appointment as House-Surgeon to Sir H. G. Howse, he became Demonstrator of Anatomy at Guy's, a post he held for four or five years.

In 1898 Dr. Hamilton went out to South Africa and started practice on the Rand. During the Boer War he was medical officer on one of the hospital ships and in various hospitals ashore. After serving with the rank of Major in the field during the recent rebellion, Dr. Hamilton became principal Medical Officer at Swakopmund, the chief post of German South West Africa, now in British occupation, where he developed an intestinal complaint, and, being much run down from pressure of work, he was ordered to Johannesburg to recuperate. There he became subject to attacks of mental depression, and it is supposed that in one of these fits he terminated his life, as he was found with a fatal bullet wound in his head.

Much sympathy is felt for his widow, an old Guy's nurse. His funeral took place with military honours.

[Reprinted from *The Guy's Hospital Gazette,* April 24th, 1915.]

HARRIS, W. A. Was the son of Mr. W. Harris, Groundsman of the Guy's Hospital Athletic Ground. Was employed in the Dental School. Joined the 6th London Regt. soon after war broke out and was killed in action at Loos, Sept., 1918.

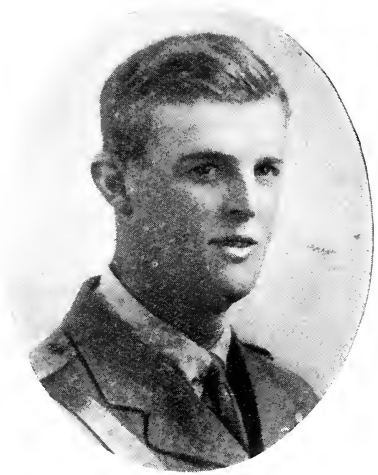
HARRISON, STANLEY S. B., Major, M.C., R.A.M.C. He qualified at Guy's in November, 1914. Joined R.A.M.C. soon

after and was sent to France. M.C. 1917. Gassed by a high explosive shell and died from resulting broncho-pneumonia on October 10th, 1918.

It is with deep regret we have to record the death of Major Stanley Sextus Barrymore Harrison, who died on the Western Front on the 10th of October, 1918, from the effects of gas poisoning. He was educated at Guy's, and took the Conjoint Diplomas in October and November, 1914. He was soon after in training, and went out to France, where he spent his whole service. He and his party were gassed by a H.E. and mustard gas shell of large calibre, which landed in the doorway of his dug-out. He recovered at the time, but died a few days later from broncho-pneumonia. He won the Military Cross for conspicuous gallantry and devotion to duty (second supplement to the London Gazette, Friday, 11th May, 1917, p. 4591). His many friends at Guy's will wish to convey to his relatives their sincere sympathy with them in their great loss.

[Reprinted from *The Guy's Hospital Gazette*, November 30th, 1918.]

HARTNELL, EDWARD BUSH, Temp. Capt., R.A.M.C., London Mounted Brigade. Entered Guy's in March, 1892, after having been to Bristol and Dublin. He passed the Final Conjoint in 1893, and prior to the war was in practice at Bridgwater, Somerset. Died on service in Egypt on April 24th, 1916.



HAYNES, CHARLES GRAHAM, Capt., 4th King's Royal Rifles, attached R.A.F. M.C. 1916, Bar 1917. Was educated

at Mill Hill School, and after passing the London Matric., entered Guy's in May, 1912, at the age of 17. He passed the 1st M.B. in 1913, and the Organic Chemistry of the 2nd exam. in July, 1914. He joined up in October, 1914. Reported Missing, 1918.

Sir,—I have never seen any mention of C. G. Haynes in your "Honours" or "Casualty" columns.

The many pre-war people now back at the hospital will hear with great regret that Graham Haynes was reported "missing" on October 23rd, 1918, on a reconaisance flight, and that nothing up till now has been heard of him.

He joined the Artists' Rifles at the outbreak of war and landed in France with them in October, 1914. He was commissioned in France in April, 1915, to the 4th Battalion King's Royal Rifle Corps, and was wounded in May at the second battle of Ypres. He returned to the front to the 17th Battalion K.R.R.C. in September, 1916, and won the M.C. at the Schwaben Redoubt

In the fighting in Shrewsbury Forest, Ypres Sector, he won a bar to the M.C

In November, 1917, he was seconded to the R.F.C., and was at home training as observer and then as pilot until August, 1918, when he again went to France. He became a Flight Commander and regained his acting captaincy, and saw heavy air fighting in September and October.

I hope you will be able to find space for this belated account, or part of it, in your next number. I fear after all these months his chance is small. It is only to be hoped that he may turn up all right, and we shall have the luck to see him again playing "rugger" for the hospital.—Yours sincerely,

R. J. HODGKINSON.

[Reprinted from *The Guy's Hospital Gazette,* March 22nd, 1919.]

HAYWARD, MILWARD CECIL, Capt., R.A.M.C., T.F. He was educated at Epsom, Cambridge, and Guy's. Graduated M.B., B.C. in 1903. At the time of the Boer War he was appointed Civil Doctor to the Guards at Windsor. Volunteered at the beginning of the present war. Severely wounded at Ypres, and died from wounds, May 23rd, 1916.

Captain M. C. Hayward, who died from acute septic pneumonia at Brighton on August 23rd, was the second son of the late Henry Hayward, of Queen Anne Street, London, by his second marriage. He was educated at Epsom, Cambridge, and Guy's Hospital. He graduated B.A. in 1893, M.A. in 1898, and M.B. and B.C. in 1903. He also took the English double qualification in 1898. He filled the post of Clinical Clerk at the Samaritan Hospital for Women, House Surgeon

and House Physician at Paddington Green Children's Hospital, and Resident Medical Officer at the North-West London Hospital, afterwards setting up in practice in Abingdon in 1902. At the time of the Boer War he was appointed Civil Doctor to the Guards at Windsor, and he volunteered at the beginning of the present war with a good deal of official experience. He joined the 3rd Home Counties Field Ambulance on December 3rd, 1914, and after recovering from severe concussion was sent to France. Here shortly afterwards he was dangerously wounded, a shell hitting him in the back, and causing concussion of the spine, while a bullet pierced his lung. After being on sick leave till March 1st of this year he was sent to a military hospital, but while on duty there he succumbed to pneumonia.

[Reprinted from *The Guy's Hospital Gazette,* October 7th, 1916.]

HENDERSON, T. E., Lieut., South Staffs. Regt. Was educated at University College School, passing the London Matric. with First Class Honours in June, 1893. Entered Guy's as a Dental Student in May, 1910, and qualified in May, 1913. At Guy's he took the First Year's Dental Prize in 1911 and the Second Year's Prize in 1912. He was Assistant Demonstrator in Dental Metallurgy from June to July, 1911, and Assistant Dental House Surgeon from January to March, 1912. He was in practice until September, 1914, when at the age of 38 years he joined the Public Schools Battalion, and in July, 1915, received a commission. A year later he went to France and was killed while defending an advanced post at the corner of Delville Wood on August 31st, 1916.

Second Lieutenant Henderson, killed in France, was educated at University College School, from which school he matriculated with First Class Honours in June, 1893. He did not enter Guy's as a dental student until May, 1910, but from that time until qualification in May, 1913, he endeared himself to all with whom he came in contact. He took the First Year's Dental Prize in 1911, and the Second Year's Prize in 1912. He was Assistant Demonstrator of Dental Metallurgy from May-July, 1911, and Assistant Dental House-Surgeon from January-March, 1912. After qualifying in 1913 he acted as an assistant until September, 1914, when, at the age of 38 years, he joined the Public Schools Battalion, and in July, 1915, received a commission. A year later he went to France, and in defending an advanced post at the corner of Delville Wood was reported "missing" on August 31st 1916. The War Office now reports that evidence has been received that he was killed in that action.

[Reprinted from *The Guy's Hospital Gazette*, November 17th, 1917.]

HENNESSEY, P. W. H., Corp. Employed in the Works Department. Joined the Queen's Regt., was mentioned in despatches. Killed in action, July 31st, 1917.

HOGBEN, H. F. T., Lieut., 2nd Norfolk Regt. Came to Guy's in October, 1909, with the London University Open Scholarship from Bedford Grammar School. While with the Artists'

Rifles he achieved many successes as a marksman at Bisley. Represented the Hospital as a "heavy-weight" and in other sports. Killed in action in Mesopotamia, November 23rd, 1915.

Harry Hogben received his early education at Bedford Grammar School, and entered Guy's in October, 1909, winning the London University Open Scholarship. He passed his first M.B. examination in July, 1910, and entered the wards in October, 1912. Amongst his appointments he was Medical Ward Clerk to Sir Cooper Perry, and Dresser to Mr. Steward.

At the outbreak of war he was working for his final examination, but as he already held a commission in the 10th Middlesex, he had to forego his studies and answer to the Mobilisation Order.

After training in England for two months, his regiment was ordered out to India in October, 1914, in which country he remained till August of this year. He was then selected to take a draft from the 10th Middlesex to the Persian Gulf, where he became attached to the 2nd Norfolk Regiment. He fell in an action in which his regiment was engaged between the days of November 22nd and 24th.

During his life at Guy's, Harry Hogben was a member of the Artists' Rifles, was a keen Territorial, whilst his skill as a marksman was envied by all his pals. At Bisley he achieved many successes, and was in the King's Hundred in the years 1913 and 1914. Amongst other sports he represented the Hospital as a "heavy-weight," and was always a regular man to turn out for a game of "Rugger."

And so the Alma Mater has to mourn the loss of another of her sons one who, on the point of qualifying, gave up all—and right willingly too—for his King and Country.

[Reprinted from *The Guy's Hospital Gazette*, January 1st, 1916.]

HOLLANDS, WILFRID GEORGE, 2nd Lieut., aged 23, killed at Serre, near Bapaume, October 12th, 1916, was the elder

son of Mr. and Mrs. Alfred Christy Hollands, of 73, Wyatt Park Road, Streatham Hill, S.W. He left Guy's to join Public Schools Battn., 16th Middlesex Regt., September, 1914, received his commission in 7th Royal Fusiliers, May, 1915, went to the front April, 1916, and was attached to the 4th Royal Fusiliers as the battalion Bombing Officer. He was buried at Colincamps, near Albert, France.

HOPKINS, HERBERT LESLIE, Lieut., R.A.M.C. Entered Guy's October, 1905, taking the Open Scholarship in Arts, Junior Proficiency Prize in 1908. Secretary of Guy's Physiological Society. Qualified M.R.C.S., L.R.C.P., and M.B., B.S. (Lond.) in 1911. Killed in action October, 1914.

H. L. Hopkins, who was just 28 years old at the time of his death, entered Guy's in September, 1905, with an Open Scholarship in Arts. He obtained the M.B., B.S. Lond., in October, 1911, having also passed the Conjoint and the Primary F.R.C.S. In addition to the curriculum, he had filled the positions of Assistant Demonstrator in Anatomy and Physiology, Pathological Assistant to the Surgical Registrar, and had filled dresserships in all the special departments.

On qualifying, he determined not to go for the house appointments that would have fallen his way, but became House-Physician at Derby Infirmary. He filled this position for twelve months, during which time he came into contact with several old Guy's men. He then determined that Public Health was his sphere of action, and spent six months at the City of London Chest Hospital.

In August, 1913, he became Assistant M.O.H. and Assistant Inspector of Children to West Suffolk, and Clinical Tuberculosis Officer to the West Suffolk Insurance Committee. He was prevented from sitting for his D.P.H. Oxon. in May, 1914, but successfully obtained the M.D. Lond. (in State Medicine) in July, 1914.

A few days later, on the outbreak of war, he obtained a temporary commission in the R.A.M.C., and was at once appointed Sanitary Officer to Devonport Barracks. A few days later he was despatched to the front as Sanitary Officer to No. 11 Base Hospital, in which position his friends did not feel any great anxiety about him. Since his death the writer's family have received a letter in which he states that he has been attached to the 1st Devon regiment. Further details are at present impossible to gather.

[Reprinted from *The Guy's Hospital Gazette,* October 10th, 1914.]

HORTON, J. H., Lieut.-Col., D.S.O., I.M.S. Was the son of Major J. Horton, of Woolwich, and was educated at Guy's Hospital, where he gained the Arthur Durham Prize in 1891, and took the Diplomas of M.R.C.S. and M.R.C.P. (Lond.) in 1895. He was H.P. at Guy's and at the Royal Bethlem Hospital. In 1902 he became a Lieut. in the I.M.S., Captain in 1905, Major in 1913, and Brevet Lieut.-Col. on December 21st, 1916. He served in East Africa in 1902. Was mentioned in Despatches in 1904, and gained the Medal with two clasps and the D.S.O. on the N.W. Frontier of India. In operations in the Mohmand Country in 1908, the Medal with clasp; and as Surgeon to the British Red Cross Society in the Balkan War of 1912, the Medal with clasps. He also had the 4th Class of the Order of St. George and St. Vladimir of Russia. On March 17th, 1908, he was Medical Officer of the 14th Bengal Cavalry. At the beginning of the present war he was appointed to the command of the 126th Indian Field Ambulance. Reported as having died on Active Service in the Casualty List published on August 2nd, 1917.

Lieut.-Col. James Henry Horton, D.S.O., I.M.S., was reported as having died on active service, in the casualty list published on August 2nd. He was born on December 27th, 1871. After filling the post of

house-physician at Guy's and at the Royal Bethlem Hospital successively, he went to India as a special plague medical officer. He was one of the four plague officers who accepted commissions in the I.M.S. as lieutenant from January 29th, 1902, and while at Netley gained the Marshall Webb medal and prize. He became captain on January 29th, 1905, major on July 29th, 1913, and was specially promoted brevet Lieut.-colonel on December 21st, 1916. He served in East Africa in 1902, in the operations in Somaliland, was present in the action at Jidballi; on the North-West Frontier of India, in the operations in the Mohmand country in 1908, medal and clasp; and as surgeon to the British Red Cross Society in the Balkan War of 1912, medal and clasp.

[Reprinted from *The Guy's Hospital Gazette*, August 25th, 1917.]

HOWARD, CHARLES REGINALD, Capt., R.A.M.C. Educated at Guy's and Cambridge, where he graduated B.A. with Hons. M.B., B.C. (Cantab.) 1902, qualified L.R.C.P., M.R.C.S. in 1902, and M.D. in 1907. Acted as A.H.S. and H.S. at Guy's and later went to East Africa as Bacteriologist to the Government of Zanzibar. Joined R.A.M.C. in 1916. Promoted Captain in 1917. Killed in action in East Africa on September 26th, 1918.

Capt. Charles Reginald Howard, R.A.M.C., attached King's African Rifles, was killed in action in East Africa on Sept. 6th. He was the youngest son of Robert Luke Howard of Tynemouth, formerly of St. Albans, and was educated at Guy's Hospital, and at Cambridge, where he graduated B.A. with honours, M.B. and B.C. in 1904, and M.D. in 1907, also taking the diplomas M.R.C.S. and L.R.C.P.Lond. in 1902. After acting as assistant house-surgeon and house-surgeon at Guy's, he went to East Africa as bacteriologist to the Government of Zanzibar. On his return to England he settled in practice at Garston, Frome, Somersetshire, where he was honorary surgeon to the Victoria Hospital, Frome, medical officer of health to the Frome Rural District Council, and assistant school medical officer to the Somersetshire Education Committee. He took a temporary commission as lieutenant in the R.A.M.C. on March 1st, 1916, and was promoted to captain on the completion of a year's service.

[Reprinted from *The Guy's Hospital Gazette*, November 30th, 1918.]

HUGH-JONES, KENNETH HERBERT, Capt., 5th, attached 12th, Rifle Brigade,. Entered 1915, Arts Scholar. Killed in action September 20th, 1917.

Kenneth Herbert Hugh-Jones was the fourth son of Mr. and Mrs. Llewelyn Hugh-Jones, of Chevet Hey, Wrexham, Denbighshire, and was born on the 4th December, 1896. He received his early education at Colet House School, Rhyl, and from there gained in 1910 a classical foundation scholarship at Bradfield College. During the whole of his time there (except his first term) he was a member of the O.T.C. and latterly a platoon sergeant. He was also chapel prefect.

On leaving Bradfield in 1915 he gained an Open Scholarship in Arts at Guy's Hospital, and went into residence in October, but on December 11th he enlisted in the Artists' Rifles, and passing through the Cadet School, received a commission in the Special Reserve in the Rifle Brigade. Second Lieut. Hugh-Jones went to France on the 25th October, 1916, and was attached to the 12th Battalion of the Rifle Brigade. He was gazetted Captain as from 24th August, 1917, and was killed on 20th September, 1917, close to Langemarck, Flanders, while leading his men to the attack.

His Colonel wrote: "It is a very great blow to the battalion, as he was one of the best officers we have ever had. He had long since proved his value, and was in command of his company in an attack 20th September. He was extremely popular with his men and with all the officers. I am sure he died as he would have wished, at the head of his company."

[Reprinted from *The Guy's Hospital Gazette*, February 23rd, 1918.]

JAMES, JOHN STEPHEN HARVEY, Lieut., King's Royal Rifles. Entered Guy's as a Medical Student 1912. Joined the Forces 1914 (Artists' Rifles). Killed in action, Rue de Bois Richebourg l'Avoné, May 16th, 1915.

J. S. Harvey James—the only child of Mr. and Mrs. Quintus S. H. James, of Coneyboro', Shanklin (late of Mill Hill)—was educated at Colet Court and St. Paul's School. He entered Guy's Hospital Medical School in 1913, after matriculation. He had passed his first M.B. when war broke out. Some months before, he had joined the Artists' Rifles, and was mobilised with many other Guy's men in that regiment immediately. He left for France with the 1st Batt. Artists' Rifles in October, 1914. There he passed in his turn through the Artists' Rifles Officers' School at Bailleul, and in March, 1915, was gazetted to the 1st Batt. of the King's Royal Rifle Corps (2nd Division). He joined them direct from the School, and was with his battalion until his death on the night, May 15th—16th, 1915. He was killed at Rue de Bois Richebourg l'Avoné, in a successful night attack. He fell with many of his riflemen in the final assault on the parapet of the German trenches.

By his stout heart and modest cheerfulness under all conditions he had earned universal popularity.

His many friends in the Artists' and at Guy's will always remember "Jimmy," the ever cheerful, with the never failing sense of humour.

JONES, EVAN LAWRENCE, Capt., R.A.M.C., attached Highland Light Infantry. Entered 1907, qualified L.S.A. 1913. Killed in action, 1918.

KELSEY, A. E., Temp. Capt., R.A.M.C. Drowned in H.M. Hospital Ship *Glenart Castle*, torpedoed February 26th, 1918.

KENNEDY, RONALD SINCLAIR, Major, M.C., M.D., R.A.M.C. Born July 14th, 1887, the only son of Dr. and Mrs. Kennedy, of Wallahra, and Sydney, N.S.W. Educated at Tonbridge School, Christ's College, Cambridge, and Guy's. At Cambridge he got his blue for Rugby Football, and was one of the best forwards at Guy's in his time. He took the Diplomas of M.R.C.S., L.R.C.P. (Lond.) in April, and M.B., B.C. (Cantab.) in June, 1912, having taken Cambridge B.A. Honours in 1909. He left Guy's early in 1913 to join the Egyptian Medical Service. He gained the M.D. (Cantab.) in 1917. He was "lent" for service at the Front by the Egyptian Government, and was originally attached to the Artillery, but subsequently exchanged into the Infantry, where he saw much hard fighting and gained the M.C. during the Somme offensive. He was killed in action on April 17th, 1918. After his death he was awarded a Bar to his M.C.

KING, PERCY, 2nd Lieut., 7th East Surrey Regt. Educated at Portsmouth Grammar School, King's College, London, and Guy's. Entered Guy's as a Dental Student in October, 1911. L.D.S. March, 1915. Joined London University O.T.C., and received a Commission in the East Surrey Regiment, May, 1915. Sent to Egypt on detached service November, 1915, where he was slightly wounded whilst carrying despatches. Sent home November, 1916, to join the R.A.F. Served in France as Balloon Officer from January to June, 1917, when after a nasty spill, he joined his regiment near Arras, where he was wounded in the trenches August 4th, 1917, and died next day.

KNAGGS, F. H., Temp. Capt., R.A.M.C. M.O. Huddersfield War Hospital. Died June 24th, 1917.

Mr. F. H. Knaggs, who died on June 24th from pneumonia after a brief illness at the age of 56 years, was the third son of the late Dr. Samuel Knaggs, who practised for many years in Huddersfield. He was educated at the Huddersfield College and at Rossall, taking his medical course at Guy's Hospital, where he held appointments in the Eye and Ear Departments, being later Clinical Assistant at the (Moorfields) Royal London Ophthalmic Hospital.

After a term of two years as House Surgeon at the Gloucester General Infirmary and Eye Institution he commenced general practice in 1889 with his father and steadily gained in reputation as a specialist in eye and ear affections. For several years he assisted his brother, Mr. R. Lawford Knaggs, in the Ophthalmic and Aural Department of the Leeds Public Dispensary, and in 1905 became Honorary Surgeon to the recently created Ophthalmic and Aural Department at the Huddersfield Royal Infirmary, to which his father was for many years Senior Honorary Surgeon. His death thus breaks a connection with that institution which had existed since its first establishment. From the date of its opening in October, 1915, Mr. Knaggs had been a Civilian Medical Officer at the Huddersfield War Hospital, and in January last received a commission as Temporary Captain in the Royal Army Medical Corps. He leaves a widow and one daughter and a wide circle of friends to mourn their loss. Mr. Knaggs was formerly honorary secretary of the Huddersfield Medical Society, where he read a number of practical papers on ophthalmic subjects, some of which were published in our columns.

[Reprinted from *The Guy's Hospital Gazette*, July 14th, 1917.]

KNIGHT, R. V., Flight Sub-Lieut. Educated at Bedford Grammar School, where he was captain of the school Rugby XV. and while still at school played for the East Midlands.

While in his teens he was reserve three-quarter for England. He entered Guy's as a Dental Student in May, 1914. On the outbreak of war he joined up and was granted a commission in the London Rifle Brigade, serving in France for over a year. He subsequently joined the R.N.A.S. He was killed in a flying accident on March 12th, 1917.

The late Lieut. R. V. Knight, R.N.A.S., who was killed in England on March 12th through his machine coming down in a spinning nose dive, was formerly captain of Bedford School. While there he played threequarter in the County Championship for the East Midlands, and later on in the same competition for his home county of Somerset.

He joined Guy's as a Dental student in May, 1914, but joined the University of London O.T.C. at the outbreak of war, and from there obtained a commission in the London Rifle Brigade serving in France for over a year. Afterwards he transferred to the Cyclist Corps, and finally joined the Navy.

He leaves a widow and daughter, and is the second captain of Bedford School Rugby of recent years to lose his life this year in a flying accident in England.

His genial and generous disposition was such that he not only never did a mean action, but could not bear to entertain an unkind thought of anyone. He seemed to know practically everybody in the sporting world and will be greatly missed.

[Reprinted from *The Guy's Hospital Gazette*, April 21st, 1917.]

KYNASTON, ALBERT EVELYN FAIRFAX, Surg., R.N., H.M.S. *Devonshire*. Entered 1898, qualified L.R.C.P., M.R.C.S., 1904. Died of enteric.

In the first week of the war he joined the Royal Naval Reserve, and was sent to H.M.S. *Devonshire*. His end was like his life, he was taken ill, pooh-poohed it, and went on till the fourth week of an attack of enteric; pneumonia compelled him to go into hospital and he died, aged 33, on the 13th October, at Dunstaith, on Cromarty Firth, where he was buried on Wednesday, October 14th, at the Dunstaith Naval Cemetery.

[Reprinted from *The Guy's Hospital Gazette*, October 24th, 1914.]

LACEY, WILLIAM STOCKS, Lieut., R.A.M.C., 140th Field Ambulance. Entered Guy's 1906, qualified L.D.S. 1908, and L.R.C.P., M.R.C.S. 1912. Died of wounds.

LANSDALE, WILLIAM MORRIS, Capt., R.A.M.C. (S.R.). Entered Guy's in 1909, having won the Entrance Scholarship

in Arts. He qualified in 1915 with the M.B., B.S.(Lond.). His career at Guy's was a brilliant one; he won both the Junior Proficiency Prize and the Wooldridge Memorial Prize in physiology; in 1914 he was prize essayist of the Physical Society, and in the same year won the Beaney Prize for pathology. He joined up immediately upon qualifying, and was attached to the 5th Royal Berkshire Regt. He remained with his Battalion, for whom he did magnificent work, until he was killed by a shell on August 26th, 1918, while tending the wounded.

Entering Guy's, in 1909, he won the Entrance Scholarship in Arts, and very easily passing his examinations, qualified M.B., B.S.London in the minimum time possible. At the end of his studies in anatomy and physiology he won both the Junior Proficiency Prize and the Wooldridge Memorial Prize in Physiology. In 1914 he was prize essayist of the Physical Society, with a very brilliant contribution on the para-syphilitic lesions, and in the same year won the Beaney Prize for Pathology. Had Lansdale proceeded to house-appointments, there is no doubt that he would have secured a very brilliant academic career at Guy's. As a man, Lansdale was quiet and reserved, but under that reserve there lay a warm, affectionate disposition, and the restless enthusiasm of genius. Lansdale was the son of a distinguished old Guy's man, with whom all Guy's men will condole in his bereavement.

[Reprinted from *The Guy's Hospital Gazette*, October 5th, 1918.]

LECKIE, M., Capt., D.S.O., R.A.M.C. Entered Guy's in 1899 and the R.A.M.C. in 1908. He had a distinguished career in Egypt, and on the outbreak of war went to the Front with

the Expeditionary Force, being attached to the Northumberland Fusiliers. D.S.O. at Mons. Killed August 28th, 1914.

Captain Malcolm Leckie, formerly of Guy's Hospital, went to the front with the Expeditionary Army, being attached to the Northumberland Fusiliers. Before that period his short career in the service had been almost entirely passed in Egypt, where he left a high reputation for personal amiability, professional capacity, and devotion to duty. This latter quality he displayed in its highest form at the Battle of Mons.

Malcolm Leckie entered Guy's in 1899, passed the Second Conjoint in January, 1903, and the Final in April, 1907; he then read for the R.A.M.C., which he entered in January, 1908. At Guy's he dressed to Mr. Golding-Bird, and was Clinical to Dr. Hale White and Dr. Pitt in the last three months of 1907.

During some three years in the Dissecting Room I got to know him well, and chiefly remember his keenness for everything he undertook; he was one of the first to take up hockey at Guy's and to establish it as a regular Hospital game.

He was typical of that fortunately common stamp of Conjoint man who makes public opinion among his fellows, and is respected and liked for himself and his manliness; I should say that Leckie spent himself for his friends, and recently talking over with one of his chums our recollections of him, we agreed that he was happiest when taking immense pains to do some small kindness to others often for those who had but slight claim on his friendship. To those who knew him well he was always the same kind, generous, unselfish person, with rather a thoughtful manner and slow to express his own views; one can well imagine that his place in his Mess will remain unfilled, and many a sick or wounded soldier will know he has lost a friend.

C. H. F.

[Reprinted from *The Guy's Hospital Gazette*, January 2nd, 1915.]

LIEBSON, STEPHEN ABRAHAM, Capt., R.A.M.C. Went to German South West Africa at the outbreak of war, as M.O. of the Rand Light Infantry. After this campaign was over, he became M.O. in the 3rd South African Infantry and, after a period of training in England, proceeded first to Egypt and then to France.

He was in the Delville Wood fight and received the Military Cross for attending wounded for five days in an open trench, although twice wounded himself—over 1,400 casualties passed through his hands.

He was finally transferred to a Scotch Regt. and was killed in action at Hendicourt on March 22nd, 1918.

LLARENA, E. F., 2nd Lieut., 2nd Suffolk Regt. From Dulwich College he came to Guy's in October, 1910, and at once made his reputation as an enthusiastic "Rugger" player. A member of the Water Polo Team in 1911, he captained the 1914 team which wrested the cup from the London Hospital. In August, 1914, he joined the Artists' Rifles, and while in France obtained a commission in the Suffolk Regt. Killed in action while attacking a wood near Ypres on June 20th, 1915.

"Larry," as he was known to all his old friends up at the Hospital, received his early education at Dulwich College, where he was an enthusiatic "Rugger" player and a Sergeant in the Officers' Training Corps.

He entered the Medical and Dental Schools in October, 1910, and passed his First Professional and First Conjoint Examinations in 1912.

When the War began he was working for his Second Conjoint Examination, and he joined the Artists' Rifles in August, 1914. He obtained his commission while in France and became Second Lieutenant in the 2nd Battalion of the Suffolk Regiment.

Always to the fore in any sport, he gained his "Rugger Blue" in the 1912—1913 season, and played for the 1st XV. regularly afterwards.

As a water-polo player he also excelled and was a member of the water-polo team in 1911 and onwards, and in 1914 captained the team which wrested the cup again from the London Hospital. He also figured as a member of the Inter-Hospital Swimming Four.

By the death of E. F. Llarena the hospital has lost one of her best athletes who answered the call to arms during the first week of war and now must be added to the Roll of Honour of Guy's men, who have met that glorious end on the battlefield.

[Reprinted from *The Guy's Hospital Gazette,* July 17th, 1915.]

LOGAN, F. T. B., Hon. Surg. Foye House Red Cross Hospital. Died.

LOWE, FRANK AUGUSTUS, Lieut., R.N.V.R., Collingwood Battalion. Entered Guy's 1906 as Dental Student, qualified L.D.S. 1910. Killed in Gallipoli, 1915.

MARSHALL, BERNARD GOLDSMITH, 2nd Lieut., 3rd Northants Regt. Entered Guy's 1913, as a Medical Student. Killed in action at Loos.

MARSHALL, HERBERT MYERS, Dent. Commandant, Royal Naval Medical Service, H.M.H.S. *China*. Came to Guy's as a Dental Student in October, 1915, and qualified L.D.S. Eng. in November, 1917. He joined the Royal Navy soon after and was killed the following year.

MARTIN, ALBERT, Major, N.Z.M.C. Entered Guy's in October, 1878 and had a brilliant career whilst at this Hospital. As a student he took 1st Prize at the 1st, 2nd, and 4th Year Student exams—the Michael Harris Prize in 1881, and the Beaney Prize in 1883. He obtained Honours in Anatomy at the 2nd M.B., B.S., and was awarded the Gold Medal in Medicine for the M.D. London in 1885. He eventually practised in Wellington, New Zealand. Died of wounds.

MASH, OSWALD N., Lieut., M.C., R.F.A. Entered Guy's as a Dental Student in 1910, but was obliged to leave in 1912 on account of ill-health. Returned in 1914 and joined the Legion of Frontiersmen at the outbreak of war. Transferred to Queen's Own Oxfordshire Hussars. Finally granted a commission in the R.F.A. He went to France early in 1915, took part in the Battle of the Somme. He gained the M.C. during the winter of 1917. Killed in action June 1st, 1918.

It is with great regret that we announce the death of Lieut. Oswald Nelson Mash, M.C., R.F.A., who was killed in action on the morning of June 1st, 1918. He was the youngest son of the late Mr. J. S. Mash, of Ipswich, and of Mrs. Mash, Reed Hall, Holbrook.

He entered Guy's Hospital as a Dental Student in 1910, where he remained two years, during which period he gained the Royal Life Saving Society's Bronze Medal. In 1912 he was obliged to leave Guy's on account of ill-health. After about a year spent in South

Africa he returned fit and well and recommenced dental work. He was about to take the final L.D.S. at the time when war broke out. At the first call for men he joined the Legion of Frontiersmen, and was for some time at the Remount Depot at Southampton. From there he was transferred to the Queen's Own Oxfordshire Hussars. Having passed the necessary tests, he entered the Machine Gun Corps, and from there he was granted a commission in the R.F.A.

Just three years ago he went out to France, and was at Ypres and at the Battle of the Somme. After being out ten months he was invalided home with shell shock. As soon as he was fit enough he applied to be sent to the line again, and after a time rejoined his old Division, the 39th. At this time he gained the M.C., but having shell shock and being badly gassed was sent home shortly afterwards as permanently unfit for the firing line. After three weeks' leave he again applied to be sent out to France a week before Christmas, 1917. He remained for the rest of the winter on the Staff at Havre. As the fresh German offensive drew near he applied to rejoin his comrades in the line, and this request being granted, he was once again back with his old Division. On June 1st he was killed.

[Reprinted from *The Guy's Hospital Gazette*, July 27th, 1918.]

MAXWELL, JOHN EARLE, Sub-Lieut., R.N.A.S. Elder son of Mr. John A. Maxwell. Was educated at Haileybury and left in 1911. After studying Law for two years, he came to Guy's in 1913. In January, 1916, he obtained a commission in the R.N.V.R., and was attached to the R.N.A.S. In November, 1916, he proceeded to the Eastern Mediterranean as an Observer in the R.N.A.S. Reported missing on March 30th, 1917, having failed to return from a long distance reconnaissance over enemy territory (Bulgaria).

Lieut. Maxwell was the elder son of Mr. John A. Maxwell, solicitor, of 52, Bishopsgate, and was born on June 24th, 1892. He was educated at Haileybury, and left in 1911. After studying law for two years he came to Guy's as a first year student in January, 1913. In January, 1916, he was given a commission in the R.N.V.R. and was attached to the R.N.A.S.

After serving at various air stations in England, he was ordered to the Eastern Mediterranean in November, 1916. On March 30th of the present year he went up for a long-distance reconnaissance over enemy territory, but failed to return. He was accordingly reported missing as from this date, though the authorities held out considerable hopes of his safety owing to the failure of the enemy to report such an unusual occurrence as the bringing down of a British aeroplane. But unhappily, after ten weeks of uncertainty, definite reports were received to the effect that the machine had been shot down on March 30th, and that both Lieut. Maxwell and the pilot had been killed.

News of Lieut. Maxwell's death was received with very general regret at Guy's, as he was a contemporary of the majority of men now in the wards. He was for some time secretary of the Physiological Society and took a very active part in the discussions at the meetings. He was one of the youngest Fellows of the Royal Astronomical Society, having been elected at the age of 22. Some time before his death he was made Armament and Intelligence Officer of his squadron. He had just those qualities which make for success in an airman—absolute fearlessness and great keenness on his work. We offer our most sincere sympathy to his parents in their bereavement.

[Reprinted from *The Guy's Hospital Gazette*, July 14th, 1917.]

MILLER, G. S., Capt., R.A.M.C. Entered Guy's in October, 1907; won the Junior Proficiency Prize and the Sands-Cox Scholarship in Physiology. After he had passed the Final Fellowship he took a commission in the R.A.M.C. in April, 1915.

For a short time attached to the Cambridge Hospital, Aldershot. Later he went to France and while serving with No. 1 Field Ambulance he met his death at High Wood on September 8th, 1916.

George Sefton Miller entered Guy's in October, 1907, from the Colfe Grammar School, having passed the Senior Cambridge Local in December, 1906. In 1910 he passed the 2nd M.B.Lond. and the 1st F.R.C.S., and in the same year gained the Junior Proficiency Prize and the Sands-Cox Scholarship in Physiology. Entering the wards, he dressed to Mr. Steward and Mr. Dunn, was Clinical to Dr. Hale White and Dr. Pitt, Assistant House-Surgeon to Mr. Rowlands, and, finally, House-Surgeon to Sir Arbuthnot Lane from August, 1913, to January, 1914. After this he acted as Resident Medical Officer at Lambeth Infirmary for 15 months and attended Guy's weekly as Chief Clinical Assistant in the Throat Department, and during this time worked for and passed the Final F.R.C.S. (December, 1914); as he was then only in his 24th year he could not get this Diploma which was granted him as recently as May, 1916.

On joining the R.A.M.C. he was for a short time attached to the Cambridge Hospital, Aldershot, and then, after acting temporarily as a regimental M.O., was detailed to No. 1 Field Ambulance and remained with it till his death, which occurred at High Wood; he was buried near Mametz.

He was brilliantly successful in his work, a splendid officer and a charming friend.

[Reprinted from *The Guy's Hospital Gazette*, October 7th, 1916.]

MONK, G. B., 2nd Lieut., Royal Warwickshire Regt. Entered Guy's in October, 1913, as Medical and 2nd Year Dental

Student. Joined the Artists' Rifles early in 1914, and went to France in October of that year. Specially chosen with the first batch of 80 Artists to lead the remnants of the 7th Division. Killed December, 1914, while leading an attack.

MOORE, L. W., Capt., Gloucester Regt. Studied at Guy's for $3\frac{1}{2}$ years, and on the outbreak of war he enlisted as a private in the Gloucestershire Regt. Was quickly promoted to a second lieutenancy. Went to the Front in March, 1915, and served with his regiment until the time of his death, August 29th, 1918.

Lieut. Moore, who was acting Captain of his company, was only 23 years of age last November. He was educated at Tewkesbury Grammar School and King's School, Worcester. Upon the completion of his school career he took up his studies for the medical profession, and was for $3\frac{1}{2}$ years at Guy's Hospital before the outbreak of war, when he at once sought his country's service. For four years he was a member of the local company of Territorials, and whilst in London he joined the medical unit of the London University O.T.C. The Commanding Officer of the latter recommended him for immediate commissioned rank, but he enlisted as a private in his county's regiment, and was quickly promoted to a second lieutenancy. He went to the Front in March, 1915, and had served with his regiment until the time of his death. As a youth he was assistant scoutmaster of the 1st Tewkesbury Troop of the B.P. Scouts.

[Reprinted from *The Guy's Hospital Gazette*, September 23rd, 1916.]

MORRISH, D. B., 2nd Lieut., King's Own Yorkshire Light Infantry. Qualified L.D.S. (Eng.) from Guy's Hospital in 1913. Was in practice at Cambridge. While acting as Trench Mortar Officer to his Battalion, he was killed in France, August 18th, 1916.

We regret to record that another young member of the Dental Association, 2nd Lieutenant Donald Bernard Morrish, King's Own Yorkshire Light Infantry (Trench Mortar Officer), has fallen in action. He was killed in France on August 18th, 1916. Lieutenant D. B. Morrish was the younger son of Mr. and Mrs. John Morrish, of 46, Carson Road, Dulwich, and was 25 years of age. He qualified as L.D.S.Eng. from Guy's Hospital in 1913, and had been in practice at Cambridge. He joined the British Dental Association in 1913. At hospital Morrish was a quiet, efficient worker; popular among his fellow students and all with whom he came in contact.

[Reprinted from *The Guy's Hospital Gazette.* September 9th, 1916.]

NEELY, H. B., 2nd Lieut., 3rd Suffolk Regt. Was a Dental Student at Guy's in October, 1908, and qualified in November, 1912. Won his full Hospital and United Hospital colours for football. He commenced private practice at Southampton, but on the outbreak of war at once rejoined his old regiment "The Artists." Later received a commission in 3rd Suffolks. Killed in action at Ypres 25th April, 1915.

From his earliest days at Guy's, when he came as a pupil in Dental Mechanics in October, 1908, to the time he qualified in November, 1912, he was a tower of strength to the Dental side, mentally and physically. In addition to his ordinary hospital appointments, he was Assistant Demonstrator of Dental Metallurgy from January to March, 1911, and Assistant Dental House Surgeon from July to September, 1912.

At sports he was in his element, and won his full Hospital and United Hospital colours for football.

After taking his degree he passed into private practice, filling two or three posts as assistant, for a short time, and then, setting up at Southampton. Here he was very successful until war broke out, when he immediately closed his practice, like the sportsman he was, and rejoined his old volunteer regiment, "The Artists." Later he received his commission as Second Lieutenant in the 3rd Battalion of the Suffolk Regiment, and was sent on active service to France.

In the heavy fighting which took place around Ypres about the end of April, he was one of the many officers who fell in action—brave men who gave their lives cheerfully and willingly for their country. We men of Guy's can realise what a loss he must have been to his men, for he was always a man who thought for others before himself.

[Reprinted from *The Guy's Hospital Gazette,* May 8th, 1915.]

NICHOLLS, W. H., Capt., R.A.M.C. Educated at Bradfield College and Guy's Hospital. On the outbreak of war he passed the Conjoint Examination and immediately entered the R.A.M.C. In January, 1916, he quickly learned to fly and was granted a pilot's certificate. Served in India, where he was killed by an accidental gunshot wound February 22nd, 1916.

Captain W. H. Nicholls, who was killed by an accidental gunshot wound at Jhansi, Central Provinces, India, on February 22nd, 1916, at the age of 24 years, was the only son of Mr. H. H. J. Nicholls M.R.C.S., of Worthing, who was for many years in practice at Eastbourne. He was educated at Bradfield College and Guy's Hospital. Though near his qualifying degree at the London University, on the outbreak of war he passed the conjoint examination and immediately entered the R.A.M.C., in which he was gazetted Captain in 1915. He was a boxer and all-round athlete, and shared in the men's games, and was very popular with them. Whilst in medical charge of the Norwich Flying Corps he utilised his knowledge of mechanics and natural interest in machinery to learn to fly himself, and he was granted a pilot's certificate in January, 1916, an unusual distinction in the R.A.M.C. Soon after this he was ordered abroad and met his death not long after reaching India. In private life he was a keen sportsman and a small yacht owner, and there will be sorrow in many a Worthing fisherman's home for the loss of a liberal friend.

[Reprinted from *The Guy's Hospital Gazette,* March 25th, 1916.]

OATES, JOSHUA LAURENCE. Was educated at Grahamstown, South Africa and after passing the Cape Matric., entered Guy's as a Dental Student in May, 1911. He obtained the Pupils' Scholarship in Dental Mechanics in 1913, and joined the Public Schools Battalion of the Royal Naval Division early in 1915. He was killed in France in 1918.

PALMER, A. H., Major, R.A.M.C. Eldest son of Dr. Palmer, of Barton-under-Needwood, Burton-on-Trent, and was educated at the Birmingham Medical School and at Guy's Hospital. After qualifying in 1895, he practised at Barton-under-Needwood, where he held the posts of Medical Officer and Public Vaccinator of Barton District and Surgeon to the Barton Cottage Hospital. He joined the Staffordshire Yeomanry in 1904. Died at Cairo on May 2nd, 1917, of wounds received on April 17th, 1917.

Surgeon-Major Ambrose Henry Palmer, R.A.M.C. (T.F.), died at Cairo on May 2nd of wounds received on April 17th, aged 47. He was the eldest son of Dr. Palmer, of Barton-under-Needwood, Burton-on-Trent, and was educated at the Birmingham Medical School and at Guy's Hospital. After taking the diplomas of M.R.C.S., L.R.C.P. Lond., and L.S.A. in 1895 he went into practice at Barton-under-Needwood, where he was Medical Officer and Public Vaccinator of

Barton District, Surgeon to the Barton Cottage Hospital, and Surgeon to the Post Office. He joined the Staffordshire Yeomanry on December 24th, 1904, became Surgeon-Captain on June 24th, 1908, and was promoted to Surgeon-Major last year.

[Reprinted from *The Guy's Hospital Gazette*, May 19th 1917.]

PALMER, HENRY JOHN, Lieut., Duke of Cornwall's Light Infantry. Was educated at the Plymouth Technical Institute, and after passing the London Matric. in 1912, entered Guy's in May of the following year. He passed the 1st M.B. Lond. in July, 1915, but went on active service in December of the same year. Killed in action near St. Quentin, March 29th, 1918.

PALMER, JOHN STANLEY, Lieut., Durham Light Infantry. Entered Guy's 1910 as a Dental Student, qualified L.D.S. 1913. Died of wounds October 18th, 1916.

PARRY-JONES, O. G., Capt., R.A.M.C. Educated at Sherborne, Magdalen College, Oxford, and Guy's. Prominent mem-

ber of Rugby XV. In the early part of the war he served as a 2nd Lieut. with the Lancashire Fusiliers. Later he qualified and was at once gazetted to the R.A.M.C. In France was Medical Officer to the 8th Suffolks. Died of wounds September, 1916.

We regret to record that Capt. Owen Parry-Jones, R.A.M.C., elder son of Dr. and Mrs. Parry-Jones, Full Street, Derby, has died in France, from wounds received in the recent fighting.

Owen Guy Parry-Jones was born at Pinxton, Derbyshire, in June, 1887. He was educated first at a Preparatory School at Bournemouth, and then at Sherborne School, where he reached the Sixth Form and was School Prefect, but was, perhaps, more distinguished for his musical gifts and athletics. He was a prominent member of the Rugby XV., won the Steeplechase, and was a Sergeant in the O.T.C. He went up to Oxford with a Choral Scholarship at Magdalen College, became captain of the College XV., and played many times for the University. After taking his B.A. degree he entered Guy's Hospital. He was very specially a Guy's man, his father was here from 1878 to 1885, and his mother was for a short time Sister Cornelius. Known to all his friends as P.J., he was beloved by everyone who met him. In the Rugby XV. he excelled as a forward, physically strong and powerful, he was one of the mainstays of a team that for some years remained undefeated in the Final Cup Ties. He also played for Kent, and was a member of two teams that went to France and Austria respectively. Possessed of a very fine baritone voice, his services for "Ward Concerts" at Christmas time was always most eagerly sought after.

In 1913 he accepted a Commission in the Special Reserve of Officers and was called up when war broke out, when he was just on the eve of qualifying as a medical man, and was sent to the Lancashire Fusiliers as Second Lieutenant. He served with them at their depôt and at Hull for five months, and then in view of the shortage of doctors he was given a month's leave to try and qualify. This he did, and became M.R.C.S. and L.R.C.P. in January, 1915, and was at once gazetted Lieutenant in the R.A.M.C. and joined a training camp at Eastbourne. Promoted Captain in May, 1915, he went out to France in July, 1915, with the 56th Field Ambulance in the 18th Division. For the last few weeks he had been attached to the 8th Suffolks, and whilst with them he met his death. On September 28th he was standing outside the Advanced Aid Post when he received severe wounds from fragments of a shell. He died the following day, and we are told that he remained bright and cheerful to the end. Thus P.J., in laying down his life so voluntarily for his Country, reflects Honour and Glory on the name he bore, which will ever be remembered by his Hospital—Guy's.

[Reprinted from *The Guy's Hospital Gazette*, November 4th, 1916.]

PEACOCK, RUDOLPH. Entered Guy's as a dental student in 1897, and obtained the L.D.S. diploma in 1899. Killed in action, October 8th, 1916.

PEARCE, D. G., Capt., 1st East Kent Regt. Came to Guy's from Dulwich College. Was to have taken his final in November, 1914, but on August 4th he enlisted as a private in the H.A.C. and served with the 1st Battalion of that regiment till he was invalided home with frostbite. Later he gained a commission in the East Kent Regt. Killed in action, September 3rd, 1916.

Captain Dudley George Pearce, of The Buffs, aged 25, was the son of the late George Pearce, of Bournemouth. He was educated at Dulwich College, where in 1910 he took his colours for football. He became a medical student at Guy's Hospital, and was to have taken his final examination in November, 1914. On the day of the outbreak of war, however, he enlisted as a private in the H.A.C., and left for France with the 1st Battalion of that regiment in September, 1914. He was invalided home at the end of the same year with frostbite, having taken part in some of the heaviest fighting of the war up to that period. On his recovery he received a commission as second lieutenant in the East Kent Regiment, and left again for the Front with his battalion. After much fighting and personal distinction, he was on February 23rd of this year promoted on the field from second lieutenant to captain, and gazetted as such as from November, 1915.

[Reprinted from *The Guy's Hospital Gazette,* October 7th, 1916.]

PEATFIELD, S. J., 2nd Lieut., 9th Royal Berkshire Regt. (attached Machine Gun Corps), was the youngest son of Mr. H.

Peatfield, Dental Surgeon, of Brighton. He joined the London University O.T.C. in October, 1914, and obtained his commission in June, 1915. He was sent to France in March, 1916, and was severely wounded at Ypres on July 1st of the same year and died the following day. He was 22 years of age.

PERN, MONTAGUE, Lieut. Entered Guy's as a Medical Student in 1907, qualified L.R.C.P., M.R.C.S. 1912. Killed in action, March 9th, 1915.

PRYN, W. R., Lieut., R.A.M.C. Entered Guy's in January, 1909, and took his Final Conjoint Examination in January, 1914. He took an active interest in the O.T.C., and for one season organised the "Guy's Nomads" Rugger XV. At the outbreak of war he joined as a Civil Surgeon and worked at a base hospital in Rouen. Later he was attached to the 2nd Lincolns and finally met his death while serving with the 9th Field Ambulance in Belgium, 1915.

W. R. Pryn, son of Deputy Surgeon-General Pryn, came up to Guy's from Kelly's in January, 1909. As a hard and conscientious worker, examinations held no terrors for him and he had little difficulty in qualifying in the shortest possible time. He dressed to Mr. Dunn and Mr. Turner, and was Medical Ward Clerk to Dr. Hale White and Sir Cooper Perry, and Clinical Clerk to Dr. Shaw. He took his Final Conjoint Examination in January, 1914.

During his five years up at Guy's he took an active interest in the Officers' Training Corps, of which he was a member for three years, and for one season he organised the "Guy's Nomads" Rugger XV.

On leaving, he took up the post of House-Surgeon at the Guildford County Hospital. At the outbreak of war he joined the army as a Civil Surgeon, and worked for three months at a Base Hospital in Rouen. From there he became attached to the 2nd Lincolnshire Regiment and finally met his death while serving with the 9th Field Ambulance.

[Reprinted from *The Guy's Hospital Gazette*. July 31st, 1915.]

RECKITT, CHARLES EDWARD, Surg., R.N. Was the son of Lieut.-Col. J. D. T. Reckitt, R.A.M.C., and was educated at Bedford Grammar School and Berkhamstead School, entering Guy's Hospital in October, 1905, qualifying in 1913. He was A.H.S. at Guy's and subsequently Ophthalmic House Surgeon at the Hull Royal Infirmary. He joined the Navy in April, 1915, and was Senior Medical Officer in H.M.S. *Shannon*. In December, 1916, he developed cellulitis of the forehead and died in Haslar Hospital following an operation.

Surgeon Charles E. Reckitt, who died on January 20th as a result of illness contracted on active service, was 30 years of age. He qualified in 1913, and was Assistant House-Surgeon at Guy's, and subsequently he held the post of Ophthalmic House-Surgeon at the Hull Royal Infirmary.

In April, 1915, he joined the navy and was senior surgeon on H.M.S. *Shannon*. In December, 1916, he developed cellulitis of the forehead. After several operations, osteomyclitis of the frontal bone was followed by a subdural abscess, of which he died in Haslar Hospital.

[Reprinted from *The Guy's Hospital Gazette*, February 24th, 1917.]

REES, M. J., Capt., R.A.M.C. Qualified M.R.C.S., L.R.C.P. (Lond.) in 1902 and M.D. in State Medicine in 1906. Died on October 30th, 1916, of wounds received while attending to the wounded.

Captain Morgan James Rees, R.A.M.C., died on October 30th, aged 41, of wounds received on October 22nd while attending to the wounded under fire. He was the younger son of the late John Rees, of Stepney, and was educated at the City of London School, at the University College of Wales, Aberystwyth, and at Guy's Hospital. He took the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1902, and D.P.H. of the London Colleges in 1904, the degrees of M.B.Lond. in 1902, and M.D. in State Medicine in 1906. After filling the posts of Assistant Medical Officer of the Brook Hospital of the Metropolitan Asylums Board, and Assistant Medical Officer of Health to the County Borough of Reading, he became Medical Officer of Health and Superintendent of the Isolation Hospital for Aberdare Urban District in 1906, and in 1911 was appointed one of the Medical Inspectors of the Local Government Board. He was a Fellow of the Society of Medical Officers of Health, and of the Royal Society of Medicine, and a Member of the Royal Sanitary Institute.

He took a temporary commission in the R.A.M.C. a little over a year ago.

[Reprinted from *The Guy's Hospital Gazette*, December 2nd, 1916.]

RICHARDS, ERNEST HARRY RICHARD, 2nd Lieut., 21st Manchesters. Entered Guy's 1914 as a Dental Student. Joined Artists' Rifles, November, 1915. Killed in action at Croisilles, April 2nd, 1917.

ROBERTSON, E. G., Capt., (attached R.A.M.C.). Entered Guy's Dental School in 1905. Played for the Hospital as full back in 1906—07. Obtained a Dental Commission at outbreak of war and served two years in France. In August, 1917, he was transferred to the Queen's Hospital at Frognal, Sidcup, and died October 28th, 1918, from influenza, aged 33.

We regret to announce the death, at the Queen's Hospital, Frognal, on the 28th October, of Ernest Guy Robertson, L.D.S., Captain, att. R.A.M.C.

Son of the late Dr. F. F. L. Robertson, of Aberdeen and Bart.'s, E. G. Robertson entered this hospital from Portsmouth Grammar School in 1905 to graduate in dentistry. He represented the Hospital as a full-back in the football XI. which won the Inter-Hospital Cup in 1906 and 1907, and in the latter year was elected to the Clubs' Union.

In 1909 the deceased gentleman started to practise at Southampton, where he became Honorary Dental Surgeon to the Southampton and

South Hants Infirmary and to the Free Eye Hospital, Southampton, and Dental Surgeon to Mr. C. B. Fry's training ship *Mercury* in the Hamble River. On the outbreak of war he applied for and obtained one of the first dental commissions, and in December, 1914, he left for Salisbury Plain. In the following summer he was drafted to France, and for two years served at a casualty clearing station. He was then recalled to England and appointed to the newly-organised department for jaw work at the Cambridge Hospital, Aldershot. In August, 1917, he was transferred to the new Queen's Hospital at Frognal, Sidcup.

[Reprinted from *The Guy's Hospital Gazette,* November 30th, 1918.]

ROBERTSON, JOHN C., 2nd Lieut., Cameron Highlanders. Entered Guy's in 1912 as a Medical and Dental Student. Having passed his 1st Professional Examination in September, 1914, he joined the Cameron Highlanders as a private. He was about to take a commission in February, 1915, but taking advantage of an opportunity of getting to the front with the Camerons, destroyed his papers. He went through Neuve Chapelle unscathed, but at Festubert, on the morning of May 17th, 1915, fell wounded, and from that day nothing has been heard of him.

John C. Robertson was born in Selkirk (Scotland). He came to London with his family when he was about 5 years of age. His first

school was a ladies' one, and after attending that for about six months he went to Balham High School for a few years. From there he went to Dunheved College, Launceston, was there for four and a half to five years, finishing there, and in 1912 he went straight to Guy's Hospital as dental and medical student (joint course).

He had just finished his two years in the Dental Mechanical Department and had passed his First Professional Examination in September, 1914. The day after he knew the result, he, along with others, joined as private the 4th Cameron Highlanders about the end of September, 1914, at Bedford, where he was trained.

He remained at Bedford until February, 1915, and although he had his papers ready for a commission, he, along with several of his friends, when they got the order to go to the Front, destroyed his commission papers, preferring to go out as an ordinary private. They landed in France, and within seven days were in the trenches. He went through the battle of Neuve Chapelle unscathed, but at the battle of Festubert, on the morning of the 17th May, 1915, he fell wounded, and from that day to this nothing has been heard of him. He has disappeared absolutely and entirely, and thus a young and promising life, of high character, was ended.

[Reprinted from *The Guy's Hospital Gazette,* January 11th, 1919.]

ROBINSON, WILLIAM BERESFORD. Entered 1907, qualified L.R.C.P., M.R.C.S., 1912, M.B., B.S. (Lond.) 1913. Held House Appointments as A.H.S. 1913, H.P. 1914, O.P.O. 1913.

William Beresford Robinson, M.B., B.S.Lond. M.R.C.S., L.R.C.P.; died May 12th, 1918; born at Christchurch, New Zealand, in 1888, he matriculated in New Zealand, and came to England by way of India in 1907. In October of that year he entered at Guy's and passed the Primary Fellowship in 1910, giving promise of a brilliant career.

In 1911 he was laid up for three months with an attack of acute rheumatoid arthritis, from which his recovery was slow, but he, nevertheless, qualified with his contemporaries in 1912, and passed the M.B., B.S., in May, 1913. He held the appointments of Clinical Assistant, A.H.S., O.P.O., and H.P. to Sir Cooper Perry. He was a member of the hospital shooting eight, and during his last three months at hospital was President of the Residents. Subsequent to this he went into private practice in Sutton until the beginning of 1916, when, feeling that he would sooner be doing something more directly connected with the war, he joined the staff of the 2nd London General Hospital at Chelsea, where he worked until he contracted septicæmia in January, 1918.

There is no doubt that by his death a career of brilliant promise has been cut short. Respected and liked, his unselfishness and willingness to help contributed largely to the comfort and well-being of those around him, and he persisted in continuing his work until forced to give up on account of his ill-health. He leaves a widow and one child.

H. C. B.

[Reprinted from *The Guy's Hospital Gazette,* June 1st, 1918.]

ROSS, JOHN HAMPDEN. Private, 4th Devon Regt., T.F. Entered Guy's 1909, qualified L.D.S. 1911. Died of wounds in Mesopotamia, June 5th, 1916.

SANDOE, M. W. A., Lieut., Devonshire Regt. Eldest son of Dr. and Mrs. Sandoe, of Broad Clyst, Devonshire. He was educated at Allhallows, Honiton, Guy's Hospital, and Durham University. Killed in action on May 7th, 1917, aged 21.

Lieut. M. W. A. Sandoe was the eldest son of Dr. and Mrs. Sandoe, of Broad Clyst, Devonshire. He was 21 years of age and was killed in action on May 7th of this year. He was educated at Allhallow's, Honiton, Guy's Hospital, and Durham University. His Colonel writes of him to his parents :—"Your son was a most excellent officer in every way; the men thought a great deal of him. I had a very high opinion of him, and he is a great loss to me."

[Reprinted from *The Guy's Hospital Gazette*, June 2nd, 1917.]

SAW, NOEL HUMPHREY WYKEHAM, Capt., M.C., R.A.M.C., attached 4th Worcester Regt. Entered Guy's 1909 as a Medical Student, qualified L.R.C.P., M.R.C.S., 1915. Killed in action, October 9th, 1917.

Capt. Noel Humphrey Wykeham Saw, M.C., R.A.M.C., att. Worcester Regiment, who was killed in action on the 9th October, 1917, aged 25, was the younger son of Mr. and Mrs. Saw, junior, of 11, Vanbrugh Park Road, Blackheath.

He was educated at Stratheden House School and Cheltenham College (Newick House), and belonged to the College O.T.C. On leaving Cheltenham he became a student at Guy's Hospital, and joined the Artists' Rifles, of which he remained a member for four years, resigning early in 1914 to devote himself entirely to his last year of medical study. He played football for Guy's and Blackheath, and was a good runner in the mile and half-mile.

On the outbreak of war he applied to rejoin the Artists, but was advised to complete his medical course in October if possible. He became fully qualified as physician and surgeon in February, 1915, and at once joined the R.A.M.C. (Special Reserve), and in July was sent in charge of troops to Mudros. Becoming attached to the Worcestershire Regiment (29th Division) he went to the Gallipoli Peninsula and remained there until the end, taking part in both evacuations at Suvla Bay and Cape Helles. After some months in Egypt and at Suez the Battalion came to France, and Capt. Saw was present at the Battle of the Somme, where, in recognition of his gallantry during the first five days of July, he was awarded the Military Cross. He saw much service in France and Flanders, and met with his death on the battlefield whilst tending the wounded on the 9th of October, 1917.

[Reprinted from *The Guy's Hospital Gazette*, March 8th, 1919.]

SCOTT-PILLOW, H. M., 2nd Lieut., R.F.C. Entered Guy's as a Dental Student in May, 1914. Shortly after the outbreak of the war he joined the Public Schools Corps, and was granted a commission later in the Middlesex Regiment, from which he was transferred to the R.F.C. He went to France in July, 1917, and was killed on August 8th of the same year.

Mr. H. M. Scott-Pillow entered Guy's as a Dental Student in May, 1914. Shortly after the outbreak of war he joined the Public Schools Corps, and was later given a commission in the Middlesex Regiment from which he transferred to the Royal Flying Corps. He went to France in July of this year, and was killed in action on August 8th. The officer commanding the 7th Squadron Royal Flying Corps, to which he was attached, writes of him to his mother, "your son had shown himself a very promising and capable pilot, who always did his work well, and he endeared himself to all with whom he came in contact."

[Reprinted from *The Guy's Hospital Gazette*, November 17th, 1917.]

SEABROOKE, A. S., Capt., R.A.M.C. Educated at Tonbridge and Christ's College, Cambridge, he came to Guy's in 1908, where he had an unusually successful career. In March, 1915, he joined the R.A.M.C., and was attached to the Rawal Pindi Hospital, Boulogne. This was presently transferred to Mesopotamia, where, as the result of overwork and unsanitary conditions, he met his death on July 1st, 1916.

Captain A. S. Seabrooke, who died on July 1st, 1916, in Mesopotamia, at the age of 31, was the second son of Mr. and Mrs. Jonathan Sea-

brooke, of Grays, Essex. He was born on October 26th, 1884, at Marsh House, Grays, and, when nine years old, went to Maze Hill School, St. Leonard's. In 1898 he went to Tonbridge School, where he became head of his house.

Alec Seabrooke was a keen sportman. His father taught him to use a gun when he was only ten years old, and he became a very good shot. There could be no more congenial companion for a walk with a gun. He was an untiring sportsman after partridges in September, and, owing to his walking powers, was generally found as outside gun, right or left. He was no cricketer, nor did he achieve success as an oarsman, but Guy's men can tell you of his prowess at football. He played golf, and on one occasion won a cup at the Gray's Golf Club. He was a powerful swimmer, and was quite at home on horseback.

In 1903, Alec Seabrooke proceeded to Christ's College, Cambridge, where he entered heartily into the life and spirit of the University, and was a member of the Mounted Infantry Corps.

Entering Guy's Hospital in 1908, Alec Seabrooke had an unusually successful career, not merely from academic brilliance, but because he was recognised as a man of exceptional character, who gained the confidence of every one with whom he came in contact. He was President of the Guy's Residents, and held House Appointments for two years, including House-Surgeon and Resident Obstetric Physician. In March, 1915, he gave up the post of Resident Obstetric and joined the Royal Army Medical Corps. After a short period of training at Aldershot he proceeded to France, where he was attached to the Rawal Pindi Hospital.

[Reprinted from *The Guy's Hospital Gazette,* July 29th, 1916.]

SHEPHERD-TURNEHAM, NORMAN PERCY, Capt., Yorkshire Regt. Entered Guy's as a Dental Student in October, 1897, and qualified L.D.S. in May, 1901. He eventually settled in practice at Maidenhead. Killed in action, Sept. 28th, 1916.

SHORLAND, GEORGE, Temp. Surg., R.N. Entered Guy's in October, 1894, and passed the Final Conjoint in 1901. Prior to the war he was in practice at Mill Hill, and in addition held the appointments of M.O., Railway Clearing House, Euston, and Hon. Surg. to the Railway Benevolent Institute. Killed in action on H.M.S. *Invincible* in Battle of Jutland.

SMALL, FRANCIS DUDLEY, Capt., R.A.M.C., attached 15th Cheshire Regiment. Was educated at King's College, Canterbury, and entered Guy's as a Dental Student in October,

1911. He passed Part I. of the Final L.D.S. in November, 1914, and joined the army very soon after. Wounded and missing, 1918.

SMITH, DOUGLAS WILBERFORCE, Capt., R.A.M.C., attached 6th Manchester Regt. Entered Guy's in September, 1898, passed the Final Conjoint in 1901, and the Final M.B., B.S. in the same year. He was A.H.S. to Sir Charters Symonds in 1901, and passed his Final F.R.C.S. in 1911. Killed in action, Fricourt, July, 1916.

SNELL, HERBERT, 2nd Lieut., Lancashire Fusiliers. Entered Guy's April, 1903, Scholar in Dental Mechanics. Took Final L.D.S. May, 1905. Killed in action April 9th, 1917.

SNELL, NORRIS, Capt., 8th Battalion East Yorks Regiment. Entered Guy's as a Dental Student in 1893 and qualified L.D.S. in 1896. Killed in action July 14th, 1916.

SNOW, C. F., 2nd Lieut., R.F.A. Entered Guy's Hospital Dental School, May, 1908, and qualified L.D.S. in May, 1910. Went to South Africa the following year. Went through the German West African Campaign with the S.A.M.C. Coming home in October, he was given a commission in the artillery. Killed in action, June 30th, 1916.

Second Lieutenant Charles F. Snow, the elder son of Mr. W. H. Snow, Compton House, Peterborough, has been killed in action. Twenty-eight years of age, he was educated at the Cathedral School, Peterborough, and the Barton School, Wisbech. He entered Guy's Hospital Dental School, May, 1908, and qualified L.D.S. in May, 1910. He went to South Africa five years ago, and at the outbreak of war was attached, as senior lieutenant, to the Kimberley Regiment. Afterwards he was transferred as captain to the South African Medical Corps, going through the German West Africa campaign.

[Reprinted from *The Guy's Hospital Gazette*, July 15th, 1916.]

SOWERBY, VICTOR HOLGATE, Lieut., Lincolnshire Regt. Was educated at Old Clee Grammar School where he won a

scholarship. Was head of the school and Captain of the Cricket and Football Teams. He became a Student at Guy's Hospital in October, 1915, but enlisted in the London Regt. in the following month. He proceeded to France early in 1916 and was appointed 2nd Lieut. in the Lincolnshire Regt. in June, 1917. He received a wound in the chest and died on his way to the Dressing Station on August 1st, 1917.

Second Lieut. V. H. Sowerby was educated at Old Clee Grammar School, where he won a scholarship, was head of the school, and captain of the cricket and football teams. He became a student at Guy's Hospital in October, 1915, but enlisted in the London Regiment the following month, and volunteered to proceed to France early in 1916, although then only 18 years old. He was selected with a few others to act as domestic indoor guard to the King, when his Majesty spent a week in France. This was an interesting experience, and resulted in the gift of a Royal pipe as a souvenir. He remained in France and Flanders without any leave until appointed Second Lieutenant in the Lincolnshire Regiment, June, 1917, when he was granted a few days' leave.

[Reprinted from *The Guy's Hospital Gazette,* September 8th, 1917.]

SPONG, R. W., Lieut., R.A.F. Entered Guy's Dental School in 1911. Died at Shorncliffe October 30th, 1918. Gained Hospital Blue 1911—12 for Association Football. Joined Middle-

sex Yeomanry at outbreak of war, and was attached later to the Machine Gun Corps Cavalry in Ireland. Later on went to France, but returned to the Hospital in 1917 to complete his Dental course. Obtained a Dental Commission in Royal Air Force, with which he was serving at the time of his death.

By the death on October 31st of Lieut. R. W. Spong, R.A.F., another Guy's man has made the great sacrifice while serving in His Majesty's Forces.

Entering Guy's in 1911, on the Dental side, it was not long before R. W. Spong proved himself a keen sportsman as well as a keen student, and gained a well-deserved popularity amongst all—both medical and dental. Playing for the Hospital at Association Football he proved himself a fast and sound forward, and his weight served him well. He gained his Blue in the Session 1911—12, playing several times for the United Hospitals, after which he forsook Association for the Rugby Code, and when war broke out was fast becoming an adept at the game. He was also a good long-distance swimmer and 100 yards sprinter.

When war broke out he had passed the first half of his Final Dental, but immediately joined the Middlesex Yeomanry, soon earning corporal's stripes and a commission. He then took a machine gun course at Grantham, and was attached to M.G. Corps Cavalry in Ireland, and was with them through the Irish trouble in Dublin. He then went to France, where he served for some time before coming home in 1917 to take the second half of his Dental Final. He then returned to a Home Station, but owing to illness he was demobilised in October, 1917. For a while he carried on his dental work, but feeling he was fit enough he obtained a Dental Commission in the Royal Air Force, with which Force he was serving up to the time of his death. In all his actions—in work and sport—he was a typical Guy's man, and will be generally missed by all who knew him.

[Reprinted from *The Guy's Hospital Gazette*, December 14th, 1918.]

STACEY, JOHN BREWER, 2nd Lieut., 8th East Surrey Regt. Third son of Mr. H. Stacey, Firle, near Lewis, Sussex, was killed in action between November 18th and 20th, 1916, during an attack on Grandcourt, France. He was only 20 years of age and was educated at Eastbourne College. He entered Guy's Hospital as student in September, 1913, joined the London O.T.C. in 1914, was given a commission in the East Surrey 10th Reserve, December, 1915. Trained at Chelmsford and Fermoy, Ireland. Went to France, July 13th, 1916, was reported slightly wounded and missing after an attack near Grandcourt on November 18th, and his body was found by a wounded officer of the Duke of Cornwall's Light Infantry, on November 20th.

STAINER, C. H., Lieut., Loyal North Lancs. Regt. Educated at Guy's Hospital, qualifying as L.D.S. (Eng.) in 1913, and was in practice in South Africa on the outbreak of war. He joined the Loyal North Lancashire Regt. as a combatant, and was killed in action on November 15th, 1916, while attacking a German trench.

We regret to hear that Lieutenant C. H. Stainer, of the Loyal North Lancashire Regiment, was killed in action on November 15th 1916, while attacking a German trench. He qualified as L.D.S.Eng. in 1913, and was in practice in South Africa on the outbreak of war. He was very popular while a student at Guy's, and his death has occasioned sincere regret among his brother officers and friends.

[Reprinted from *The Guy's Hospital Gazette*. January 27th, 1917.]

STANWELL, WILLIAM ALEXANDER, Lieut., 3rd Lancashire Fusiliers. Entered Guy's 1913 as a Medical Student. Killed in action July 9th, 1915.

The late Second-Lieutenant W. A. Stanwell was the only son of Dr. and Mrs. Stanwell, of Rochdale. He received his early education at Blundell's School, and entered Guy's in October, 1913, having passed the London Matriculation Examination in the previous July. At the outbreak of war he was working for his First M.B. (London) Examination.

Lieutenant Stanwell was attached to the 2nd Lancashire Fusiliers. He was only 21 years of age. At the time the war broke out he was studying for his father's profession of medicine at Guy's Hospital, London. He had then already had some military training, had been for five years in his school cadet corps in Devonshire, and had afterwards become a private in the Artists' Rifles in London. With the Artists' Rifles he went to the front in France in October, 1914; he was later awarded a commission and transferred to the 2nd Battalion the Lancashire Fusiliers.

He was killed in action on July 9th, and so the Hospital has lost another of her younger sons who gave up everything to go out and fight for his country. We offer our sincere sympathies to all his relatives and friends.

[Reprinted from *The Guy's Hospital Gazette*, July 31st, 1915.]

START, S., Lance-Corporal. Employed in Works Dept. Joined the Machine Gun Corps and was awarded the Military Medal for gallantry in France. Died of wounds, 1917.

STEPHEN, LIONEL HENRY YORKE, Capt., R.A.M.C. Entered Guy's in April, 1893, and passed the Final Conjoint in 1897. During the South African War he served as Civil Surgeon to the Field Forces, and after as R.M.O. to the Royal Isle of Wight Hospital. Died on service, 1918.

STEYN, S. S. L., Lieut., 115th Brigade R.F.A. Educated at the Diocesan College, Rondebosch, Cape Town. Went to Oxford with Rhodes Scholarship in 1910. Gained his Blue at Oxford for Rugby Football and International Cap for Scotland. Entered Guy's 1913. Joined King Edward's Horse at outbreak of war as a private. Granted a commission in R.F.A., November, 1914. Killed in action, December 12th, 1917.

TILBURY, A., Capt., R.A.M.C. Was educated at Andover Grammar School and Guy's Hospital. Qualified in 1913. He then was Clinical Assistant in the Genito-Urinary Department. At the outbreak of war he received a commission in the R.A.M.C.. In December, 1915, he was promoted to Captain, and was sent to Egypt with the M.E.F. He returned to England in March, 1917. While on the transport *Transylvania* the ship was torpedoed on May 4th, 1917, and Capt. Tilbury was reported among those drowned.

Captain A. Tilbury, son of John Tilbury, Sheardown House, Oakley, Hants, aged 29, was educated at Andover Grammar School and, as a private pupil, by Rev. J. Atkins, M.A. He entered Guy's in October, 1906. He played Association Football for the Hospital for one season, but while doing the appointment of Extern his health broke down and he developed a small tuberculous focus in his right apex, and had to leave the Hospital for a year, during which time under Dr. Fawcett's kindly supervision and care he recovered and took the Conjoint Diploma in January, 1913. He then did Clinical Assistant in the Throat Department and in the Genito-Urinary Department, at the same time joining his brother, Mr. R. Tilbury, in partnership at Queen's Road, Peckham. When war broke out he was called up as a reservist in the London University O.T.C., and was at once given a commission in the R.A.M.C. He was sent to Canterbury Barracks under Col. W. W. Pope, where he remained for one year. In September, 1915, on obtaining his Captaincy he was sent to Egypt with the Mediterranean

Expeditionary Force, and was stationed at Boulac for over a year and then moved to Kantara. In March of this year he came home on special duty. In May he proceeded overland to a French port with troops and sailed on May 3rd on the transport Transylvania. She was torpedoed and sunk on May 4th in the Mediterranean. Captain Tilbury has been reported "missing, believed drowned" by the War Office

[Reprinted from *The Guy's Hospital Gazette*, June 2nd, 1917.]

TOLHURST, St. JOHN ALEXANDER MOLESWORTH, Capt., N.Z.M.C., T.F. Came to Guy's from Wellington College, New Zealand, in October, 1901. Qualified Conjoint in January, 1907, and passed his Final M.B., B.S. Lond. in 1909. Whilst at Guy's he held the appointments of Clinical, A.H.S., O.P.O. and H.P. Just prior to the war he was in practice at Wellington, New Zealand. Killed in action May 12th, 1918.

TOWNSEND, THOMAS AINSWORTH, Capt., M.C., R.A.M.C., T.F., 24th London Regiment. Was educated at New College, Oxford, and entered Guy's in October, 1909. He passed the Final Conjoint in 1914 and held the appointment of Ophthalmic House Surgeon till January, 1915. He afterwards left for service in Serbia, and subsequently went to France. He was awarded the M.C. in 1916. Bar to M.C., 1918. Order of St. Sava (Serbia). Wounded, 1917. Killed in action at Roequnguy, March 24th, 1918.

TRAILL, A. A., Capt., R.A.M.C. Was educated at Charterhouse and New College, Oxford, where he became President of the University Lawn Tennis Club and won the Challenge Cup. After passing the 1st M.B. he came to Guy's. On qualifying he held the appointment of A.H.S. to Mr. Rowlands and on the termination of his appointment joined the R.A.M.C. In the spring of 1917 he was sent to France. While at Oxford he had a severe attack of hæmorrhage from a duodenal ulcer, and a recurrence of this trouble when with his regiment at the front was the cause of his death at the age of 27.

Captain Anthony Traill was the second son of Mr. and Mrs. E. B. Traill, of Pelmarsh, Essex. He was born near Dublin on July 1st, 1890, and was educated at Charterhouse and New College, Oxford. At the latter place he became President of the Oxford University Lawn Tennis Club, and won the Challenge Cup. While at Oxford he began his medical studies, and after passing the first M.B. examination, came up to Guy's Hospital. After qualification he held the appointment of Assistant House-Surgeon to Mr. Rowlands, and quickly made his name as a most promising operator. On the termination of his appointment he joined the R.A.M.C., and was for some months employed in training recruits at R.A.M.C. depots at Aldershot and Blackpool. In the spring of 1917 he was sent out to France. While at Oxford he had a severe attack of hæmorrhage caused by a duodenal ulcer, and a recurrence of this trouble when with his regiment at the front was the cause of his death at the age of 27.

His life was one of great promise, and all who knew him looked for him to excel in his profession. Both at Oxford and at the Hospital

Captain Traill was extremely popular. He was intensely interested in his professional work and an extremely quick and able operator. Though he did not serve for very long in France, he did a great deal of valuable work in training depots in this country at a time when the training of recruits was a more urgent necessity than the provision of medical officers for service at the front.

[Reprinted from *The Guy's Hospital Gazette,* September 22nd 1917.]

TRAILL, KENNETH ROBERT, Lieut., Royal Berks Regt. Son of Dr. C. G. Traill, was born January 9th, 1894. He was educated at Sunningdale School and Bradfield College. He matriculated at London University and entered Guy's Hospital in 1911. He passed 2nd London and 1st Conjoint Examinations in 1914. Joined the Inns of Court O.T.C. in August, 1914, and received a commission in the 6th Battalion Royal Berkshire Regiment, went to France in June, 1915. He was wounded in February and rejoined in March, 1916. Killed on July 1st, 1916, at the Battle of the Somme.

WAGHORN, LEONARD PENGELLY, 2nd Lieut., Royal Berks Regt. Entered Guy's 1909. Joined the Forces August, 1914. Killed in action November, 1914.

We hear with great sorrow that Second Lieutenant L. P. Waghorn was killed in action on November the 6th. Lionel Pengelly Waghorn, aged 24, was educated at Marlborough. He matriculated into London University in June, 1909, and entered Guy's in the following October. He passed the 1st M.B. in July, 1911, and the Second Conjoint Examination in October, 1913.

Second Lieutenant L. P. Waghorn belonged to the Inns of Court Officers' Training Squadron, and on the outbreak of the war, at his fourth year of medical training at Guy's Hospital, he volunteered for service at the front. He was gazetted to the Royal West Kent Regiment, and from there attached to the Royal Berkshire Regiment. He had only joined this regiment a few days when he was killed in action on November 6th. He was the second son of Engineer-Captain W. Waghorn, R.N., formerly Professor of Physics at the Royal Naval College, Greenwich.—*The Times*, November 17th.

[Reprinted from *The Guy's Hospital Gazette*, November 21st, 1914.]

Dr. J. W. Waghorn writes:—

Let me, in the first place, thank you for your letter and your kind and sympathetic appreciation of Leonard's friendship with yourself and his other hospital friends. As regards any facts of his life: he was in his 24th year; he was educated at Morton and Vickers' private school at Englefield Green. (Morton was the well-known 'Varsity bowler and was much attached to Leonard). From there he went to Marlborough. His entry and work at Guy's you know better than I do probably.

He was in the Inns of Court Officers' Training Squadron, and had been promoted to Lance-Corporal. At the outbreak of war he volunteered for service at the front, but was anxious, if possible, to get into

the R.A.M.C., and consequently did not avail himself of the opportunities he had of being appointed to some Yeomanry Corps, and perhaps on that account was appointed, to his surprise, to an infantry regiment, the 3rd Battalion (Reserve) of the Royal West Kent Regiment (Queen's Own). Although he was unacquainted with infantry drill and duties, he soon made himself an efficient officer at Chatham, and earned the esteem of his Commanding Officer.

He was attached to the Royal Berkshires at the commencement of October, left for France on October the 3rd, was employed on some work near the fighting line in which he had frequent occasion to use his medical training, but where and what the work was he never told us.

On the 3rd of November he joined the Berkshires in the fighting line, and was killed outside his "dugout" instantaneously by a splinter of a shell on November 6th.

[Reprinted from *The Guy's Hospital Gazette,* December 19th, 1914.]

WATSON, CECIL FRANCIS W., West African M.S. Entered Guy's in January, 1892, passed the Final Conjoint in 1899. He obtained the Diploma of Tropical Medicine in 1906, and the Diploma of Public Health, Ireland, in 1909. He afterwards left to take over the part of Senior M.O. of the West African Medical Staff in Northern Nigeria. Lost at Sea.

WATT, NORMAN LINDLEY, 2nd Lieut., King Edward's Horse and R.F.C. Was educated at Natal and Pembroke College, Oxford, and after passing the 1st M.B. Oxon. in 1913, entered Guy's in October, 1914. He was in the midst of his first clinical appointment when he joined up, in November of the same year. Died of wounds, July 27th, 1917.

WEARING, DOUGLAS GEORGE, L.D.S. Entered Guy's as a Dental Student in April, 1903, qualified L.D.S. Eng. in May, 1905, and was Assistant Demonstrator of Metallurgy the same year. He settled in practice at Sidcup and was Consulting Dental Surgeon to the Sidcup Cottage Hospital. Died of pneumonia in Ireland whilst serving with troops as Dental Surgeon.

WEBSTER, EDWARD MACKAY, 2nd Lieut., Royal Berks Regt. Entered Guy's in 1911 as a Medical Student. Killed in action August 1st, 1917.

WEINBERG, ALBERT. Entered 1913. Dental. Joined S.A.M.C., 1916; went to France, 1917. Killed in action, 1918.

Born in Brussels on February 14th, 1892, the deceased came out to South Africa with his parents in November of the same year. Subsequently he laid the foundations of a bright career in the city, and took his intermediate examination at the Christian Brothers' College. Later he pursued his studies at the Rhodes College, Grahamstown, where he was successful in gaining his B.A. degree. Having decided to practice dentistry, he first studied at Bloemfontein. In 1913 he proceeded to London to pursue his dental course at Guy's Hospital, and he showed signs of making his mark in the profession he had selected. In August, 1916, when he was within nine months of qualifying in dentistry, he sacrificed this in order to participate in the war: this, despite the fact that had he but waited the further short period in order to qualify, he could have secured his commission. At the outset he joined the South African Medical Corps, but in the early part of 1917 he was drafted to the South African Field Ambulance in France. He participated in all the hard fighting with the South African Brigade, and on account of his knowledge of dentistry his services were frequently requisitioned at the base when opportunity offered. He cheerfully braved all the hardships of campaigning, and his letters to his parents were written in optimistic strain. He has nobly offered his young life, as so many others have done, on the altar of sacrifice for the cause of righteousness and freedom.

Private Albert Weinberg had a promising career. Amongst his many accomplishments he was a brilliant violinist, and whilst in Kimberley he was a member of the Kimberley Musical Association, and frequently gave his services as a solo violinist at various charitable efforts.

[Reprinted from *The Diamond Fields Advertiser*, Kimberley, Wednesday, October 30th, 1918.]

WELLER, CHARLES, Capt., R.A.M.C., 3rd Cavalry Division. Entered Guy's 1903, qualified L.D.S. 1905 and L.R.C.P., M.R.C.S. 1910. Killed in action, 1917.

Capt. Charles Weller, R.A.M.C., 2/3rd London Field Ambulance. Married. Only child of Mr. Charles Weller, Clarendon House, Redhill, Surrey. Killed in the trenches at Ypres, August 16th, 1917.

Volunteered for service at the outbreak of war. Joined the R.A.M.C. as a lieutenant, November 4th, 1914, and sent to France to No. 1 Clearing Hospital. Promoted Captain after one year's service, and was M.O. with the 3rd Cavalry Field Ambulance for another year. He took four months' leave to attend to his own practice and returned to France, March 24th, 1917, and was M.O. at No. 11 General Hospital until May when it was given over to the Americans. He then joined the 2/3rd London Field Ambulance, and at the time of his death had been lent as M.O. to the 1st London Regiment.

Copy of letter sent me from France:—

"On August 16th the division were in action and the 1st Londons, to which the late Captain was attached, were in the trenches, word came down to the Regimental Aid Post that the Batt. Headquarters had been shelled and that officers were buried.

Capt. Weller decided to go forward and took with him two squads of stretcher bearers. When he reached the communication trench the enemy began their counter-attack and the late Captain decided it was unsafe to proceed, at least for a time. Several wounded men were lying near and he visited most of them, and then took shelter in the trench.

After he had been there a few moments, he turned and said 'I am hit.' He was bleeding from the upper part of his forearm, and whilst I was trying to stay the flow of blood his head fell over my arm. I removed his steel helmet and found his brains protruding from his forehead, and he expired in a few moments. He met his death nobly carrying out his duty in this diabolical war."

This was written by a corporal who was with him by orders of Colonel Ducat. Colonel Ducat adds he was greatly liked and respected by all, and both myself and the rest of my officers feel his loss deeply, having lost a gallant officer and a friend.

WHITWORTH, HENRY PARKS, Capt., M.C., R.A.M.C., att. Scottish Borderers. Son of Dr. Wm. Whitworth, St. Agnes, Scorrier, Cornwall. Entered Guy's October, 1908, having passed the London Matriculation in the preceding July. He passed the M.B., B.S. Lond. in July, 1911, and the Final Conjoint in March, 1914. Held all the Ward appointments and in addition Clinical and O.P.O. in 1914. He was severely wounded in the summer of 1916, and subsequently was on Home Service for some time, but returned to France in 1918. Died of wounds, October 29th, 1918.

WILLIAMSON, GERALD COUTTS, 2nd Lieut., Essex Regt. Was educated at Bishop's Stortford College, and came to Guy's

as a Third Year Dental Student in May, 1913. He passed the Preliminary Science Exam. prior to entering the Hospital, and the First Professional in November, 1913. He went on active service soon after war broke out, but was killed in Flanders on October 9th, 1917.

WYAND, EDWARD HERBERT. Son of S. I. Wyand, Esq., of Lexham Gardens, W. Entered Guy's as a Dental Student in October, 1899, and qualified L.D.S. in November, 1901. During the South African War he was Civil Dental Surgeon to the South African Field Forces, and later was Dental Surgeon to the Troops at Aldershot.

DEAN, Miss CONSTANCE W. Entered Guy's Hospital in July, 1912, and left on completion of three years' training to take her C.M.B. Certificate, after which she held the post of Staff Nurse at the Cottage Hospital, Beckenham for a short time. She then took an appointment under the British Red Cross Society, and died of pneumonia following influenza at Woburn Abbey Hospital on December 4th, 1918.

GLADSTONE, Miss ELSIE M. Entered Guy's Hospital as a Probationer in June 1912, and on completion of her training in July, 1915, joined the Civil Hospital Reserve, and served on a hospital ship before going to France. She contracted influenza which was followed by pneumonia while working at the 48th Casualty Clearing Station in France, and died on January 24th, 1919. She was awarded the Royal Red Cross 2nd Class, but did not live to receive it. She was buried in France with military honours.

HOPKINS, Miss EVELYN. Entered Guy's Hospital as a Probationer in December, 1912, and on completion of her training joined the Private Staff of the Guy's Trained Nurses' Institution, leaving in April, 1917, to take up work in a Military Hospital. She was appointed a Sister at the Endsleigh Palace Hospital and during her service there, contracted influenza and died of pneumonia on November 5th, 1918.

MORRELL, Miss Mary L. Entered Guy's Hospital as a Probationer in September, 1913, and on completion of her training in October, 1916, joined the staff of the Guy's Trained Nurses' Institution. Early in 1917, she joined the Q.A.I.M.N.S.R., and in December, 1918, she was invalided home from Salonika. She returned to her home in Ireland but did not recover, and died on August 18th, 1919, after a long illness. Her funeral was conducted with military honours, and attended by a large contingent of local ex-soldiers.

WOODHEAD, Mrs. Agnes (née Walker). Entered Guy's Hospital as a Probationer in August, 1896, but was obliged to leave on account of ill health in November, 1897, without completing her training. She regained her health later and was able to take appointments as Staff Nurse and Sister in Provincial Hospitals. On the outbreak of war she took appointments under the British Red Cross Society, and in December, 1917, was appointed Night Superintendent at King Edward VII. Hospital, Windsor, and died there on May 6th, 1919, from the after effects of an operation.

PART II.

Decorations and Honours.

Victoria Cross (V.C.)

ACKROYD, Capt. H., M.C., M.D., late R.A.M.C. (attached Royal Berks. Regiment).

For most conspicuous bravery. During recent operations Capt. Ackroyd displayed the greatest gallantry and devotion to duty. Utterly regardless of danger, he worked continuously for many hours up and down and in front of the line, tending the wounded and saving the lives of officers and men. In so doing he had to move across the open under heavy machine-gun, rifle and shell fire.

Distinguished Service Order

Companions with Bar (D.S.O.)

DEAR, Lt.-Col. H. J., D.S.O., London Regt., 1918.

For conspicuous gallantry and devotion to duty. During an action he commanded his battalion in the most gallant and determined manner, rushed the crossing of a stream, and captured many prisoners. It was largely due to his personality and gallantry that this operation proved a success.

OSBURN, Major A. C., D.S.O., R.A.M.C, 1918,

For conspicuous gallantry and devotion to duty. On seeing the enemy approaching close to his dressing station, he carried out the evacuation of the wounded under heavy shell fire in the coolest and most gallant manner. Having cleared away all the cases by ambulance train and cars, he re-established his dressing station further in the rear. As officer commanding bearer divisions he constantly inspected his line of bearer posts and forward dressing station under heavy fire. The successful evacuation of the wounded from the divisional front was due to his careful organisation and fearless supervision under the most trying conditions. He was an example of gallantry, courage and resource worthy of the highest praise.

PYE-SMITH, Lt.-Col. C. D., D.S.O., M.C., R.A.M.C.

For conspicuous gallantry and devotion to duty when in command of the three field ambulances of the division during ten days' operations. Though the weather conditions were abnormally bad, and a large number of the wounded of another division had not been evacuated; owing to his presence, conduct and influence, all the wounded were got away promptly and without assistance from the infantry.

Companions (D.S.O.)

BAGSHAWE, Brevet Lt.-Col. H.V., R.A.M.C., 1919.

BARRON, Brevet Lt.-Col. R. M., I.M.S., 1918.

BARROW, Lt.-Col. H. P. W., R.A.M.C., 1918.

BIRD, Lieut.-Col. John Wilfred, R.A.M.C. (T.F.), 6th London Field Ambulance.
For conspicuous devotion to duty during operations at Maroc and Loos, between September 25th and 30th, 1915, in dealing with casualties. On one occasion he worked for 23 hours without any cessation in dressing and tending the wounded. He set a fine example, which had far-reaching results.

BROWN, Lt.-Col. R. T., R.A.M.C.

BROWN, Major T. F., R.A.M.C.

BROWNE, Lt.-Col. G. B., R.F.A., 1917.

BUTLER, Lt.-Col. A. G., R.A.M.C., 1917.

COLLINS, Lt.-Col. R. T., R.A.M.C., 1918.

COOPER, Staff Surg. H., R.N.

COPLANS, Lt.-Col. M., A.D.M.S., R.A.M.C.

CRAWFORD, Lt.-Col. V. J., R.A.M.C.

DAVIES, Lt.-Col. W. T. F.

DEAR, Lt.-Col H. J., R.A.M.C. attached London Regt.

DOWSETT, Lt.-Col. E. B., R.A.M.C., 1918.

DYMOTT, Major G. Lang, 281st Battery, R.F.A.

EVANS, Brevet Col. C. R., R.A.M.C.

EVANS, Lt.-Col. J., R.A.M.C., 1918.

FALWASSER, Lt.-Col. A. T., R.A.M.C., 1918.

FARRINGTON, Capt. W. B., Notts and Derby Regt., attached R.F.C., 1918.

GRIFFIN, Capt. E. H.
For conspicuous gallantry and devotion to duty. He established his dressing station well forward during an attack, and went up to the front line through a storm of artillery and machine-gun fire utterly regardless of personal safety. He moved about in the open for 36 hours without food or rest attending to the wounded, often leading parties of bearers through heavy barrages until every wounded man had been carried back. He remained behind after the battalion was relieved, still searching for wounded under heavy fire, though several times badly shaken by the explosion of the shells. He set a most inspiring example of courage and devotion to duty.

HORTON, Brevet Lt.-Col. J. H., I.M.S.

LAUDER, Major J. F. L., R.A.M.C.

LAYTON, Lt.-Col. T. B., R.A.M.C., T.F., 1918.

LECKIE, Capt. Malcolm, R.A.M.C., 1914.
For gallant conduct and exceptional devotion to duty in attending wounded at Frameries, where he was himself wounded.

LEWIS, Lt.-Col. R. P., R.A.M.C., S.R., 1918.

LITTLEJOHNS, Major A. S., R.A.M.C., 1917.

MINNS, Capt. A. N., R.A.M.C.

MOFFATT, Lt.-Col. H. A., S.A.M.C., 1917.

MURRAY, Lt.-Col. C. M., S.A.M.C., 1918.

OSBORN, Major A. C., R.A.M.C.

PALLANT, Capt. H. A., M.C.

For conspicuous gallantry and devotion to duty. Hearing that a number of men belonging to another battalion were on the enemy bank of a river and unable to cross it owing to the bridge being destroyed, and to their being apparently unable to swim, he hurried to the scene, swam the river fully clothed, and induced the men to enter the water and cross with the aid of a rope. The most exhausted one he personally conveyed across. During the time the enemy were continually shelling both the river and the banks. He set a splendid example of energy and devotion to duty.

PALLANT, Brevet Lt.-Col. S. L., R.A.M.C., 1917.

PILCHER, Lt.-Col. E. M., R.A.M.C.

POLLOCK, Lt.-Col. C. E., A.M.S., Headquarters Staff.

POWELL, Lt.-Col. J. E., R.A.M.C., 1917.

PURDON, Lt.-Col. W. B., R.A.M.C.

PYE-SMITH, Lt.-Col. C. D., M.C., R.A.M.C.

For conspicuous gallantry and devotion to duty. When in charge of an advanced dressing station his sergeant-major and the whole of his staff were killed. He reorganised the work with the assistance of a lance-corporal, and in consequence of his energy and presence of mind the work was not delayed. He led his bearers continually into the front line, rescuing wounded under heavy shell fire, and working with great heroism for 60 hours, setting a splendid example to all.

REYNOLDS, Lt.-Col. L. L. C., Oxford and Bucks L.I., 1916.

RICHARDS, Capt. J. F. G., R.A.M.C., 1918.

RICHARDS, Capt. Owen, R.A.M.C.

RICHARDSON, Col. H., R.A.M.C., 1918.

STEWART, Capt. J. L., M.C.

For conspicuous gallantry and devotion to duty. Although his aid-post was in the open, a few yards behind the front line, he remained there caring for the wounded, and through his efforts they were all dressed and evacuated. He was the only medical officer of the brigade left.

STOUT, Major T. D. M., N.Z.M.C., 1917.

STUART, Lt.-Col. H. D., R.A.M.C., 9th Lincs. Regt., 1917.

WALKER, Brevet Major A., R.A.M.C., 1918.

He established forward dressing stations and continued to work in them until forced to move by the immediate proximity of the enemy. He was repeatedly working in the open under heavy fire, no protection being available. He undoubtedly saved many lives which would have been lost but for his initiative.

WATSON, Major D. P., R.A.M.C., 48th Field Ambulance, 1918.

WILLAN, Lt.-Col. G. T., R.A.M.C. (T.F.), 1917.

WRIGHT, Lt.-Col. T. J., R.A.M.C., 1917.

YOUNG, Major J., R.A.M.C., East Lancs. F.A., 1918.

Distinguished Service Cross (D.S.C.)

HELSHAM. Surg.-Lieut. Christopher T., R.N., H.M.S. *Broke.*
The King has been graciously pleased to give an order for the award of the Distinguished Service Cross to Surg.-Prob. Christopher T. Helsham, R.N.V.R., H.M.S. *Broke*, who worked with great energy and ability in attending the wounded in the recent action with German destroyers in the Channel.

OSMAN, Prob. Sub.-Lieut. A. A., R.N., 1918.

2nd Bar to Military Cross (M.C.)

HANCOCK, Temp. Capt. (Act. Major) Allen Coulter, M.C., R.A.M.C. (attached H.L.I.), 1917.
He established his A.D.S. in the village, although it was under very heavy shell fire. He attended and evacuated a very large number of wounded, working all night, finally going out himself along the front to see if there were any left.

Bar to Military Cross (M.C.)

BIDDLE, Major E., M.C., R.A.M.C., 1918.

CHANING-PEARCE. Capt. Wilfred Thomas, M.C., R.A.M.C., 1917.

DAVIES, Major J. Edgar, R.A.M.C., attached South Wales Borderers.

GERMAN, Capt. H. B., M.C., R.A.M.C.
While in charge of stretcher bearers he supervised the evacuation of the wounded from the front line to the advanced dressing station, often under heavy shell fire. He also continuously dressed wounded in a dressing station unprotected from shell fire.

GRIFFIN, Capt. E. H., M.C., R.A.M.C.

HANCOCK. Temp. Capt. (Act. Major) Allen Coulter, M.C., R.A.M.C. (attached H.L.I.), 1917.
For conspicuous good work in advanced dressing stations, notably when he successfully conducted evacuation of wounded under heavy shell fire and adverse circumstances. Again, when the C.O. was wounded, Capt. Hancock took command and by his initiative, personal courage, and devotion to duty was responsible for the able carrying out of wounded through a barrage of shell fire for six days. He was then severely gassed, but persisted in attempting duty until physically incapable.

HAYNES, Capt. C. G., M.C., 4th King's Royal Rifles, 1917.
In the fighting in Shrewsbury Forest, Ypres Sector, 1917, he successfully led attacks on three strong points, and later, aided by one man, he captured a dug-out and took two officers and four other ranks prisoners.

JONES, Capt. J. P., M.C., R.A.M.C.

KENNEDY, Major R. S., M.C., R.A.M.C.
For conspicuous gallantry and devotion to duty. When in charge of advanced bearers he collected and led forward reinforcing bearer squads in a most gallant manner through a heavy barrage and through lines of retiring infantry, until he gained touch with the regimental aid-post. He cleared many wounded who would otherwise have been left to the enemy. A splendid example of persevering gallantry and fearlessness.

LAUDER, Major J. F. L., M.C., R.A.M.C., 1918.

MESSENGER, Capt. H. L., M.C., R.A.M.C., 1918.

SHEARWOOD, Major A. L., M.C., R.A.M.C. (S.R.), 1918.

STEPHENSON, Major John, M.C., R.A.M.C., 1917.

STEWART, Capt. James Lennox, M.C., R.A.M.C. attached to the Gordon Highlanders.

For conspicuous gallantry and devotion to duty. He behaved with the utmost gallantry in removing the wounded under shell fire. He continued to work in the open, exposed to severe shell and machine-gun fire until every wounded man had been brought in.

TOWNSEND, Capt. T. A., M.C., R.A.M.C.

For conspicuous gallantry and devotion to duty. Although twice wounded, he refused to have his wounds attended to, and continued to dress the wounded under a continuous and heavy concentration of high explosives and gas shells. Not only did he attend the wounded and gassed of his own unit, but rendered aid under conditions of great difficulty to wounded of neighbouring battalions whose medical officers had become casualties. His complete disregard of personal danger and splendid devotion were a magnificent example to all.

WOOD, Capt. C. A., M.C., I.M.S., attached 1/4 Gurkhas, 1917.

Military Cross (M.C.)

ACKROYD, Capt. Harold, R.A.M.C.

For conspicuous gallantry and devotion to duty during operations. He tended the wounded under heavy fire, and finally when he had seen that all our wounded men from behind the lines had been got in, he went out beyond the front line, and brought in both our own and enemy wounded, although continually sniped at.

ANDREWS, Lieut.-Col. J. A.

ANNESLEY, Capt. F. D., R.A.M.C., 1918.

When a report was brought to headquarters of a brigade that the cook-house of the battery had been struck, and that there were many killed and wounded men inside, he immediately left his aid-post and went forward to see what assistance he could give. Whilst going up a shell struck the remaining portion of the cook-house, partially burying occupants. He personally assisted in extricating the men, dressed their wounds on the spot, under heavy shell fire, and got them safely to the dressing station. His promptness and courage were undoubtedly the means of saving many lives.

BALLARD, Major R. P., R.A.M.C., 1918.

BAXTER, Capt. C. W. W., I.M.S., 1917.

For conspicuous gallantry and devotion to duty. When under heavy shell and rifle fire he displayed great gallantry and devotion to duty in attending to and evacuating the wounded. His services proved of inestimable value.

BENSTEAD, Capt. H. J., R.A.M.C., 1918.

BEVIS, 2nd Lt. Sidney William. R.F.A.
For conspicuous gallantry and devotion to duty. When telephone and visual communication was impossible and his orderlies were absent on duty, he thrice carried messages from the front line under intensely heavy shell fire.

BIDDLE, Major E., R.A.M.C., 1917.
For conspicuous gallantry and devotion. He showed great gallantry in supervising the removal of the wounded from a heavily shelled area. By his untiring energy and disregard of personal danger he saved many lives.

BOSWELL, Capt. P. R., 1918.

BROWNE, Major E. Gardner, R.G.A. (T.F.).

CHANING-PEARCE. Capt. Wilfred Thos., R.A.M.C.
For conspicuous gallantry and devotion to duty in attending the wounded men belonging to nine different battalions under heavy and continuous shell fire. His aid post was the only one in the vicinity in such a forward position, and he worked continuously and without rest until all the wounded had been attended to, displaying splendid devotion to duty.

CLARK, Capt. A. J., A.M.S., 1917.

CONNOLLY, Capt. B. G., 1918.

CONYBEARE, Capt. J. J., R.A.M.C., late Major 4th Oxford and Bucks Light Infantry, 1915.

COOK, Capt. John, R.A.M.C., 1917.
For conspicuous gallantry and devotion to duty. He went out under heavy shell fire, attended to the wounded, carrying them to cover, and setting a fine example of fearlessness and devotion.

CRAWFORD, H. G.

CROSSE, Capt. S. Spencer, R.A.M.C., 18th Batt. King's Royal Rifles, 1918.
Thanks to his untiring efforts in tending wounded under heavy fire no wounded were left in the enemy hands.

DARKE, Capt. S. J., R.A.M.C. (attached West Surrey Regt.).
For conspicuous and gallant conduct in the field. Although badly wounded he worked for five-and-half hours under heavy shell fire, tending the wounded without letting anyone know he was wounded himself. His gallantry throughout the operation was very fine.

DAVIES, Major J. Edgar. R.A.M.C., attached South Wales Borderers.

DAVIS, Capt. H. H., R.A.M.C. (attached York. and Lancs. Regt), 1918.

DEAN, Capt. C., R.A.M.C., 1918.

DENYER, Act.-Col. C. H., R.A.M.C.
For conspicuous gallantry and devotion to duty when in command of divisional bearers. It was due to his fearless and capable handling of his party that the evacuation of the wounded was carried out with rapidity and success.

DOUGLAS. Lt.-Col. Claude Gordon.

DRESING, Capt. H. G., R.A.M.C., 1917.
For conspicuous gallantry and devotion to duty. After being shelled out of his dressing station he took up another position and continued throughout the day, and performed operations under heavy shell fire, which was causing continual casualties around him.

DUCKWORTH, Capt. J.E.H., 7th Worcesters.

DUNNING, Hon. Capt. J. B., R.A.M.C.
For conspicuous and gallant conduct in the field. He went into the open under heavy shell fire and tended the wounded until he was severely wounded himself.

ECCLES, Capt. G. D., R.A.M.C.
While evacuating wounded from the firing line, although obliged to retire on four separate occasions, he, with great skill and resourcefulness, cleared all his wounded safely. His complete disregard to danger was entirely responsible for a completely successful evacuation under circumstances of considerable difficulty.

EDWARDS. Capt. C. D., R.A.M.C.

ELLIOT, Capt. H. H., R.A.M.C.
During several days' operations he was out under heavy fire, finding wounded men, attending to them, and helping them back to the aid-post; and though wounded, continued at duty. When his aid-post received several direct hits, he succeeded in evacuating all the wounded to a safer position. He set a fine example to his stretcher bearers.

ELLISTON, Capt. G. S.. R.A.M.C., 1918.

EVANS, Capt. Ed., R.A.M.C.

EVANS, Capt. H. W., R.A.M.C. (Special Reserve), 1917.
For conspicuous gallantry and devotion to duty. He showed the utmost bravery and zeal when commanding a stretcher bearer division. He directed the bearers and tended the wounded in the open. By his exertion he secured the efficient clearing of the wounded over a very big distance.

EVANS, Capt. J. A., R.F.A., 1917.

EVANS, Capt. L. W., R.A.M.C. (attached 9th East Lancs. Regt.), 1918.

FARRINGTON, 2nd Lt. R. G., R.F.A. (Special Reserve).
For conspicuous gallantry and devotion to duty when his battery was subjected to a very heavy hostile fire in an exposed position. He rallied his men and set them a fine example of his coolness and determination, personally unloading ammunition under heavy shell fire, and reorganising the teams as they suffered loss. During two days' heavy fighting he set a splendid example of gallantry and disregard of danger.

FELTON, Major R., R.A.M.C., 1916.
For conspicuous gallantry and devotion to duty during operations. He tended the wounded during an intense bombardment, and a few days later, when a shell blew in the orderly room killing three men and burying the remainder, he rescued the latter under most dangerous conditions. But for his pluck and devotion to duty many more lives would have been lost.

FRY, Capt. W. Kelsey.

FULLER, Capt. F. H., R.A.M.C.

FURLONG, D. W.

GALBRAITH, Capt. D. H. A., R.A.M.C., 1917.

GEORGE, Capt. W., R.A.M.C., 1917.

GERMAN, Capt. H. B., R.A.M.C.
For conspicuous gallantry and devotion to duty. When his dressing station was heavily shelled he organised the removal of 38 stretcher cases. He also rescued several wounded of another division under heavy shell fire. He established dressing stations without delay at various stages in an advance of four or five miles, and so enabled the wounded to be rapidly evacuated.

GODDING, Capt. H. C., R.A.M.C.

GOLDSTEIN, Capt. H. M., R.A.M.C.
For conspicuous gallantry and devotion to duty in establishing a forward aid-post in our advanced lines over a mile in front of his regimental aid-post. By his courageous decision to remain there, in spite of heavy shelling, and his great gallantry and devotion in attending to the wounded, all the casualties were evacuated before the battalion was relieved.

GREENE, Capt. J. A. C., R.A.M.C., 1917.
When an advanced dressing station was shelled with 8-inch shells, he at once went to the spot and began to dig out men that were buried. Though the shelling continued, he did not desist until satisfied that the men were dead. He then assisted in clearing the entrance to the dressing station and attended to the wounded within. He showed a total disregard to personal safety in his efforts to save life.

GRIFFIN, Capt. E. H., R.A.M.C.
For conspicuous gallantry and devotion to duty in action. Without food or sleep he worked incessantly, tending the wounded of his own and other units under heavy fire. He showed an absolute disregard of danger. On other occasions he has done similar gallant work.

HAMPTON, Lieut. F. A., R.A.M.C.

HANCOCK, Temp. Captain (Act. Major), Allen Coulter, R.A.M.C. (attached H.L.I.), 1916.
For conspicuous gallantry and devotion to duty. He led a rescue party in the open under heavy fire, and rescued 28 wounded men. He displayed great courage and determination throughout the operation.

HARDY, Capt. G. F., R.A.M.C., 1917.

HARRIS, Major L. Price, R.A.M.C., 1918.

HARRISON, Major S. S. B., 1917.

HAYNES, Capt. C. G., 4th King's Royal Rifles, 1916.
At the Schwaben Redoubt, "He led bombing attacks with great courage and determination, and finally after bombing for one and a half hours, was able to capture two officers and fifty men.

HENDERSON, Lt. H. J., R.A.M.C., attached Essex Regt., 1917.
For conspicuous gallantry and devotion to duty. He established his aid-post within 300 yards of the enemy's position, and dressed and evacuated cases in the open. It was due to his splendid example, cheerfulness and courage that a great number of lives were saved.

HENRY, Lt. C. J., R.F.A., S.R.
For conspicuous gallantry and devotion to duty when Liaison Officer with an infantry battalion. When communications with the artillery were cut he and his two telephonists made every

effort to re-establish communication until it became impossible. He was of the greatest assistance in helping to get men from battalion headquarters, and a tunnelling company out of a tunnel, and by his coolness and cheerfulness under extremely heavy fire he set a splendid example to all ranks.

HODGSON, Capt. Stewart, R.A.M.C.
For conspicuous gallantry and devotion to duty during recent operations. For a whole day, often under direct rifle and machine-gun fire, he attended the wounded and directed their evacuation. Although wounded he continued his duties with exceptional coolness and skill until the advancing enemy compelled withdrawal.

HUDSON, 2nd Lt. E. P., R.F.A. (Special Reserve).
When the battery was heavily shelled in a forward position, he set a splendid example of coolness and courage to his men. Later in the day he took command of the battery in a most difficult situation and conducted a withdrawal under heavy fire. It was largely owing to his determined efforts that the operation was successfully carried out.

JACKSON, Major R. W. P., R.A.M.C., 1918.

JOHNSON, Major William, R.A.M.C., 1916.

JONES, Capt. J. Gaymer, R.A.M.C., 1918.

JONES, Capt. J. P., R.A.M.C.

JONES, Capt. J. T., R.A.M.C., 1917.

JONES, Major R.O.H., R.A.M.C.
For conspicuous gallantry and devotion to duty. For many hours he had to occupy a most exposed position under heavy fire, where he dressed and attended the wounded at great personal risk.

KELSEY, Lt. W., R.A.M.C.

KENNEDY, Major R. S., R.A.M.C., 1917.
For conspicuous gallantry and devotion to duty in dressing and attending to wounded men under extremely heavy shell fire. At great risk of his life he made several journeys to the front line and personally brought in wounded men who otherwise must have been killed by the intense hostile barrage.

LAUDER, Major J. F. L., 1916.

LIEBSON, Capt. A. Stephen, S.A.M.C.
For conspicuous gallantry and devotion to duty when tending the wounded during operations. Though himself wounded and with nothing but a small trench to work in, he carried on during several days under heavy shell and sniping fire with the greatest courage.

LINDSAY, Lt. G. P., 2nd Border Regt., 1917.

LITCHFIELD, Capt. P. C., 1918.

LLOYD, Capt. V. E., R.A.M.C., 1918.
While in charge of stretcher bearers he worked for hours under shell fire evacuating wounded, and in an advanced dressing station exposed to shell fire he dressed and evacuated a large number of wounded.

LUCAS, Major R. H., A.M.S., 1918.

MANFIELD, Major G. H. H., R.A.M.C.
For conspicuous gallantry and devotion to duty in action. He worked day and night tending the wounded in our advanced positions under heavy fire, and carried many of them down the trench after all his bearers had been wounded.

MARSH, 2nd Lt. H. E., R.F.A. (T.), 1917.
For bravery in the field during the Messines-Ypres offensive.

MARSHALL, Capt. E. S., A.M.S., 1918.

MASH, Lt. O. N., R.F.A., 1917.
During a bombardment of his battery position a dump of howitzer charges was set on fire by a shell. The danger of the situation was greatly added to by some gas shells which had been scattered amongst the burning charges, but this officer, with the greatest coolness and courage, rushed to the fire and extinguished it, by his prompt and gallant action preventing an explosion which would undoubtedly have had serious and far-reaching results.

MESSENGER, Capt. H. L., R.A.M.C.
For conspicuous gallantry and devotion to duty while an exceptionally heavy shoot was being carried out by a battery. He crossed 400 yards in the open under heavy barrage to attend to a wounded man. On his way he was knocked down by an exploding shell, but in spite of this he proceeded with his duties. He showed great grit and determination.

MILTON, Capt. Leonard, R.A.M.C., 1918.

MINNS, Capt. A. N.

MULLALLY, Major G. T., R.A.M.C. (S.R.), 1917.

NELSON, Capt. K. M., R.A.M.C., 1917.
For conspicuous gallantry and devotion to duty in attending to the wounded with the utmost fearlessness under heavy shell and machine-gun fire. He constantly went out to our most advanced positions in aid of the wounded, and his careful search of the battlefield resulted in most of the serious cases being found and brought back to the dressing station. His unselfish devotion was directly the cause of so many lives being saved.

NEWLAND, Capt. W. D., R.A.M.C., 1918.

PALLANT, Capt. H. A., R.A.M.C.
For conspicuous gallantry and devotion to duty when attending to the wounded under heavy fire. Later he voluntarily acted as stretcher bearer, and helped to carry off nearly forty wounded under heavy shell and machine-gun fire.

PARTRIDGE, Capt. W. L., R.A.M.C.

PASSEY, Capt. R. D., 1918.

PETLEY, Act. Major C. E., R.A.M.C., 1918.

PHILLIPS, Lt.-Col. E., R.A.M.C., 1918.

POPHAM, Rev. A. E.

PURDOM, Lt.-Col. W. B.

PURKISS, Capt. K. N., R.A.M.C., 1919.

PYE-SMITH, Lt.-Col. C. D., R.A.M.C.
For conspicuous gallantry and devotion to duty. He tended and dressed the wounded under intense fire throughout the operations with great courage and determination. He has on many previous occasions done very fine work.

REINHOLD, Lt.-Col. C. H., I.M.S.

REYNOLDS, Capt. W. L. E., R.A.M.C., 1917.
For conspicuous gallantry and devotion to duty in working continuously for twenty-four hours amongst the wounded. In addition to his work at the regimental aid-post he went to the front frequently by day and night attending the wounded under heavy fire.

ROCHE, Capt. E. H., R.G.A., 1916.

SAW, Capt. N. H. W., R.A.M.C., M.O. i/c 4th Batt. Worcester Regt., 1916.

SEARLE, Major Chas. F., R.A.M.C., 1/4 Northampton Regt., 1917.

SHARP, Lieut. N. A. D., R.A.M.C., attached Nigerian Regt.

SHAW, Lieut. G. D., R.F.A., 1917.

SHEARWOOD, Major A. L., R.A.M.C. (S.R.), 34th Field Ambulance.

SMART, Major H. D., R.A.M.C., attached Lancs. Regt.

SMITH, Capt. H. Joste, R.A.M.C. (T.F.), East Anglian F.A., 1917
For conspicuous gallantry and devotion to duty. He followed his battalion in the attack, and attended to the wounded all day and night under very heavy fire of every description. It was due to his courage and splendid devotion that so many of the wounded were brought in.

SMITH, Capt. Philip, R.A.M.C.

STARLING, Capt. E. C. W., R.A.M.C. (Special Reserve).
For conspicuous gallantry and devotion to duty. He remained day and night at his post under continuous shell fire, and was untiring in his work on behalf of the wounded, to whom his unremitting care and unruffled calmness was the greatest comfort and assistance. He set a splendid example of courage and self-sacrifice.

STEPHENSON, Major John, R.A.M.C.
For conspicuous gallantry and devotion to duty when in charge of stretcher bearers. He remained in charge of his sector 13 days, refusing to be relieved, although his bearers had to be reinforced and the aid-post had constantly to change position owing to heavy shell fire. His personal example and gallant leadership were largely responsible for the way in which bearers stuck to their duty.

STEWART, Capt. J. L., attached to the Gordon Highlanders.

TOWNSEND, Capt. T. A., R.A.M.C.
For conspicuous gallantry and devotion to duty. He displayed great courage and determination in rescuing several men who had been buried under heavy fire. On three previous occasions he has done very fine work.

VIDOT, Capt. S., R.A.M.C.
He carried on his work continually under heavy shell fire throughout the operations, and stayed behind after the battalion was relieved to attend to the wounded. He had previously entered a dugout which was full of fumes and rescued a wounded officer.

WALKER, Act. Major Josiah, R.A.M.C., 1918.
In carrying out his work at an aid-post station which was continually being shelled, his organisation and arrangements for

the work were admirable; 120 wounded passed through his hands, all congestion was avoided, and the dispatch with which they were collected and evacuated probably saved many lives.

WATKIN, Capt. P. J., R.A.M.C., attached to the Bedfordshire Regt. For two days he dressed the wounded under heavy shell fire, and when the captured trenches had been cleared he commenced to search the shell holes in "No Man's Land" in spite of heavy sniping fire, until ordered to desist.

WOOD, Capt. C. A., I.M.S., attached 1/4 Gurkhas, 1917.

Air Force Cross (A.F.C.)

WRIGHT, Capt. J. A. Snarey, 1918.

Military Medal (M.M.)

HAWKINS, Lieut. C. F., 1917.

LLOYD, Pte. O. O., Artists' Rifles.

START, Lance-Corporal S., M.G.C.

Order of the Bath.

Companion (C.B.)

BROWNE, Major-General E. G.

BURGHARD, Colonel F. F. (Civil).

CONNOLLY, Col. B. B.

DAVY, Col. Sir H., 1917.

EASON, Lieut.-Col. H. L., 1919.

LANE, Col. Sir W. A., Bt., 1917.

LUCE, Major-General Sir R. H., 1916.

PILCHER, Lieut.-Col. E. M., 1918.

PRYN, Surgeon Rear Admiral Sir W. W., 1917 (Civil).

RAWNSLEY, Lieut.-Col. G. T., 1918.

SYMONDS, Col. Sir Charters J., 1916.

TUBBY, Col. A. H., 1917.

Order of St. Michael and St. George.

Knight Commander (K.C.M.G.)

ATKINS, Col. Sir John, 1919.

LUCE, Major-General Sir R. H., 1919.

Companion (C.M.G.)

ATKINS, Col. Sir John, 1916.

BARROW, Lieut.-Col. H. P. W., 1917.

BROWN, Lieut.-Col. R. T., 1918.

BROWNE, Major-General E. G.

DAVIES-COLLEY, Col. R., 1918.

DENYER, Capt. S. E.

DOUGLAS, Lieut.-Col. C. G., 1919.

EASON, Lieut.-Col. H. L., 1917.
GWYN, Lieut.-Col. W. P., 1919.
HUMPHREY, Brevet Colonel L., 1916.
LUCE, Major-General Sir R. H., 1918.
MARSHALL, Lieut.-Col. W. L. W., 1917.
OGILVIE, Col. W. H.
RAWNSLEY, Lieut.-Col. G. T., 1916.
STARLING, Lieut.-Col. E. H.
STATHAM, Col. J. C. B., 1919.
SUTTON, Col. Alfred.
TUBBY, Col. A. H., 1916.
WENYON, Lieut.-Col. C. M., 1918.

Royal Victorian Order.

Commander (C.V.O.)

BANKART, Fleet-Surgeon A. R.

Member (M.V.O.)

BARDSWELL, Major Noel.
BETT, Deputy Surg-General W.

Order of the British Empire.

Knight Commander (K.B.E.)

DAVY, Colonel Sir H., 1919.
GOADBY, Sir Kenneth W., 1918.
MURPHY, Lieut.-Col. Sir Shirley, 1919.
PRYN, Surgeon Rear Admiral Sir W. W., 1919 (Military).
SYMONDS, Col. Sir Charters J., 1919.
WHITE, Brevet Colonel Sir W. Hale, 1919.

Companion (C.B.E.)

BAGSHAWE, Brevet Lieut.-Col. H. V., 1919.
BEYTS, Col. W. G., 1919.
BRERETON, Brevet Lieut.-Col. F. S., 1919.
CRAIG, Lieut.-Col. Sir Maurice, 1919 (Military).
FRENCH, Lieut.-Col. Herbert, 1919 (Military).
GOLDIE, Capt. E. G.
GOODALL, Lieut.-Col. Edwin, 1919.
MOLLISON, W. M., 1920.
ORMOND, Brevet Major A. W., 1919 (Military).
PILCHER, Lieut.-Col. E. M., 1919.
POLLOCK, Lieut.-Col. C. E., 1919.
SHEEN, Col. A. W., 1918.
STATHAM, Col. J. C. B., 1919.
STEPHENS, Lockhart, 1919.

Officer (O.B.E.)

BARKER, Major F. A., 1919.
BARROW, Lieut.-Col. H. P. W., 1919.
BRIGGS, Major J. J. E., 1919.
BROSTER, Major L. R., 1919.
BROWNE, Surgeon Capt. Robley H. J., 1919 (Military).
BROWNFIELD, H. M.
CAMPBELL, Capt. J. M. H., 1919 (Military).
COPLANS, Lieut.-Col. M., 1919.
CORIN, Major H. J., 1919 (Military).
DELMEGE, Capt. J. A., 1919.
DOBSON, Major M. R., 1919.
FISHER, Major H. W., 1919.
FREMANTLE, Lieut.-Col. F. E., 1919.
FURLONG, D. W., 1919.
GENGE-ANDREWS, Capt. G. E., 1919.
GLOVER, Capt. J. A., 1919.
GOODALL, Lt.-Col. E. W., 1919.
GRAY, Lieut.-Col. A. C. H., 1919.
GREENWOOD, E. C., 1919.
HANAFY, J. Z., 1919.
HARVEY, J. H., 1919.
HERBERT, Lieut.-Col. A. S.
HODGSON, J. W., 1918.
HUGHES, Capt. E. C., 1919.
KEY, B. W. M. Aston, 1919.
MANN, Surgeon Lieut. H. C., 1919.
MARRIOTT, Fleet Surgeon H. B.
MARSHALL, Major Geoffrey.
MOORE, Major J. Yorke, 1919.
MUMFORD, Capt. W. G., 1919.
NUNN, Surgeon Commander G., R.N., 1919.
O'MEARA, Lieut.-Col. E. J., 1919.
PAYNE, J. Lewin, 1919.
PERCIVAL, Surgeon Lieut. H. F., 1919.
PITT, Major G. Newton, 1919.
RANKINE, Surgeon R. A., 1919.
RAYNER, Major A. E., 1919.
ROWLANDS, Capt. R. P., 1919.
SCOTT, Capt. D. C., 1919.
SCOTT, Surg. E. D.
SLESINGER, Surgeon Lieut. E. G., 1919.

SMITH, Capt. G. Warwick, 1919.
STOTT, Major H., 1919.
SWAN, Major R. H. J., 1918 (Military).
TAYLOR, Major Sir E. Stuart, 1919.
THOMAS, Surgeon Commander, A. R., 1919.
TICEHURST, N. F., 1919.
WENYON, Lieut.-Col. C. M., 1919.
WILLS, Surgeon Commander W. K., 1919.
WOOD, Capt F. T. H., 1919.

Member (M.B.E.)

AUDLAND, W. E.
HARRIS, Capt. W. J., 1919.
LINDSAY, W. J.
LOWE, Capt. E. C.

The Order of the Hospital of St. John of Jerusalem in England.

Esquire.

HANNAFY, J. Z.
NINNIS, Surgeon R. P., R.N.

Mentioned in Dispatches.

ALCOCK, Capt. Frank.
ALDIS, Capt. C., 1917.
ALLEN, Capt. T. S.
ANDERSON, Major R. G.
ANDREWS, Major J. A. (3 times).
ANNIS, Major E. G.
ATKINS, Col. Sir John (3 times), 1916.
ATTWOOD, Capt. R. D., 1917.
BAGSHAWE, Brevet Lieut.-Col. H. V. (twice).
BALLARD, Major R. P. (3 times), 1917.
BARNES, Capt. J. E.
BARRON, Brevet Lt.-Col. R. M. (twice), 1917 and 1918.
BARROW, Lieut.-Col. H. P. W. (twice).
BIRD, Lieut.-Col. J. W., 1917.
BOWLE, Major S. C.
BRADBURY, J. C. O.
BROSTER, Major L. R., 1918.
BROWN, Lieut.-Col. R. T. (3 times).
BROWN, Lt.-Col. T. F.

Browne, Major-Gen. E. G.
Browne, Lieut.-Col. G. B. (3 times).
Burghard, Colonel F. F.
Burney, Major W. H. S.
Butler, Lieut.-Col. A. G., 1917.
Campbell, Capt. J. M. H. (twice).
Campion, Capt. R. B. (twice), 1916.
Cardin, Capt. H.
Carter, Capt. H. H., 1918.
Carter-Braine, Capt. J. F. (twice), 1918.
Chapman, Staff Serg.-Major E. W. P.
Clark, Capt. A. J., 1917.
Clarke, Major H. M., 1917.
Clewer, Capt. D., 1918.
Cock, Lieut. Stanley, 1918.
Cogan, Col. L. D. B., 1918.
Collins, Lt.-Col. R. T., 1917.
Coplans, Lieut.-Col. M. (4 times).
Corin, Major H. J., 1918.
Costabadie, Lt. H. P.
Covell, Major G. C.
Cross, Capt. F. G., 1919.
Davies-Colley, Col. R. (twice), 1917 and 1918.
Davis, Capt. H. H.
Delmege, Capt. J. A., 1918.
Digby, Capt. W. E. S.
Douglas, Lieut.-Col. Claude G. (twice), 1918.
Dowsett, Lieut.-Col. E. B. (5 times).
Dunbar, Lieut. C. G.
Eason, Lieut.-Col. H. L., 1916.
Eastes, Capt. G. L.
Eccles, Capt. G. D., 1918.
Eccles, Capt. H. D., 1917.
Edmund, Capt. J. Adamson, 1918.
Evans, Brevet Col. C. R., 1917.
Evans, Capt. H. W., 1918.
Evans, Lieut.-Col. J., R.A.M.C., (twice), 1917 and 1918.
Evans, Major J., 1917.
Evans, Capt. L. W., 1917.
Falwasser, Lieut.-Col. A. T., 1917.
Fraser, Capt. A., 1917.
Fraser, Capt. F. C.

FREMANTLE, Lieut.-Col. F. E., 1918.
FRENCH, Lieut.-Col. Herbert, 1918.
FULTON, Lieut.-Col. H., 1917.
GALLOWAY, Surg.-Lieut. W. D.
GARLAND, Capt. J. O., 1917.
GEORGE, Capt. A. L., 1917.
GERMAN, Capt. H. B., 1917.
GIBB, Major C. de W., 1919.
GLOVER, Capt. E. N., 1918.
GOLDIE, Capt. E. G., 1918.
GRAY, Lieut.-Col. A. C. H.
GREENE, Capt. C. W.
GRIFFIN, Capt. E. H. (twice).
GRIFFIN, Capt. T. H., 1917.
GWYNN, Lieut.-Col. W. P., 1918.
HALL, Col. A. W.
HAMILTON, Surgeon George.
HANAFY, J. Z., 1919.
HANCOCK, Major A. C., 1916.
HANSON, Gunner J. F.
HARDY, Capt. G. F., 1917.
HENNESEY, Corp. P. W. H.
HEWETSON, Lieut.-Col. H. (twice), 1917 and 1918.
HILDRED-CARLILL, Surg.-Lieut.
HINDE, Major E. B.
HODGSON, Capt. C. R., 1920.
HORTON, Brevet Lieut.-Col., J. H.
HOWARD, Capt. C. R., 1917 and 1918 (twice).
HULL, Col. A. J. (twice).
HUMPHREY, Brevet Col. L. (twice).
HUNT, Brevet Major G. H., 1915.
JOHN, Capt. D. W. (twice), 1917.
JONES, Capt. J. T., 1917.
KENDALL, Major N. E., 1918.
KENNEDY, Major R. S., 1918.
LAUDER, Major J. F. L., 1917.
LAYTON, Lieut.-Col. T. B. (twice), 1918.
LECKIE, Capt. Malcolm, 1914.
LEIGH, Major H. V., 1917.
LEWIS, Lieut.-Col. R. P. (twice).
LIDDERDALE, Capt. J. F., 1917.
LITCHFIELD, Capt. E. M.

Litchfield, Capt. P. C., 1919.
Littlejohns, Major A. S., 1917.
Lockyer, Capt. G. E., 1919.
Lucas, Major R. H., 1918.
Luce, Major-Gen. Sir R. H., 1917.
Marshall, Capt. E. S. (twice).
Marshall, Major Geoffrey.
Marshall, Capt. R. P., 1919.
Marshall, Lieut.-Col. W. L. W. (twice).
Matthews, Lt.-Col. J., 1917.
Messenger, Capt. H. L.
Miller, Major A. A.
Millett, Surgeon H., 1915.
Mills, Major P. S., 1917.
Minett, Major E. P. (twice).
Minns, Capt. A. N. (twice).
Montgomery, Capt. R.
Moore, Major J. Yorke.
Moore, Capt. P. W., 1918.
Morrell, Capt. F. H., 1918.
Mullally, Major G. T., 1916.
Mumford, Capt. W. G. (twice).
Murray, Lieut.-Col. C. M. (twice, 1917 and 1918).
Nelson, Capt. K. M., 1917.
Nicholson, Lieut.-Col. C. R., R.A.M.C., 1918.
Ogilvie, Col. W. H., 1918.
Osburn, Lieut.-Col. A. C. (twice).
Ozanne, Brevet Major R. C.
Pallant, Capt. H. A., 1917.
Pallant, Brevet Lieut.-Col. S. L. (twice).
Parry-Jones, Capt. O. G.
Phillips, Lieut.-Col. E. (twice).
Pilcher, Lieut.-Col. E. M., 1918.
Plumptre, Capt. C. M., 1918.
Pollock, Lieut.-Col. C. E. (three times), 1917.
Popham, Rev. A. E.
Powell, Lieut.-Col. J. E., 1917.
Prall, Lieut.-Col. S. E., 1917.
Price, Major P. S., 1918.
Pritchard, Major G. B.
Pye-Smith, Lieut.-Col. C. D. (twice), 1917 and 1918.
Rahman, Brevet Major M. A. (twice).

RAWNSLEY, Lieut.-Col. G. T. (three times), 1916—1918.
RAYNER, Major A. E., 1917.
REINHOLD, Lieut.-Col. C. H. (twice).
RICHARDS, Capt. J. F. G., 1917.
RICHARDS, Capt. Owen.
RICHARDSON, Col. H. (twice).
RIVERS, Surgeon Lieut.-Commander A. T.
ROBERTS, Capt. C. S. Lane.
ROBERTSON, Lieut.-Col. J., 1917.
ROBERTSON, Capt. J. F.
ROGERS, Major F. E. W., 1918.
ROWELL, Lieut.-Col. H. Ellis.
SAUNDERS, Capt. S. McK., 1917.
SEARLE, Capt. Chas. F. (twice).
SEYMOUR-PRICE, Major P. (twice), 1918 and 1919.
SHAW, Lieut. G. D., 1917.
SHEARWOOD, Major A. L., 1918.
SHEEN, Col. A. W., 1918.
SHELTON, Capt. H. L. C., 1917.
SLESINGER, Surgeon Lieut. E. G.
SMART, Major H. D. (twice).
SMITH, Capt. E. G., 1917.
SMITH, Capt. G. Warwick (twice), 1917 and 1918.
SMITH, Capt. Philip (twice).
SOOTHILL, Major Victor F., 1917.
SPICER, Capt. A. H., 1917.
SPRAGUE, Surgeon Lieut.-Commander C. G., 1917.
STANSFIELD, Capt. T., 1917.
STARLING, Lieut.-Col. E. H., 1917.
STEPHENSON, Major John, 1917 (twice).
STEWART, Lieut.-Col. H. (twice), 1917.
STEWART, Capt. J. L. (twice), 1918.
STOTT, Major H.,
STOUT, Major T. D. M.
STUART, Lieut.-Col. H. D. (twice).
SWAN, Major R. H. J., 1916.
SYMONDS, Col. Sir Charters J.
TAYLOR, Capt. Sir E. Stuart (twice).
THOMAS, Major A., 1918.
TIMPSON, Capt. G. G., 1917.
TUBBY, Col. A. H. (twice).
TURNER, Major H. M. S.

TURNER, Major Philip, 1917.
WALKER, Brevet Major A., 1918.
WALKER, Major H., 1917.
WALKER, Major Josiah, 1917 (twice).
WALLIS, Major M. J. T., 1917.
WATSON, C. E. S.
WEBBER, Capt. A. M., 1917.
WEDD, Capt. Bernard H.
WENYON, Lieut.-Col. C. M. (twice), 1918.
WILCOCKS, Lieut.-Col. A. J., 1917.
WILLAN, Lieut.-Col. G. T., 1916.
WILLIAMS, Lieut.-Col. A. D. J. B. (twice), 1917 and 1918.
WILSON, Hon. Capt. W., 1918.
WOOD, Capt. F. T. H., 1918.
WRIGHT, Major C. S. E. (twice), 1917.
WRIGHT, Lieut.-Col. T. J. (twice).
YOUNG, Major J., 1918.

Mentioned for War Service.

CARTER, Lieut.-Col. A. H., 1917.
CONNOLLY, Col. B. B.
CROOK, Surgeon-Lieut. A. H., 1919.
DENYER, Capt. S. E., 1917.
ENDEAN, Surgeon-Lieut. F. C., 1919.
FORTY, Capt. A. A., 1917.
FOTHERGILL, Major E. Rowland.
GIBSON, Major H. G., 1917.
GOODALL, Lieut.-Col. E. W., 1917.
GOODHART, Capt. G. W., 1917.
GREENWOOD, E. C., 1918 and 1919.
HAMILTON, Major E. T. E., 1914 and 1915.
HIND, Lieut.-Col. W., 1917.
KNAPP, Lieut.-Col. G. H., 1914 and 1915.
LEIPOLDT, Capt. C. F. L., 1914 and 1915.
MAGRATH, Lieut.-Col. C. W. S.
MARSHALL, Lieut.-Col. W. L. W. (twice).
MAYNARD, Lieut.-Col. E. F.
MOFFATT, Lieut.-Col. H. A.
MULLINS, Capt. R. C., 1914 and 1915.
MURPHY, Lieut.-Col. Sir Shirley.
NEWMAN, Surgeon-Lieut. F. C., R.N., 1919.
NORMAN, Surgeon-Lieut. T., R.N., 1919.

PETLEY, Act. Major, C. E., 1917.
PHILLIPS, Major W. A. (twice).
PILCHER, Lieut.-Col. E. M.
ROBERTSON, Lieut.-Col. J., 1917.
ROOK, Major H. C., 1917.
ROUTH, Lieut.-Col. C. F., 1917.
SALVAGE, Lieut.-Col. J. V.
SAMUT, Lieut.-Col. R. P.
SHARP, N. A. Dyce.
SICHEL, Major G. T. S., 1917.
STEPHEN, Capt. L. H. Y.
STONE, Capt. F. W., 1917.
TAYLOR, Major J. G., 1917.
TICEHURST, N. F., 1919.
WENYON, Lieut.-Col. C. M., 1917.
WILSON, Lieut.-Col. A. R., 1917.
WINTER, Lieut.-Col. T. B.
WRIGHT, Lieut.-Col. G. A., 1917.

Territorial Decoration (T.D.)

BERRY, Major H. Poole, R.A.M.C. (T.).
BLACK, Major George, R.A.M.C. (T.).
DOWSETT, Lieut.-Col. E. B.
GRIFFITHS, Lieut.-Col. Charles T.
HIND, Lieut.-Col. W., 1917.
PAGET, Lieut.-Col. Peter, 1917.
RIGBY, Major J. A.
ROWELL, Lieut.-Col. H. Ellis, 1916.
THOMAS, Major A.
WALLACE, Major J.

FOREIGN DECORATIONS.

BELGIAN.

Croix de Guerre.

ANNESLEY, Capt. F. D., 1918.
COPLANS, Lieut.-Col. M., 1918.
MUNDEN, Lieut. M. M.

Ordre de l'Officier.

BARROW, Lieut.-Col. H. P. W., 1917.

Chevalier de l'Ordre de Leopold.

COPLANS, Lieut.-Col. M., 1917.

Chevalier de l'Ordre de la Couronne.

CORIN, Major H. J., 1919.
PEDLEY, Surgeon C. F., 1916.

EGYPTIAN.

Order of the Nile (Third Class).

ANDERSON, Major R. G.
OGILVIE, Col. W. H.

FRENCH.

Officier Legion d'Honneur.

BROWNE, Major-General E. G.

Croix de Guerre avec Palme.

BALLARD, Major R. P., 1918.
SLESINGER, Surgeon-Lieut. E. G., 1915.

Croix de Guerre.

COLLINS, Lieut.-Col. R. T., 1918.
COOPER, Staff-Surgeon H., 1918.
JACKSON, Major R. W. P., 1917.
PHILLIPS, Lieut.-Col. E., 1919.
WARD, Major F., 1918.

Médaille Militaire.

SYMONDS, Capt. C. P. (as a combatant at Mons).

Medaille des Epidemics.

TAYLOR, Major Sir E. Stuart.

ITALIAN.

Order of Crown of Italy.

HEWETSON, Lieut.-Col. H., 1918.

Croix de Guerre.

COPLANS, Lieut.-Col. M.

Silver Medal with Palm—Italian Red Cross.

ERSKINE-COLLINS, Capt. J. E., R.A.M.C.

PORTUGUESE.

Military Order of Avis-Commander.

BRERETON, Brevet Lieut.-Col. F. S.

RUSSIAN.

Order of St. Anne.

HEWETSON, Lieut.-Col. H. (2nd Class with Swords).
SPICER, Capt. A. H. (3rd Class).

Order of St. Stanislas.

TURNER, Surgeon Probationer W. A. (3rd Class), 1917.

SERBIAN.

Order of St. Sabe.

DREW, 2nd Lieut. V.
GREENWOOD, Capt. A. A.
NICHOLSON, Lieut.-Col. C. R. (5th Class).
TOWNSEND, Capt. T. A., 1917.
WALKER, Major H.

Croix de Guerre.

GREENWOOD, Capt. A. A., 1919.

Silver Medal—Serbian Red Cross.

DREW, 2nd Lieut. V.

HONOURS FOR GUY'S NURSES.

The Most Excellent Order of the British Empire.

Grand Cross	Dame	SARAH A. SWIFT, R.R.C.
Commander	Miss	MARGARET HOGG.
Officer	Miss	M. C. CORBISHLEY, R.R.C.
,, ...	Miss	M. A. NUTT, R.R.C.
,, ...	Mrs.	H. B. TURNER.
Member	Mrs.	KATHARINE COOK.
,, ...	Miss	N. BARKER.
,, ...	Miss	E. LORRAINE.

Lady of Grace of St. John of Jerusalem.

Dame SARAH A. SWIFT, G.B.E., R.R.C.

Bar to the Royal Red Cross.

Miss G. M. ALLEN, R.R.C.

Miss MARY C. FISHER, R.R.C.

Royal Red Cross 1st Class.

Miss G. M. ALLEN.
Miss E. F. BELOE.
Miss E. C. CHEETHAM.
Miss M. A. CHITTOCK.
Miss M. C. CORBISHLEY.
Miss G. CORDER.
Miss M. CRUICKSHANK.
Miss B. H. DANIELS.
Miss P. ENSHAW.
Miss K. E. FINNEMORE.
Miss L. V. HAUGHTON.
Miss M. E. HOBHOUSE.
Miss A. E. HULBERT.
Mrs. W. JONES.
Miss M. E. JONES.
Miss V. N. KIDDLE.
Miss G. LULHAM.
Miss M. J. L. LYONS.
Miss C. A. TAIT MCKAY.
Mrs. M. MORRISON (née Willes).
Miss E. M. NEWTON.
Miss A. B. NUNN.
Miss M. O'NEILL.
Miss M. L. POTTER.
Miss H. SUART.
Dame S. A. SWIFT, G.B.E.
Miss C. E. TODD.
Miss A. WILLES.
Miss L. WOOD.

Royal Red Cross 2nd Class.

Miss L. M. Anson.
Miss E. F. Beloe.
Miss S. Bevan.
Miss E. K. Blayney.
Miss M. Blenkarn.
Miss Edith E. Bott.
Miss C. Bottomley.
Miss C. Britton.
Miss F. Broome.
Miss F. E. Brown.
Miss M. A. Brown.
Mrs. A. M. Chisolm.
Mrs. M. A. Clarke.
Miss M. E. A. Colston.
Miss M. E. Cook.
Miss N. Connolly.
Miss A. I. Coward.
Miss G. E. Custance.
Miss A. E. Davidson.
Miss E. J. Densham.
Miss L. Denton.
Miss M. L. Dixon.
Mrs. J. L. Edwards.
Mrs. A. W. Ekins (née Blott)
Miss G. Field.
Miss F. M. A. Finnis.
Miss A. Fothergill.
Miss L. Fox.
Miss G. A. Fuller.
Miss C. Gerrard.
Miss E. M. Gladstone.
Miss E. A. V. Grant.
Miss E. M. H. Gooderham.
Mrs. E. Goss.
Miss C. M. Hancock.
Miss F. M. Hepburn.
Miss M. A. Hilliard.
Miss M. E. Hobhouse.
Miss B. A. Hope.
Miss S. A. Hyland.
Miss K. F. Irwin.
Miss L. M. Jenkins.
Miss L. E. Jolley.
Miss E. S. Johnson.
Miss W. M. Jones.
Miss A. M. Lithgow.
Miss A. R. I. Lowe.
Miss C. E. Lustic.
Miss M. J. L. Lyons.
Miss K. Mackenzie.
Miss F. Malkin.
Miss L. G. Mannell.
Miss M. M. Mansfield.
Mrs. D. Marshall (née Wilson).
Miss M. E. Marsh.
Miss B. Martin.
Miss R. MacMorland.
Miss K. M. Moore.
Mrs. M. Morrison (née Willes).
Miss M. A. Mumford.
Miss N. Nawn.
Miss M. O'Neill.
Miss C. Pearce.
Miss A. M. Phillips.
Miss E. H. Porter.
Miss E. E. Quilter.
Miss H. K. Rainbow.
Miss E. Raven.
Miss A. M. Richardson.
Miss K. I. Richardson.
Miss R. M. Rooke.
Miss S. A. Selby.
Miss L. G. Sheild.
Miss F. A. Spedding.
Miss E. Stedman.
Miss C. E. Strange.
Miss B. Sullivan.
Miss K. E. G. Taylor.
Miss A. M. Timbrell.
Miss K. M. Vine.
Miss M. Vivian.
Mrs. E. F. Watkins.
Mrs. E. M. Weller.
Miss G. M. White.
Miss M. E. Windemer.
Miss N. Windemer.
Miss D. Woollett.
Miss E. Wood.

Military Medal.

Miss F. Broome, A.R.R.C.
Miss M. A. Chittock, R.R.C.
Miss E. S. Johnson, A.R.R.C.
Miss C. Todd, R.R.C.
Mrs. E. Watkins, A.R.R.C.

The Albert Medal.

Miss G. L. White, A.R.R.C.

Special Service Cross.

Mrs. A. M. Chisolm.

Florence Nightingale Medal.

Miss Gladys L. White, A.R.R.C.

FRENCH.

La Médaille d'honneur des epidemics.

Miss Grace Corder, R.R.C. First Class.
Miss M. C. Corbishley, R.R.C. Second Class.
Miss C. du Sautoy. Second Class.

Silver Palms.

Miss C. du Sautoy.

The Croix De Guerre with Golden Star.

Miss Florence Tubbs.

The Enseigne with Gold Palms.

Miss Florence Tubbs.

Médaille de La Reconnaissance.

Miss Alice M. Fletcher.

BELGIAN.

Médaille de La Reine Elisabeth.

Miss C. E. Druce.
Miss F. A. Morgan.
Miss F. H. Freshney.
Miss F. A. Spedding.

Greek Military Medal of Merit.

Miss M. I. Hudd.
Miss M. A. Shepherd.

Serbian Samaritan Cross.

Miss R. C. Crisford.

Italian Special War Medal.

Miss A. E. Farrar.

Russian Military Medal. Order of St. George.

Miss A. E. Farrar.

Miss E. M. Fox.

Russian Military Medal. St. Anne's.

Miss A. E. Farrar..

Mentioned in Despatches.

Miss G. M. Allen, R.R.C.
Miss E. C. Baker.
Miss M. F. Beardshaw (twice).
Miss C. M. Bottomley, A.R.R.C.
Miss E. Cheetham, R.R.C.
Mrs. V. R. Cones (née Tyler-Cove).
Miss N. Connolly, A.R.R.C.
Miss G. Corder R.R.C. (twice).
Miss M. C. Corbishley, R.R.C. (twice).
Miss A. I. Coward, A.R.R.C.
Miss G. E. Custance, A.R.R.C.
Miss E. J. Densham, A.R.R.C.
Miss E. F. Druce.
Miss P. Enshaw, R.R.C. (twice).
Miss E. M. Fox.
Miss E. G. Fraser.
Miss F. H. Freshney.
Miss S. J. Gibson.
Miss F. M. Hepburn, A.R.R.C.
Miss K. B. Harris.
Miss W. M. Jones, A.R.R.C.
Miss L. E. Jolley, A.R.R.C.
Miss M. Jordan.
Miss V. N. Kiddle, R.R.C.
Miss A. M. Lithgow, A.R.R.C.
Miss A. R. I. Lowe, A.R.R.C.
Miss E. V. Lulham.
Miss C. E. Lustic, A.R.R.C.
Miss M. J. L. Lyons, R.R.C.
Miss E. E. P. MacManus.
Miss M. Maddison.
Miss L. G. Mannell, A.R.R.C.
Miss B. Martin, A.R.R.C.
Miss K. M. Moore, A.R.R.C.
Mrs. M. Morrison. (née Willes). R.R.C. (twice).
Miss M. I. Nelson.
Miss A. B. Nunn, R.R.C.
Miss M. L. Potter.
Miss M. N. K. Rae.
Miss E. Raven.
Miss E. Ray.
Miss A. M. Richardson, A.R.R.C.
Miss C. L. Shann.
Miss H. M. Sharwood.
Miss A. Sheldon.
Miss F. E. Southcott.
Miss H. Suart, R.R.C. (3 times).
Miss C. E. Todd, R.R.C., M.M.
Mrs. Watkins, A.R.R.C., M.M.
Miss G. L. White, A.R.R.C.
Miss E. Wood, A.R.R.C.
Miss L. Wood, R.R.C.

The names of the following have been brought to the notice of the Secretary of State for War, for valuable services rendered in connection with the War in Home Hospitals :—

Miss L. F. Anson.
Miss M. Appleton.
Miss F. M. Baker.
Miss M. E. Ballance.
Mrs. G. A. Bevington (née Jordan).
Miss E. K. Blayney, A.R.R.C.
Miss M. A. Blenkarn.
Miss C. Britton, A.R.R.C.
Miss F. R. Browne.
Miss C. E. Canty.
Mrs. M. A. Clarke, A.R.R.C.
Miss G. Cornell.
Miss A. E. Dean.
Miss C. Densham.
Mrs. M. L. Elliott.
Miss M. J. Ferdinand.
Miss M. Foord-Kelcey.
Miss E. M. Fox.
Miss E. Gooderham, A.R.R.C.
Mrs. E. M. Goss, A.R.R.C.
Miss E. R. Groom.
Mrs. Hart-Synnott (née Drower).
Miss A. M. Hooper.
Miss C. E. Hulbert, R.R.C.
Miss W. Molesworth.
Miss M. O'Reilly.
Miss E. Randles.
Miss D. M. Shepherd.
Miss M. L. Simpson.
Mrs. R. C. Stewart.
Miss E. M. Studdert.
Miss H. Suart, R.R.C.
Miss G. V. Wallis.
Mrs. C. T. Ward.
Mrs. E. M. Weller, A.R.R.C.
Miss J. E. Whittam (twice).
Miss M. E. Windemer, A.R.R.C.
Miss E. M. Yates (twice).

WAR SERVICES.

ACKROYD, H.	Temp. Capt. ...	R.A.M.C. V.C., 1917. M.C., 1916. Killed in action. B.E.F. France.
ADAMS, D. W. S. ...	Pte.	S.A. General Hospital.
ADAMS, F. S. ...	Temp. Capt. ...	R.A.M.C. South Wales Borderers. Wounded, 1918.
ADAMS, M. M. ...	Capt.	S.A.M.C.
ADAMS, R. R. ...	Temp. Dent. Surg.	R.N.V.R. H.M.S. *Thunderer.*
AHMAD, A. M. ...	Lieut.	I.M.S. Resigned.
ALCOCK, Frank ...	Capt.	R.A.M.C., T.F. Mentioned in despatches. Egyptian E.F.
ALCOCK, J. A. M. ...	Temp. Surg. ...	R.N. H.M.S. *Agadir.*
ALDIS, C.	Capt.	R.A.M.C. (20th F.A.). No. 10 Stationary Hospital. Ment. in despatches, 1917.
ALEXANDER, S. R. ...	Div. Surg. ...	V.A.D. Hospital, Faversham.
ALLAN, A. P. ...	M.O.	I/c Wallacefield Convalescent Home for Wounded Soldiers.
ALLAN, D.	Lieut.	R.A.M.C. M.E.F., 1915—16, Senior Medical Officer, Furness Officers' Hospital, Harrogate, 1917—19.
ALLAN, W. J. McBain	Surg. Sub-Lieut.,	R.N.
ALLEN, G. W. ...	Pte.	Artists' Rifles.
ALLEN, Norman ...	Capt.	Royal Warwickshire Regt. Killed in action, April 14th, 1918.
ALLEN, R. W. ...	Croix Rouge Française, Special service at Hôp. Militaire, V.R. No. 76.	
ALLEN, T. S. ...	Temp. Capt. ...	R.A.M.C. Surgical Specialist No. 12 General Hospital, B.E.F., 1914—17. Team Surgeon 2nd Army, 1917. Lahore Indian General Hospital. 1917—19. Royal Herbert Hospital, Woolwich, 1919—20. Ment. in desp.
ALLPORT, A. ...	Major	R.A.M.C. (Vol.) Military Hospital, Rochester Row, S.W.
ALSTON, W. Evelyn...	Major	R.A.M.C., T.F.
ANDERSON, R. G. ...	Major	R.A.M.C. Att. Egyptian Army. Mentioned in despatches. Order of the Nile, 3rd Class, by H.H. the Sultan of Egypt.
ANDERTON, J. E. ...	M.O.	New Mills V.A.D. Red Cross Hospital.
ANDREW, G. W. ...	Capt.	R.A.M.C., T.F.
ANDREW, E. G. ...	Capt.	R.A.M.C., T.F. (Cornwall R.G.A.)

ANDREWS, J. A. ...	Act. Lt.-Col. ...	R.A.M.C. Thrice mentioned in despatches. M.C. Wounded.
ANDREWS, R. C. ...	Lieut.	Scots Guards, 1915—16. Artists' Rifles, 1917—19. Scots Guards, B.E.F.
ANNESLEY, F. D. ...	Capt.	R.A.M.C. M.C., 1918. Croix de Guerre (Belgian) 1918.
ANNIS, E. G. ...	Act. Major ...	R.A.M.C., T.F. 5th London Field Ambulance, 1914. 2/5 London Field Ambulance, 1915. O/c 7th Prov. Field Ambulance, 1915. O/c 226 Field Ambulance, 1916 17. President, No. 9 Travelling Board, 1918. Ment. in desp.
ANTHONY, A. L. ...	Capt.	R.A.M.C., S.R.
ANTHONY, M. ...	Temp. Lieut ...	R.A.M.C.
APERGIS, H. D. ...	Capt.	R.A.M.C., S.R.
ARMER, A.	Temp. Lieut ...	R.A.M.C.
ARMSTRONG, C. W. W.	Temp. Surg. ...	R.N. Chatham Hospital.
ASHBY, E.	Temp. Capt. ...	R.A.M.C.
ASHWELL, H. G. ...	Temp. Lieut.-Col.,	R.A.M.C.
ASHWIN, R. H. ...	Temp. Capt. ...	R.A.M.C.
ASPINALL, R. Stivala	Capt.	R.A.M.C., S.R.
ATKINS, F. R. L. ...	Temp. Lieut ...	R.A.M.C.
ATKINS, Sir John ...	Col.	A.M.S. Three times mentioned in despatches. C.M.G., 1916. K.C.M.G., 1919.
ATKINSON, C. H. ...	Act. Major ...	R.F.A.
ATKINSON, J. L. ...	Temp. Lieut ...	R.A.M.C.
ATKINSON, N. M. H.	2nd Lieut. ...	East Lancs. Regt., attached R.F.C. Late R. Fus. Cadet at Oxford awaiting Commission. Accidentally killed at Aerodrome near Cirencester, December 27th, 1916.
ATTWATER, G. L. ...	Surg. Lieut. ...	R.N. R.N. Hospital, Haslar, 1916. H.M.S. *Chatham* (North Sea), 1916—18. R.N. Barracks, Portsmouth, 1918. R.N.. M.T.O., East Coast of England, 1918—19. R.N., M.T.O. South Coast, 1919.
ATTWATER, H. L. ...	Temp. Capt. ...	R.A.M.C.
ATTWATER, W. F. ...	Surg. Sub.-Lieut.	R.N.V.R. H.M.S. *Negro*, 1916, H.M.S. *Crescent*, additional for Medical Transport Duties in Scotland, 1916.
ATTWOOD, R. D. ...	Temp. Capt. ...	R.A.M.C. Ment. in despatches, 1917.
AUBREY, F. L. ...	Capt.	R.A.M.C. (Dental). Army Dental Surgeon.
AUBREY, H. P. ...	Temp. Capt. ...	R.A.M.C. 42nd Group Heavy Artillery.
AUDLAND, W. E. ...	M.O. I/c St. Johns Military Hospital, Wellingborough, 1915—19. Assistant County Director, V.A.D., Northants T.F. Assoc. M.B.E.	
AYLEN, G. H. ...	Civil Dental Surgeon to Troops, Portsmouth.	
AYLING, A. C. ...	2nd Lieut. ...	R.G.A.

BADCOCK, J. H. ...	Dental Surgeon	to Red Cross Hospital for Facial Injuries.
BAGSHAWE, H. V. ...	Brevet Lt.-Col.	R.A.M.C. A.D.M.S., Egyptian E. Force. D.S.O. C.B.E., 1919. Twice mentioned in despatches.
BAILEY, E. R. ...	Surg. ...	R.N.
BAINBRIDGE, F. A. ...	Temp. Capt. ...	R.A.M.C.
BAKER, A. de Winter	Resident Anæsthetist, London War Hospital, Epsom.	
BAKER, L. T. ...	Capt.	M.O., 10th Light Horse Regiment, Australian Forces.
BAKER, W. L. ...	Lt.-Col. ...	R.A.M.C.
BALL, M. E.	Lieut.	R.A.M.C., attached 9th Worcesters, 13th Division. Served in Gallipoli and Mesopotamia. Died of wounds, April 10th, 1916, at the 16th C.C.S., Wadi Camp, Orah, Mesopotamia.
BALL, W. C.	Major	General List, Anti-Gas Dept.
BALLARD, R. P. ...	Act. Major ...	R.A.M.C. 46th Field Ambulance, 1915—19. Red Cross, Calais, 1914. Mentioned in despatches three times. M.C., 1918. Croix de Guerre, Avec Palme (French), 1918.
BAMBER, H. E. ...	Capt.	R.A.M.C. (S.R.) Prisoner of War Camp, Bramley, Hants., 1918. M.O. 86th General Hospital. 82 C.C.S., Onega River Front, 11th and 13th Yorks, Russia, 1918—19. Kitcheners Hospital, Brighton. 1919.
BANKART, A. R. ...	Surgeon Commander, R.N. C.V.O.	
BARBER, Hugh ...	Capt.	R.A.M.C. Physician, 81st General Hospital, France, 1917. Pathological Specialist, 39th General Hospital, France, 1918—19.
BARBER, H. W. ...	Capt.	R.A.M.C. Rochester Row Hospital, 1915—16. India, Mesopotamia, Arabia and German East Africa, 1917. 25th General Hospital, France, and 101st Field Ambulance, 33rd Division, 1918.
BARDSWELL, Noel ...	Major	R.A.M.C. Netley Hospital; Malta (M.E.F.); Sicily, O.C. Hospital (Major, R.A.M.C.), 1915. M.O. Hospital Ship *Britannic*, No. 2 General Hospital B.E.F. France, Major O. I/c. Officer's Division, 1916. M.V.O.
BARGE, H. F. ...	Pte.	London Scottish.
BARKER, F. A. ...	Act. Major ...	I.M.S. 100th Indian Field Ambulance. O.B.E., 1919.
BARKER, H. T. ...	2nd Lieut. ...	Devon Regiment.
BARLOW, N. A. H. ...	Surg. Lieut. ...	R.N. H.M.S. *Murray*. Harwich Force, 1914—15. R.N. Hosp., Plymouth, 1917. H.M.S. *Tuberose*, Mediterranean, 1918.
BARNES, F.	Temp. Capt. ...	R.A.M.C.

BARNES, J. E. ...	Temp. Capt. ...	R.A.M.C. Ment. in despatches.
BARNES, J. Millard ...	Capt.	R.A.M.C., Dental.
BARNETT, E. P. ...	Dental Surgeon to Red Cross Hospital, Cheltenham.	
BARRAND, H. J. ...	Lieut.	1st G.B. Manchester Regt., India, Singapore and Hong-Kong, 1916—19. 9th Leicester Regiment, Home, 1914—15. 8th Cheshires, Egypt and Mesopotamia, 1916. Wounded, Mesopotamia, 1916.
BARRETT, A.	Temp. Capt. ...	R.A.M.C.
BARRON, R. M. ...	Brevet Lt.-Col.	I.M.S. 113th Indian Field Ambulance. Ment. in despatches twice. 1917—18. D.S.O., 1918.
BARRON, R. D. ...	Capt.	N.Z.M.C., France.
BARROW, H. P. W....	Lt.-Col. ...	R.A.M.C. Deputy Assistant Director General A.M.S. Twice mentioned in despatches. C.M.G. 1917. D.S.O., 1918. O.B.E., 1919. Ordre de l'Officier (Belgian), 1917.
BARROW-CLOUGH, W. J.	Surg. Lieut. ...	R.N.
BARRS, A. G. ...	Lt.-Col. ...	R.A.M.C., T.F.
BARTLETT, C. E. ...	Temp. Capt. ...	R.A.M.C. Attached 52nd Heavy Artillery Group.
BASTARD, H. R. ...	Surg. Lieut. ...	R.N. H.M.S. *Otway.*
BATCHELOR, F. C. ...	Lt.-Col. ...	N.Z.C.C.
BATES, K. L. ...	Capt.	R.A.M.C. 1st Base M.T. Depôt.
BATSFORD, J. F. ...	Lieut.	1/4th R. Batt. Essex Regt., T. Suvla Bay (Gallipoli). Wounded, August, 1915.
BAXTER, C. W. W. ...	Capt.	I.M.S. M.C., 1917.
BAYLIS, H. P. ...	Lieut.	R.N.V.R. Wounded in Gallipoli.
BEADEL, A. J. ...	Act. Major ...	R.A.M.C.
BEADNELL, C. M. ...	Surg. Capt. ...	R.N. H.M.S. *Vernon.*
BEADNELL, H. O. M.	Major ...	R.A.M.C.
BEALE-BROWNE, T. R.	West African Medical Staff. Lost at Sea, 1918.	
BEARBLOCK, W. J. ...	Fleet Surg. ...	R.N. Medal for Falkland Islands Battle. Killed in action. H.M.S. *Invincible.*
BELEY, G.	Temp. Capt. ...	R.A.M.C.
BELL, A.	Hon. Dental Surgeon to Queen Mary's Auxiliary Hospital, Roehampton.	
BENNETT, C. C. ...	Surg. Sub-Lieut.,	R.N.
BENNETT, J. ...	Capt.	R.A.M.C., S.R. V.T.C. Musketry Instructor, Minehead.
BENNETT, T. I. ...	Act. Major ...	R.A.M.C.
BENSTEAD, H. J. ...	Temp. Capt. ...	R.A.M.C. M.C., 1918.
BENSTED, L.	Temp. Capt. ...	R.A.M.C.
BENSTED, M. W. ...	Temp. Lieut. ...	R.A.M.C. No. 30 Stationary Hospital, B.E.F.
BENT, P. C. W. ...	Temp. Lieut. ...	R.A.M.C.
BENT, S. C. H. ...	Temp. Capt. ...	R.A.M.C.
BENT, V. T. C. ...	Capt.	R.A.M.C. M.O., R.A.M.C. Training Centre (Blackpool), 1916. M.O., 8th Stationary Hospital, Wimereux. 1917. M.O., 74th Field Amb., 1917. M.O., Dover

		Military Hospital, 1918—19. Wounded at Zilibeke, June, 1917.
BENTLEY, R. J. ...	Temp. Lieut. ...	R.A.M.C.
BENTON, N.	Temp. Surg. ...	R.N. H.M.S. *Tuberose.*
BERGH, V. E. D. ...	Capt.	R.A.M.C. (Dental). Asst. Dent. Surg., Aldershot Command.
BERNCASTLE, H. F. G.	Lieut.	3rd Bedfordshire Regiment. Signalling Officer. Died October, 1918.
BERRY, A. W. ...	Act. Major ...	R.A.M.C. 2/3rd E. Lancs. F.A. Wounded, 1918.
BERRY, F. S. D. ...	Temp. Capt. ...	S.A.M.C. 3rd South African F.A. German East Africa.
BERRY, H. Poole ...	Major	R.A.M.C. Regt. M.O., 4th Batt. Lincs., B.E.F., 1914. M.O., I/c Grantham V.A.D. Hospital, and O.C., R.A.M.C., Lincolnshire Volunteers, 1916. Territorial Decoration.
BERRY, J. Allan ...	Capt.	N.Z.M.C. No. 3 N.Z. Convalescent Hospital, Hornchurch, Essex. Wounded Messines, June, 1917.
BERRY, J. B. ...	Lt.-Col. ...	R.A.M.C., T.F. M.O. Royal Field Artillery, 1914—16. O.C. 330th Field Amb. at Margate, 1916—18. Electro-Therapeutic Specialist, Military Hospital, Fort Pitt, Chatham and President, Medical Board, Volunteer Decoration.
BERRY, P. H. ...	Lieut.	R.A.M.C. Western Frontier Force, Egypt. Drowned in attempting to save another man.
BETT, W.	Surg. Rear Admiral,	Various Depôts and Hospitals. Plymouth Hospital. M.V.O.
BEVAN, A. H. ...	2nd Lieut ...	E. Kent Regt. (The Buffs), late R.A.M.C. 23rd F.A.
BEVAN-BROWN, F. V.	Capt.	R.A.M.C. Wounded.
BEVEN, Octavius ...	M.O.	3rd H.A.C.
BEVERS, E. C. ...	Major	R.A.M.C., T.F., Southern General Hospital.
BEVIS, D. A. ...	2nd Lieut. ...	Hants R.E., T.F.
BEVIS, S. W. ...	Temp. 2nd Lieut.,	R.F.A., M.C.
BEYTS, W. G. ...	Col.	A.M.S. C.B.E., 1919.
BICKERTON, J. M. ...	Surg. Lieut. ...	H.M.S. *Royal Oak*, late R.A.M.C.
BIDDLE, E.	Act. Major ...	R.A.M.C. 91st Field Ambulance. M.C., 1917. Bar to M.C., 1918.
BIDDLE, F. J. ...	2nd Lieut. ...	1st Welsh Regiment.
BIDWELL, L.	Fleet Surg. ...	R.N. H.M.S. *Marmora.*
BIGGS, J. J. E. ...	Temp. Major...	R.A.M.C.
BILLING, E. ...	Temp. Capt. ...	R.A.M.C. No. 1 General Hospital. Mesopotamia, 1917—19.
BIRCH, G.	Temp. Capt. ...	R.A.M.C.
BIRD, J. W. ...	Lt.-Col. ...	R.A.M.C 5th London Field Amb. Egyptian E.F. Ment. in despatches, 1917. D.S.O., 1915.
BIRD, T.	Anæsthetist,	County of London War Hospital.
BIRDWOOD, G. T. ...	Lt.-Col. ...	I.M.S.

Birks, A. H. ...	Temp. Capt.	R.A.M.C. No. 37 C.C.S., B.E.F.
Bishop, C. A. D. ...	Capt.	West African Frontier Force. Sierra Leone.
Black, George ...	Major	R.A.M.C., T.F. M.O., attached 1/4 Royal Sussex Regiment, 1914—15. Egypt, 1915. Khartoum Military Hospital, 1916—17 and 48th Stationary Hospital, Alexandria and Gaza, 1917—1918. Territorial Decoration.
Black, J.	Surg. Sub. Lieut.,	R.N.V.R.
Black, K.	Major	R.A.M.C. Surgeon, Cambridge Hospital, Aldershot. Specialist in Advanced Operative Surgery, Bombay Brigade. S.M.O., H.M. Troopship *Caronia*. Surg. Specialist 82nd C.C.S. Surg. Vologda and Dvina Forces, North Russia.
Blacklaws, A. S. ...	Lieut.	R.F.A. Killed in action.
Blackler, H. J. ...	Capt.	R.A.M.C.
Blackwood, B. ...	Temp. Lieut. ...	R.A.M.C.
Blake, E. W. ...	Capt.	R.A.M.C. Cambridge Hospital, Aldershot, 1915. 18th C.C.S., Brit. E.F., 1915—19. Surgical Specialist, No. 43 and 58th C.C.S., B.E.F., 1919.
Blake, G. A. ...	Capt.	R.A.M.C.
Blachford, J. V. ...	Temp. Lt.-Col.	R.A.M.C. Beaufort War Hospital, Bristol.
Bligh, W.	Capt.	R.A.M.C. Royal Herbert Hospital, Woolwich, 1915. No. 9 General Hospital, Rouen, 1916. Surgical Specialist and O.C. Nos. 29, 51 C.C.S., Italy, 1918—19. Surgical Specialist, No. 2 C.C.S., Flensburg, Sleswig Holstein, 1920
Bloom, G. F. H. ...	Lieut.	Dental Surgeon, R.A.F. Dental Officer I/c Yarmouth and District Air Stations, 1918—19. D.O. I/c Bircham Newton, Sedgeford, etc., Aerodromes, 1919—20.
Body, T. H. ...	Temp. Capt. ...	R.A.M.C. 4th Group Heavy Artillery.
Boland, E. R. ...	2nd Lieut. ...	L.R.B. Wounded.
Bolus, H. B. ...	Asst. Quartermaster,	V.A.D. Kent Hospital, No. 41.
Bolus, P. R. ...	Capt. (Act. Major),	R.A.M.C. 25th F.A., 8th Division. Wounded.
Bond, A. B. ...	Capt.	A.A.M.C. Died of wounds in Germany, November, 1917.
Bookless, J. S. ...	Capt.	R.A.M.C. Ophthalmic Specialist, Havre.
Booth, E. H. ...	Physician,	Red Cross Hospital, Hove.
Boswell, P. R. ...	Capt.	R.A.M.C. 149th Brigade, R.F.A. 17th C.C.S., B.E.F. M.C., 1918.
Bouic, J. A. ...	2nd Lieut. ...	R.A.F. Accidentally killed.
Bowell, E. W. ...	Capt.	R.A.M.C. S.R. Pathologist at Basra, Peschawar and Landi Kotar.

BOWEN, O.	Temp. Capt. ...	R.A.M.C.
BOWEN, W. H. ...	Hon. Assistant	Surgeon to Research Officers' Hospital, Cambridge.
BOWES, E. S. ...	Temp. Surg. ...	R.N. H.M.S. *Cornwall.*
BOWLE, S. C. ...	Major	R.A.M.C. Mentioned in desp.
BOX, W. F.	Act. Major ...	R.A.M.C. 4th Canadian Hospital, Salonika.
BOYCOTT, A. E. ...	Temp. Capt. ...	R.A.M.C.
BRADBURY, J. C. O....	Surg.	Military Hospital, Shorncliffe, Bevan Hospital, Sandgate, No. 1 Rest Camp, Folkestone.
BRADNACK, G. A. ...	M.O	O/c Helena Hospital, Shorncliffe.
BRADNAM, C. H. ...	Lieut.	R.A.M.C., Dental.
BRAILEY, A. R. ...	Surg. Commander, R.N., Haslar.	
BRAILEY, W. H. ...	Major	Com. Ophth. Surgeon, Gen. Hosp. for Indian Troops.
BRAITHWAITE, J. ...	Temp. Capt. ...	R.A.M.C.
BRERETON, F. S. ...	Brevet Lt.-Col.	R.A.M.C. C.B.E., 1919. Portuguese Military Order of Avis-Commander.
BRETT, W. G. ...	Temp. Capt. ...	R.A.M.C. Officers' Hosp., Tidworth
BREWER, C. H. ...	Capt.	Bedford Regt. Twice wounded.
BRIDGER, J. D. ...	Capt.	R.A.F.M.S. Senior M.O., Tees Garrison, Middlesborough, 1917. M.O. I/c No. 2 Fighting School, Marske-by-Sea, Yorks., 1918. M.O. I/c R.A.F., South Shields and Seaton Carew, Durham, 1918—19.
BRIDGER, R. D. ...	Temp. Capt. ...	R.A.M.C.
BRIGGS, J. J. E. ...	Act. Major ...	R.A.M.C., T.F. O.B.E., 1919.
BROCKWELL, J. B. C.	Temp. Capt. ...	R.A.M.C.
BRODRICK, C. C. ...	Surg.	Warwick Regiment.
BROGDEN, I. R. R. ...	Temp. Capt. ...	R.A.M.C. Drowned 15th April, 1917.
BROMLEY, L. ...	Temp. Capt. ...	R.A.M.C. 39th C.C.S., Salonika, and Civil Surgeon, Southwark Military Hospital.
BROOK, S. S. ...	Temp. Capt. ...	R.A.M.C.
BROOME, F. C. S. ...	Surg.	R.N. R.N. Barracks, Portsmouth.
BROSTER, L. R. ...	Major	R.A.M.C. 34th F.A. Mentioned in despatches, 1918. O.B.E., 1919.
BROWN, C. M. ...	Temp. Lieut. ...	R.A.M.C.
BROWN, G. M. ...	Temp. Capt. ...	R.A.M.C.
BROWN, H. M. ...	Lieut.	1st Devon Regiment.
BROWN, H. S. ...	Temp. Capt. ...	R.A.M.C.
BROWN, R. T. ...	Lt.-Col. ...	R.A.M.C. East African Force. Mentioned in despatches three times. C.M.G., 1918. D.S.O.
BROWN, T. F. ...	Lt.-Col. ...	R.A.M.C. Ment. in despatches. D.S.O.
BROWN, W. Mark ...	Surg. Sub-Lieut., R.N.V.R.	
BROWNE, E. G. ...	Maj.-Gen. ...	A.M.S. Temp. Surg. Gen. H.Q. Staff. Mentioned in despatches. C.B. C.M.G. Officier Legion d'Honneur.
BROWNE, E. Gardner	Major	R.G.A., T.F. 1st London Heavy Battery. M.C.

BROWNE, G. B. ...	Lt.-Col. ...	R.A.F. Three times mentioned in desp. D.S.O., 1917. Wounded, 1917. Died, 1919.
BROWNE, Robley H. J.	Surg. Capt. ...	R.N. H.M.S. *Hyacinth*, P.M.O., Cape Squadron, 1914—16. H.M.S. *Lion*, P.M.O. Battle Cruiser Force, 1916—19. O.B.E. (Military), 1919.
BROWNE, W. Denis ...	Lieut.	R.N.V.R. Killed in action, 7th June, 1915.
BROWNE-CARTHEW, R.	H., Physician ...	Brook War Hospital.
BROWNFIELD, H. M....	Lt.-Col. ...	R.A.M.C., T.F. 1/2 Red Cross Hospital, East Liss, Petersfield.
BROWNING, S. H. ...	Temp. Capt. ...	R.A.M.C.
BRUCE, H. W. ...	Temp. Lt.-Col.	R.A.M.C. I/c Southwark Military Hospital.
BRUMWELL, G. W. ...	Surg. Col. ...	V.D.
BRYAN, C. A. D. ...	Temp. Lieut. ...	R.A.M.C.
BRYANT, C. H. ...	Temp. Capt. ...	R.A.M.C. Surgeon to Hove Red Cross Hospital.
BRYANT, E. H. ...	Capt.	N.Z.M.C. No. 3 F.A., N.Z. Div.
BRYDONE, J. M. ...	M.O.	Watney Hospital, and R.F.C. Hospital, Eaton Square, S.W.
BUCHANAN, A. ...	Temp. Capt. ...	R.A.M.C.
BUCHANAN, A. G. ...	Capt.	R.A.M.C., T.F., and Lowland F.A.
BUCK, A. D.... ...	Temp. Civil	Dental Surgeon, R.N.V.R. Royal Marine Infirmary.
BUCKERIDGE, G. L....	Staff Surg. ...	R.N.
BUER, W. B. ...	Capt.	R.A.M.C., S.R.
BULLEID, Arthur ...	Capt.	R.A.M.C., S.R. B.E.F., France (Artists' Rifles), 1914—16. Salonika and Constantinople, 1918—21. Act. Major I/c Base Laboratory, Constantinople.
BULLPITT, C. M. ...	Pte.	Artists' Rifles.
BURGESS, E. A. ...	Temp. Civil	Medical Officer. 3/8th Lancashire Fus.
BURGESS, W. F. R....	Temp. Civil	Surgeon, Military Hospital, Preston, Brighton.
BURGHARD, F. F. ...	Temp. Col. ...	A.M.S., T.F. Consulting Surgeon B.E.F., Chairman Surg. Advisory Committee of War Office. Surg. Central R.A.F., Hospital, Surgical Advisor to Medical Advisory Board, R.A.F., Consulting Surgeon, Queen Alexandra's Hospital, Millbank. Mentioned in desp., 1914—16. C.B. (Civil).
BURNER, L. H. ...	Temp. Capt. ...	R.A.M.C.
BURNEY, W. H. S. ...	Act. Major ...	R.A.M.C. Mentioned in despatches Wounded, 1918.
BURNSIDE, B. ...	Temp. Surg. ...	R.N. H.M.S. *Vindictive*, and R.N. Hospital, Chatham.
BURRIDGE, W. ...	Lieut.	R.A.M.C. Attached Malta.
BURTON, A. H. G. ...	Capt.	R.A.M.C.
BUSH, W. H. ...	Temp. Capt. ...	R.A.M.C.
BUSTEED, J. H. ...	M.O., I/c Troops,	All Hallows Hospital Ditchingham, 1915—19. Bungay and Flixton, 1917—19.

BUTLER, A. G. ...	Lt.-Col. ...	A.A.M.C. Mentioned in despatches. 1917. D.S.O., 1917.
BUTLER, H. R. C. ...	Dent. Surg. ...	V.A.D. Hospital, Tiverton.
CADE, C. R.	Surg. Lieut. ...	R.N. R.N. Hospital, Plymouth, and H.M.S. *Cottesmore.*
CALDECOTT, F. ...	Temp. Surg. ...	R.N. H.M.S. *Sapphire.*
CAMERON, J. ...	Capt.	R.A.M.C. Temp. Surg. Haslar Hospital.
CAMP, A. F. ...	Temp. Lieut. ...	R.A.M.C., Dental.
CAMPBELL, H. J. ...	Civil M.O. ...	Bradford War Hospital.
CAMPBELL, J. M. H.	Capt.	R.A.M.C. Twice ment. in desp. Mesopotamia, 1918. O.B.E., 1919.
CAMPIAN, J. H. ...	Temp. Capt. ...	R.A.M.C. Attached Wiltshire Regt. Wounded, 1918.
CAMPION, O. St. L.	Capt.	R.A.M.C.
CAMPION, R. B. ...	Capt.	R.A.M.C., S.R. O.C. Dental Annexe, Alexandria, Egypt. Twice mentioned in despatches, 1916.
CAMPKIN, P. S. ...	Hon. Dental Surgeon to Lord Knutsford's Hospital for Officers.	
CAMPS, P. W. L. ...	Temp. Capt. ...	R.A.M.C. 51st C.C.S.
CANNING, H. G. R.	Capt.	1/6 Hampshire Regt. India, 1914—17. Mesopotamia, 1917—18. Egypt, 1918.
CARDE, L. O.... ...	Corpl.	R.A.S.C. Died of wounds.
CARDIN, H. ...	Temp. Capt. ...	A.M.S. Mentioned in despatches, E.E.F. 1918.
CARLING, W. ...	Capt.	R.A.M.C., T.F. 5th Southern General Hospital.
CARR, T. E. A. ...	Act. Major ...	R.A.M.C., T.F. 2/1 N. Midland Field Amb., attached 2/7 Sherwood Foresters, B.E.F. M.O. 3rd South Staffs. Regt., 1914. M.O. 2/4 Somerset L.I., India, 1915. Prisoner in Germany, 1918.
CARTER, A. H. ...	Hon. Physician,	Wolverhampton General Hospital. Physician I/c Private Convalescent Home for Wounded Officers, Penn, Wolverhampton. Ment. for War Services, 1917.
CARTER, A. J. ...	Commandant ...	M.O., O/c Auxiliary Military Hospital.
CARTER, H. H. ...	Capt.	R.A.M.C. Ment. in despatches, 1918.
CARTER-BRAINE, J. F.	Capt.	R.A.M.C., S.R. 2nd London General Hospital, 1914. 2nd London C.C.S., 1915. 300th (Nigerian) Field Ambulance, East Africa, 1917—19. Connaught Hospital, Aldershot, 1919. Twice mentioned in despatches, 1918.
CARTRIDGE, A. A. M.	...	Sutton Red Cross Hospital.
CATTELL, G. T. ...	Lt.-Col. ...	Commandant, Prisoners of War, Rouen.
CHADWICK, G. R. ...	Surgeon and Agent, Admiralty.	
CHADWICK, Morley ...	Lieut.	R.A.M.C.

CHAMBERS, R. S. ...	2nd Lieut. ...	R.F.A. 96th Army Bde., B.E.F.
CHANING-PEARCE, W. T.	Capt.	R.A.M.C. 96th Field Ambulance, B.E.F. Killed in action, 1st October, 1917. M.C. and Bar to M.C., 1917.
CHAPMAN, C. L. G....	Capt.	R.A.M.C.
CHAPMAN, P. D. H....	Capt.	R.A.M.C.
CHAPPLE, H. ...	Capt.	R.A.M.C. 5th C.C.S., B.E.F. Surgeon R.A.F. Hospital.
CHARLES, G. F. ...	Temp. Capt. ...	R.A.M.C. Dental.
CHARLES, S. W. ...	Temp. Capt. ...	R.A.M.C., Dental. East Africa.
CHASE, R. G. ...	Temp. Lieut. ...	R.A.M.C., Base Hospital, Calais.
CHEESMAN, A. E. P.	Surg. Lt.-Com.	R.N. H.M.S. *Ceres*.
CHEVREAU, P. R. ...	Temp. Lieut. ...	R.A.M.C.
CHILD, Stanley ...	Capt.	R.A.M.C., T.F. South Wales Mounted Brigade F.A.
CHILDE, L. F. ...	Lt.-Col. ...	I.M.S.
CHISHOLM, R. A. ...	Hon. Lieut. ...	R.A.M.C. No. 8 British Red Cross Hospital.
CHUBB, W. L. ...	M.O. to Hants V.	A.D.
CHURCHILL, G. B. F.	Major	R.A.M.C.
CLARK, A. E. ...	Capt.	R.A.M.C. Hampshire Medical Volunteer Corps.
CLARK, A. J. ...	Capt.	A.M.S., H.Q. Staff. Mentioned in despatches, 1917. M.C., 1917.
CLARK, J. B. ...	Capt.	R.A.M.C.
CLARK, J. K. ...	Capt.	Australian Infantry. Wounded twice, 1916 and 1917.
CLARK, R. F. ...	Fleet Surg. ...	R.N. H.M.S. *Vivid*.
CLARK, W. F. ...	Temp. Capt. ...	R.A.M.C.
CLARKE, A. E. ...	Temp. Capt. ...	R.A.M.C.
CLARKE, A. V. ...	Col.	A.M.S. (T.F.).
CLARKE, G. ...	Act. Major ...	R.A.M.C.
CLARKE, H. M. ...	Temp. Major	R.A.M.C. Ment. in despatches, 1917. Wounded, 1917.
CLARKE, K. B. ...	Hon. Capt ...	R.A.M.C. Invalided out.
CLATWORTHY, J. H.	Temp. Lieut. ...	R.A.M.C. 4th London General Military Hospital.
CLEVELAND, A. J. ...	Major	R.A.M.C. Norfolk War Hospital.
CLEWER, D.	Temp. Capt. ...	R.A.M.C. Senior Dental Officer, Seaford Garrison, and No. 5 Hospital, Army of the Rhine. Mentioned in despatches, 1918.
CLIFFORD, A. C. ...	2nd Lieut. ...	3rd Dragoon Guards. Killed in action, Ypres, 1915.
CLOUGH, A. H. ...	Temp. Capt. ...	R.A.M.C.
CLOWES, E. F. ...	Capt.	R.A.M.C. 50th Field Ambulance, B.E.F., 1916. Somme Offensive. 1916. Officer I/c Reading War Hospital, 1915—16. 1917—18.
CLOWES, N. B. ...	Capt.	R.A.M.C., T.F. 3rd Southern General Hospital.
COCK, F. W. ...	Anæsthetist, King George Hospital.	
COCK, Stanley ...	Lieut.	R.A.S.C. Late Pte., R.A.M.C. 1st London C.C.S. Staff Officer, Blackheath Depot M.T. Gas Officer, 1917—18. Mentioned in despatches. Avesnes Les Aubert, 1918.

COCKCROFT, G. ...	Temp. Lieut. ...	R.A.M.C.
COCKING, A. W. ...	Temp. Surg. ...	R.N.
COCKREM, G. B. ...	Surg. Lt.-Commander,	R.N. H.M.S. *Black Prince*, Mediterranean and North Sea, 1914—15, H.M.S. *Botha*, Grand Fleet, 1915—16. H.M.S. *Tamar*, China, 1916.
COCKS, J. Stanley ...	Capt.	R.A.M.C. Died at Beyrut from Typhus, 1919.
COE, W. E.	Temp. Lieut. ...	R.A.M.C., Dental.
COFFIN, S. W. ...	Temp. Lieut. ...	R.A.M.C. India.
COGAN, L. D. B. ...	Act. Col. ...	R.A.M.C. A.D.M.S. 1/c 88th Field Ambulance. Ment. in despatches, 1918. Wounded, 1917.
COHEN, L. C. ...	Lieut.	R.A.M.C., D.
COLE, P. P. ...	Temp. Capt. ...	R.A.M.C. 1st Southern General Hospital.
COLE, P. P. ...	Hon. Surg. ...	King George Hospital. Ophthalmic Surgeon, Brook War Hosp.
COLE, T. P. ...	Temp. Capt ...	R.A.M.C. Wounded.
COLEMAN, E. ...	Capt.	R.A.M.C.
COLEMAN, J. G. H.	Temp. Lieut. ...	R.A.M.C.
COLLAR, F.	Capt.	East African M.S. Invalided home.
COLLIER, H. N. ...	Capt.	R.A.M.C. Welsh Field Ambul. Wounded, 1917.
COLLINS, H. Abdy ...	Commandant ...	6th Suffolk Volunteer Regiment.
COLLINS, J. E. E. ...	Temp. Lieut. ...	R.A.M.C.
COLLINS, M. Abdy ...	Lt.-Col. ...	R.A.M.C. Ewell War Hospital.
COLLINS, R. T. ...	Lt.-Col. ...	R.A.M.C. 1/c F. A. Mentioned in desp., 1917. D.S.O., 1918. Croix de Guerre. Killed in action, September, 1918.
COLLIS, A. J.... ...	Lt.-Col. ...	Northern Cyclist Battalion.
CONNOLLY, B. B. ...	Col. (rtd.) ...	R.A.M.C. Mentioned for war services. C.B.
CONNOLLY, B. G. ...	Capt.	R.A.M.C. M.C., 1918.
CONSTANT, C. F. ...	Temp. Capt. ...	R.A.M.C.
CONWAY-JONES, P. N. C	Cadet	10th Battalion London Regiment.
CONYBEARE, J. J. ...	Capt.	R.A.M.C., S.R. Late Temp. Major 4th Oxford and Bucks L.I. M.C., 1915.
COOK, A. N. ...	Surg.	R.N.
COOK, Frank ...	Act. Major ...	R.A.M.C., S.R. B.E.F. and Mesopotamia Exp. Force, 1914—19. Surgical Specialist, 1916—19.
COOK, J.	Capt.	R.A.M.C. 268th Brigade, R.F.A. M.C., 1917.
COOKE, E. J. ...	Surg. Lieut. ...	R.N. R.N. Hospital, Haslar, 1916—17. H.M.S. *Alsatian*. 1916—17
COOKE, O. H. ...	2nd Lieut. ...	King's Own Yorkshire L.I.
COOKES, R. V. ...	Capt.	10th Staffordshire Regiment. 1914. Sherwood Foresters. 1915—19. Served in Gallipoli. Egypt. France.
COOMBES, C. G. ...	Lieut.	R.A.M.C., S.R.
COOPER, C. M. ...	Lieut.	R.A.M.C. North Midland F.A.
COOPER. H. ...	Staff Surg. ...	R.N. D.S.O. Croix de Guerre.

Cooper, J. Sephton ...	Capt.	R.A.M.C. 1/1 East Lancs. Field Ambulance. Egypt and Sinai Peninsular, 1916—17. B.E.F., France, 1917.
Cooper, T. P. ...	Dent. Surg. ...	R.N.V.R.
Coplans, M. ...	Lt.-Col. ...	R.A.M.C., T.F. A.D.M.S. Four times mentioned in despatches. D.S.O., 1917. O.B.E., 1919. Chevalier de l'Ordre de Leopold. Croix de Guerre (Belgian) and Croix de Guerre (Italian).
Coplans, S. H. ...	Cadet	Artists' Rifles, and 2/13 London Regiment. Wounded.
Copley, S.	Capt.	S.A.M.C.
Corfe, E. W. ...	Hon. Dent. Surgeon to V.A.D. Hospital, East Finchley.	
Corin, H. J. ...	Major	R.A.F. Dental Surgeon, Dunkerque, 1914. Dental Surgeon, Dunkerque and Belgian Coast, 1915—18. Consulting Dental Surgeon, Belgian Field Hospital, Furnes, 1914. Hon. Consulting Dental Surgeon to Naval Units. 1915—18, Ment. in despatches, 1918. O.B.E. (Military), 1919. Chevalier de l'Ordre de la Couronne, 1919.
Costabadie, H. P. ...	Temp. Lieut. ...	R.A.M.C. Ment. in despatches.
Costoradie, V. A. P.	Hon. Capt. ...	R.A.M.C., T.F.
Cotton, H. ...	Capt.	R.A.M.C.
Couacaud, P. ...	Surg. Sub.-Lieut.,	R.N.V.R. H.M.S. *Undine.*
Counsell, H. E. ...	Major	R.A.M.C., T.F. Base Hospital, Oxford.
Cousins, B. P. ...	Lieut.	7th Duke of Cornwall's Light Infantry. Wounded.
Covell, G. C. ...	Major	I.M.S. 139th I.F.A. (East Africa). Served in Egypt and Salonika. Mentioned in despatches, East Africa.
Coventry, C. ...	Temp. Capt. ...	R.A.M.C.
Cowley, R. L. ...	Lieut.	R.A.M.C., Dental.
Cowper, C. M. ...	Capt.	R.A.M.C. 2nd North Midland Field Ambulance.
Cox, A. Neville ...	Capt.	R.A.M.C. 7th General Hospital, 103rd Field Ambulance, B.E.F. 49th C.C.S., B.E.F., 1916—18.
Cox, A. R. ...	2nd Lieut. ...	63rd (R.N.) Machine Gun Batt.
Cox, J. R. ...	Capt.	R.A.M.C., S.R.
Coxon, A. C. M. ...	Capt.	5th Norfolks, T.F. Wounded and prisoner, Dardanelles, 1915.
Craig, Sir Maurice...	Lt.-Col. ...	R.A.M.C. Assistant to Consulting Physician (Neurological) for Home Forces, 1918. Neurological Specialist, H.Q. Medical Board, War Office, 1918. B.E.F. (Special Neurological Work) Consulting Physician, Lord Knutsford's Special Hospital for Officers. C.B.E. (Military), 1919.

CRAIG, R. N ...	Temp. Capt. ...	R.A.M.C. 136th Field Ambulance.
CRAPPER, H. S. ...	Temp. Lieut. ...	R.A.M.C., Dental.
CRAWFORD, B. ...	Lieut.	R.A.M.C.
CRAWFORD, H. ...	Capt.	R.A.M.C., S.R. M.C.
CRAWFORD, V. J. ...	Lt.-Col. ...	R.A.M.C. D.S.O.
CREASY, R.	Surg.	British Red Cross Unit, Italy.
CREASY, R., Junr. ...	Surg.	R.N. H.M.S. *Royal Oak.*
CRESSWELL, F. P. S.	Ophthalmic Surgeon, Welsh War Hospital.	
CREW, F. D. ...	Temp. Lieut. ...	R.A.M.C.
CROCKER, C. J. ...	Temp. Lieut. ...	R.A.M.C.
CROFTS, A. D. ...	Hon. Lieut. ...	R.A.M.C. M.O. 4th Res. Battalion Coldstream Guards.
CRONEEN, ...	Fleet Surg. ...	R.N.
CROOK, A. H. ...	Surg. Lieut. ...	R.N.V.R. H.M.S. *Victory.* Mentioned for War Services, 1919.
CROOK, E. A. ...	Temp. Surg. ...	R.N. H.M.S. *Excellent.*
CROOK, F. W. ...	2nd Lieut. ...	2nd King's Royal Rifles.
CROSS, F. G. ...	Capt.	R.A.M.C. Specialist in Gynæcology and Advanced Operative Surgery, Mediterranean E.Force, 1915. Egypt, 1915—16. Baluchistan, 1916. India, 1916—19. Ment. in despatches, 1919.
CROSS, L. H. ...	Temp. Lieut. ...	R.A.M.C., Dental.
CROSSE, S. S. ...	Capt.	R.A.M.C. 18th Batt. King's Roy. Rifles. M.C., 1918.
CROUCHER, H. V. ...	Pte.	Artists' Rifles O.T.C., 1917.
CROWE, A. A. R. ...		
CRUMP, C. H. ...	Capt.	N.Z.M.C.
CURLE, R.	Capt.	R.A.M.C. No. 2 General Hospital, Le Havre and British Salonica Force.
CURRIE, J. A. ...	2nd Lieut. ...	R.F.A. "Z" Battery, C.G.A., German South West Africa. 1915. c/50 Brigade, R.F.A., 9th Division, B.E.F., France, 1917—18.
CURRIE, O. J. ...	Lt.-Col. ...	S.A.M.C. German S.W. Africa, 1915. A.D.M.S. Nos. 1 and 14 Military Districts. South Africa, 1916. East Africa, 1917—18.
CURSON, G. C. W. ...	Surg. Sub-Lieut., R.N. H.M.S. *Lychnis.*	
CURTIS, F.	Surg.	Abbot's Hospital and Reigate Hos.
CUSHING, R. J. W. ...	Capt.	R.A.M.C., T. 2nd London General Hospital. I/c Military Hosp., Chepstow. Senior M.O., Chepstow and Beachey Camp.
CUTLER, F. J. ...	Capt.	R.A.M.C. Surgeon Military Hospital. Pembroke Dock, 1914—17. B.E.F., France, 1917—18. M.O. I/c N.F.F. 23 (Mustard Gas Filling Factory).
CUTLER, H. A. ...	Temp. Capt. ...	R.A.M.C.
CUTTS, G. L. ...	Surg. Sub.-Lieut., R.N.V.R. 1915. (Late Pte., H.A.C., Infantry.)	
DAKIN, W. R. ...	Temp. Médecin-Major, French Army.	
D'ALBON, M. ...	Temp. Lieut. ...	R.A.M.C.

DALDY, A. M.	...	Capt.	R.A.M.C., T.F. O. I/c Ophthalmic Centre, 2nd Eastern District also 2nd Eastern Gen. Hospital.
DALDY, M. ...	...	Temp. Capt. ...	R.A.M.C.
D'ALTON, Mark	...	Pte.	L.V. Rifles, Motor Battalion.
DANBY, A. B.	...	Surg. Lieut. ...	R.N. R.N. Hospital, Plymouth, 1915. H.M. Monitor XVIII., 1915—17. (Dardanelles and Salonika, Macedonia and Bulgaria.) R.N. Barracks, Devonport, 1917. H.M. Hospital Ship *Classic*, 1918, Grand Fleet, 1919.
DARKE, S. J.	...	Temp. Capt. ...	R.A.M.C. (Attached West Surrey Regt.) M.C. Wounded. Prisoner in Germany, 1918.
DAVIDSON, A.	...	Surg. Commander, R.N.M.S.	Temporary Captain R.A.M.C. (Attached London Regiment.) Wounded.
DAVIDSON, G. G.	...	Civil Surgeon, Military Hospital Queen's Gate.	
DAVIES, A. H.	...	Temp. Capt. ...	R.A.M.C.
DAVIES, A. W. A.	...	Capt.	R.A.M.C., S.R.. Wounded, May, 1918.
DAVIES, D. A.	...	Civil Surgeon, 3rd London General Hospital.	
DAVIES, F. D. S.	...	M.O.	Glamorgan and Monmouth Hospital for French wounded.
DAVIES, G.	...	Capt.	Northumberland Fusiliers. Killed in action.
DAVIES, H. A. B.	...	Temp. Capt. ...	N.Z.M.C.
DAVIES, J. C.	...	Act. Col. (Temp. Major), R.A.M.C.	Attached 34th Division, R.E.
DAVIES, J. Edgar	...	Major	R.A.M.C. S. Wales Borderers and F.A. 1915—19. M.C. and Bar.
DAVIES, J. W.	...	Lt.-Col. ...	R.A.M.C. 1st Welsh Field Ambulance.
DAVIES, K. J. H.	...	Surg. Sub.-Lieut., R.N.V.R.	H.M.S. *Saracen.*
DAVIES, L. G.	...	Temp. Capt. ...	R.A.M.C. M.O. 33rd Batt. R.F.
DAVIES, W. L. G.	...	Temp. Capt. ...	R.A.M.C. Attached 3rd King's Liverpool Regiment.
DAVIES, W. T. F.	...	Lt.-Col. ...	S.A.M.C. D.S.O. Wounded, German South-West Africa.
DAVIES-COLLEY, H.	...	Temp. Capt. ...	R.A.M.C.
DAVIES-COLLEY, R.	...	Col.	A.M.S. Surgeon Specialist, No. 14 Stationary Hospital, and Rawal Pindi British Gen. Hosp., 1914—15. Mesopotamia, 1916—19. Consulting Surgeon to Mesopotamia Ex. Force, 1917—19. Twice mentioned in despatches, 1917 and 1918. C.M.G., 1918.
DAVIS, H. H.	...	Temp. Capt. ...	R.A.M.C. York and Lancs. Regt. Mentioned in Despatches. M.C. 1918.
DAVY, Sir H.	...	Col.	R.A.M.C., T.F. Consulting Physician Southern Command. C.B., 1917. K.B.E., 1919.
DAW, H. ...	...	Temp Capt. ...	R.A.M.C. Wounded, 1918.
DAW, S. W.	...	Capt.	R.A.M.C. I/c Orthopædic Department, Northern Command.

DAWE, C. H. ...	Surg. Commander, R.N.	H.M.S. *Sirius.*
DAWSON, E. A. ...	2nd Lieut. ...	Somerset Light Infantry.
DAY, F. W. ...	Temp. Lieut. ...	19th Royal Fusiliers and R.F.C., B.E.F., France, 1915—16. 2nd Squadron, R.F.C., 1916, (as Artillery Observer.)
DAY, W. L. M. ...	Lieut.	R.A.M.C.
DAY-LEWIS, A. K. ...	Capt.	9th West Yorks. Regiment. 11th Division, B.E.F.
DEACON, E. F. ...	Temp. Surg.-Lieut., R.N.,	Chatham Hospital.
DEAN,, A. C. ...	Temp. Lieut. ...	R.A.M.C. Dental. 35th General Hospital, B.E.F., and 18th Field Ambulance.
DEAN, C.	Temp. Capt. ...	R.A.M.C. 35th General Hospital, B.E.F. M.C., 1918.
DEAN, L. T. ...	Temp. Capt. ...	R.A.M.C.
DEAR, H. J. ...	Act. Lt.-Col. ...	R.A.M.C. D.S.O., 1918. Bar to D.S.O., 1918.
DEEKS, Geoffrey ...	Lieut	9th London Regiment. Attached M.G.C., 47th Division, B.E.F., and 26th Division, M.E.F.
DELMEGE, J. A. ...	Temp. Capt. ...	R.A.M.C. Ment. in despatches, 1918. O.B.E., 1919.
DENMAN, R. ...	Temp. Capt. ...	R.A.M.C.
DENNETT, P. ...	Trooper ...	Surrey Yeomanry, 29th Division.
DENNETT, T. F. P. T.	Lieut.	Queen's Royal West Surrey Regt. Attached R.A.F. Killed in action, August, 1917.
DENNING, A. F. W....	Temp. Lieut. ...	R.A.M.C.
DENNY, H. R. H. ...	Fleet Surg. ...	R.N.V.R.
DENSHAM, A. ...	Temp. Capt. ...	R.A.M.C.
DENSHAM, A. T. ...	Temp. Lieut ...	R.A.M.C.
DENYER, C. H. ...	Act. Col. ...	R.A.M.C. M.C., 1917.
DENYER, S. E. ...	Temp. Capt. ...	R.A.M.C. H.Q. Staff, Humber Garrison. Mentioned for war services, 1917. C.M.G.
DEPREE, H. T. ...	Temp. Surg.-Lieut., R.N.	
DE ROBILLARD, J. E. E.	Capt.	R.A.M.C. Att. West Yorks Regiment. Wounded, 1917.
DEVERALL, E. P. ...	Lieut.	R.A.M.C., Dental. 1914, Pte. Artists' Rifles.
DICK, F. A.	Temp. Lieut. ...	R.A.M.C. 2nd London C.C.S.
DICKEY, W. C. M....	Hon. Capt. ...	R.A.M.C.
DICKSON, A. C. ...	Temp. Capt. ...	R.A.M.C.
DIGBY, W. E. S. ...	Capt.	W.A.M.S. Ment. in despatches. Cameroons.
DIMOCK, E. C. ...	Temp. Capt. ...	R.A.M.C., Dental.
DINAN, G. A. ...	2nd Lieut. ...	Royal Dublin Fusiliers. Killed in action, September, 1916.
DINGLEY, W.	2nd Lieut. ...	7th Suffolk Regiment and Public Schools Battalion. Killed in action, 1917.
DISMORR, C. J. S. ...	Temp. Capt. ...	R.A.M.C.
DIX, C. B. ...	Lieut.	East Surrey Regiment. Killed in action, 1917.
DIXON, J. ...	Temp. Capt. ...	R.A.M.C.
DOBSON, M. R. ...	Major	R.A.F. (Medical Service). O.B.E., 1919.

DODD, H. G.	...	Capt.	R.A.M.C., T.F. 1st Northern Gen. Hospital, 1915—16. 315th Bde. R.F.A., B.E.F. France, 1916—19. 5th Duke of Wellington's Regt., 1919. Kitchener Military Hospital, Brighton, 1919—20.
DODD, W. H.	...	Recruiting Medical Officer for Wimborne District.	
DOHERTY, J. N.	...	Temp. Capt. ...	R.A.M.C., Dental.
DOLL, H. W.	...	Hon. Lieut. ...	R.A.M.C. 17th General Hospital, Alexandria.
DOMVILLE, E. J.	...	Temp. Lieut.-Col., R.A.M.C.	
DONN, R. L.	...	Temp. Lieut. ...	R.A.M.C., Dental. Army Dental Surgeon.
DONNELL, J. H.	...	Act. Major. ...	R.A.M.C., T.F.
DORWARD, C. D. M.		Lieut.	2nd Royal Sussex Regiment.
DOUBLEDAY, F. N.	...	Dental Surgeon to King George Military Hospital.	
DOUGLAS, C. G.	...	Lt.-Col. ...	A.M.S. Twice mentioned in despatches, 1918. M.C. C.M.G., 1919.
DOUSE, J. F.	...	Temp. Capt. ...	R.A.M.C.
DOWLING, G. B.	...	Pte.	King Edward's Horse.
DOWSETT, E. B.	...	Lt.-Col. ...	R.A.M.C., A.D.M.S. 60th Division. D.D.M.S. XX. Corps. B.E.F., France, Egypt, Palestine, Macedonia. Five times ment. in despatches. D.S.O., 1918. Territorial Decoration, 1919.
DOYLE, A. R.	...	Temp. Surg.-Lieut., R.N.	H.M.S. *Aiglon.*
DRAKE, G. H.	...	Temp. Lieut. ...	R.A.M.C., Dental, and R.G.A.
DRAKE, G. H.	...	Temp. Lieut. ...	Canadian A.M.S.
DREDGE, W. A.	...	Temp. Lieut. ...	R.A.M.C., Dental.
DRESING, H. G.	...	Capt.	R.A.M.C. M.O. i/c 3rd Bridging Team, B.E.F., 1915—16. M.O. i/c 1st Battalion The Queens (R.W.S.) Regt., 1916—17. M.O. i/c various Regiments, B.E.F., 1918. M.C., 1917, during attack on Fontaine-le-Croiselles (Battle of Arras).
DREW, H. W.	...	Temp. Capt. ...	R.A.M.C.
DREW, V.	...	2nd Lieut. ...	Attached G.H.Q.I., Salonika Force as Officer Interpreter. Silver Medal Serbian Red Cross, Order of St. Sava.
DRING, W. E.	...	M.O.	I/c 7th Devons. 1914—15 M.O. No. 20 Kent V.A.D. Hospital. 1914—18.
DRUITT, D. C.	...	Temp. Capt. ...	R.A.M.C.
DRYLAND, G. W.	...	Temp. Lieut. ...	R.A.M.C.
DU BOULAY, H. H.	...	Civil Surgeon, i/c Military Patients, Royal Hospital, Weymouth. 1914—18.	
DUCKWORTH, J. E. H.		Capt.	7th Worcesters. M.C.
DUFF, K. M. K.	...	...	
DUKE, B. ...	...	Lt.-Col. ...	15th Battalion C. of London Volunteer Regiment.
DUKE, E. ...	...	Temp. Capt. ...	R.A.M.C.
DUKE, Joshua	...	Lt.-Col. ...	I.M.S.
DUKE, Lyndhurst	...	...	R.A.M.C.

DUMAYNE, H. G.	...	Lieut.	R.A.M.C., Dental.
DUNBAR, C. G.	...	Temp. Lieut. ...	R.A.M.C. Ment. in despatches.
DUNCAN, G. E.	...	Surg. Commander, R.N.	H.M.S. *Vivid.*
DUNDERDALE, G.	...	Lieut.	R.A.F.M.S. Civil M.O., East African Medical Service. Civil Surgeon, Queen Alexandra's Hospital, Millbank (during leave), and Temp. Lieut., R.A.F.
DUNNING, J. B.	...	Hon. Capt. ...	R.A.M.C. 13th Royal Sussex Regt. B.E.F. M.C. Wounded.
DUNSTAN, R. ...	...	M.O. to Troops	Paignton.
DURHAM, E. H.	...	Hon. Lieut. ...	R.A.M.C. Welsh Hosp., Netley.
DUTTON, T. ...	...	Civil Surgeon,	Hammersmith Battalion.
DYKE, V. R.	...	Temp. Capt. ...	R.A.M.C.
DYMOTT, G. L.	...	Major	281st Battery, R.F.A. D.S.O., 1918
DYMOTT, G. V.	...	Lieut.	R.A.M.C., Dental. Army Dental Surgeon.
EAGER, R. ...	...	Capt.	R.A.M.C. Wessex R.A.
EAGLETON, A. J.	...	Temp. Capt. ...	R.A.M.C.
EASON, H. L.	...	Lt.-Col. ...	R.A.M.C. Consulting Ophthalmic Surgeon to Forces in the Mediterranean, Egypt, Palestine and Syria, 1915—19. Pres. Standing Medical Board, Alexandria, 1917—18. President Special Medical Board, R.A.F., Middle East, 1917—18. Mentioned in desp., M.E.F., 1916. C.M.G., 1917. C.B., 1919.
EASTER, W. A.	...	Lieut.	R.A.M.C. 68th Field Ambulance.
EASTES, G. L.	...	Capt.	R.A.M.C. 2nd London Sanitary Corps. Ment. in despatches.
EASTON, W. A.	...	Temp. Capt. ...	R.A.M.C. 68th Field Ambulance, Salonica.
EATON, O. ...	...	Temp. Capt. ...	R.A.M.C.
ECCLES, G. D.	...	Temp. Capt. ...	R.A.M.C. Ment. in despatches. 1918. M.C., 1918. Wounded, 1917.
ECCLES, H. D.	...	Capt.	R.A.M.C. M.O., 13th Royal Irish Rifles. Mentioned in despatches, 1917. Killed in action, August, 1917.
ECCLES, H. N.	...	Capt	R.A.M.C. Victoria War Hospital, Bombay, 1916—18. India Troop War Hospital, Amballa Punjab, 1918—19. Cambridge Hospital, Aldershot, 1919. X-ray Specialist Bombay Brigade, 1916—18. X-ray Specialist Lahore Division, 1918—19. X-ray Specialist Aldershot Command, 1919.
EDDISON, H. W.	...	Temp. Surg.-Lieut., R.N.	H.M.S. *Theseus.*
EDEY,, F. H.	...	Capt.	A.S.C. In Mesopotamia.
EDEY, G. R.	...	Lieut.	R.A.M.C.
EDEY, T. H.	...	Temp Capt. ...	R.A.M.C.
EDGAR, N. ...	...	Hon. Dental Surgeon,	V.A.D. Hospital, Enfield.

Edmond, J. A.	...	Capt.	R.A.M.C. 11th General Hospital, B.E.F. Attached Ambulance Train and 60th F.A., 20th Div. Killed at Villiers Plouich in Battle of Cambrai, Nov. 30th, 1917. Mentioned in despatches, 1918.
Edney, C. H.	...	2nd Lieut.	Suffolk Regt., 1915. Pte., H.A.C., B.E.F., 1916. Ambulance Unit attached 3rd Italian Army. Invalided out, April, 1919.
Edridge, Ray	...	Capt.	R.A.M.C.
Edwards, C....	...	Temp. Lieut. ...	R.A.M.C.
Edwards, C. D.	...	Temp. Capt. ...	R.A.M.C. · M.C.
Edwards, C. H.	...	Temp. Capt. ...	R.A.M.C. War Hosp., Norbury.
Edwards, F.	...	M.O. to V.T.C.,	South London Regiment.
Eglington, D. C.	...	2nd Lieut. ...	Black Watch, 1914. Artists' Rifles, 1915. R.F.C.
Ehrlich, H. A.	...	Capt.	R.A.M.C. Attached 2nd Hampshires.
Elkington, G.	...	Temp. Capt. ...	R.A.M.C.
Elkington, G. W.	...	Lieut.	3rd Devonshire Regt. Attached 84th M.G. Coy.
Elliott, E. L.	...	Temp. Surg.-Lieut.,	R.N. Shotley Sick Quarters, 1914—15. R.N. Hospital Ships *Somali* and *Karapara*, 1915—17, Mediterranean. R. N. Hospital, Plymouth, 1917—19.
Elliott, H. G.	...	Temp. Lieut. ...	R.A.M.C., Dental.
Elliott, H. H.	...	Temp. Capt. ...	R.A.M.C. 8th Welsh Pioneers. M.C., 1917. Twice wounded.
Elliott, S. G.	...	Temp. Lieut. ...	R.A.M.C., Dental.
Ellis, G. ...	...	Temp. Lieut. ...	R.A.M.C.
Ellis, G. G.	...	Temp. Capt. ...	R.A.M.C., Dental.
Ellis, J. S.	...	R.A.M.C.... ...	Essex County Hospital, Colchester.
Elliston, G. S.	...	Capt.	R.A.M.C., T.F. M.C., 1918.
Elwood, Herbert	...	Capt.	R.A.M.C., Dental. Dental Surgeon, L'Hopital de l'Alliance, Yvetot, 1915. Dent. Surgeon 36ien Corps Armée Francais, 1916. Dental Surgeon 12th Batt. Royal Inniskilling Fusiliers, 1917. O.C., No. 2 Mobile Dental Unit, B.E.F., 1918.
Elwood, W. A.	...	Capt.	R.A.M.C.
Endean, F. C.	...	Surg. Lieut. ...	R.N. H.M.S. *Vivid*. Mentioned for War Services, 1919.
Enice, J. W.	...	Temp. Lieut. ...	R.A.M.C.
Ensor, C. A.	...	Capt.	R.A.M.C. Poona, India.
Ensor, J. ...	...	Temp. Surg. ...	Golders' Green Auxiliary Hospital.
Erskine-Collins, J. E.		Capt.	R.A.M.C. Att. Howitzer Batteries Italy, 1917. B.E.F., Italy, 1917—19. Silver Medal Italian Red Cross with Palms.
Escritt, F. K.	...	Temp. Lieut. ...	R.A.M.C. M.O. i/c 62nd Labour Group, 4th Army.
Eskell, P. R.	...	Temp. Capt. ...	R.A.M.C.
Etches, W. R.	...	Temp. Capt. ...	R.A.M.C.

EVANS, C. R. ...	Brevet Colonel,	R.A.M.C. D.S.O. Mentioned in despatches, 1917.
EVANS, Ed.	Temp. Capt. ...	R.A.M.C. M.C.
EVANS, Evan ...	Temp. Capt. ...	R.A.M.C. M.O. 1st Batt. Carmarthenshire Volunteers.
EVANS, E. A. ...	Temp. Capt. ...	R.A.M.C. Glamorgan Vol. Corps.
EVANS, E. G. ...	Temp. Capt. ...	R.A.M.C.
EVANS, Herbert L. ...	M.O.	Battle House Auxiliary Hospital, and The Guards' Auxiliary Hospital, Reading.
EVANS, H. W. ...	Capt.	R.A.M.C., S.R. 48th Field Am., Limerick, 1914. France, 1915—17. Egyptian Exp. Force, 1918—19. O.C. Medical Division, 1919. Mentioned in despatches, 1918. M.C., 1917.
EVANS, J.	Lt.-Col. ...	R.A.M.C. I/c Welsh Field Ambulance. Twice Ment. in despatches, 1917, and 1918. D.S.O., 1918.
EVANS, J.	Major	R.A.M.C. Mentioned in despatches. 1917.
EVANS, J. A. ...	Capt.	R.F.A. M.C., 1917.
EVANS, J. E. R. ...	...	Killed in action at the Dardanelles.
EVANS, L. W. ...	Temp. Capt. ...	R.A.M.C. Attached 9th E. Lancs. Mentioned in despatches, 1917. M.C., 1918. Mesopotamia.
EVANS, R.	I/c, Red Cross Hospital Croxley Green.	
EVANS, T. Garfield...	Temp. Capt. ...	R.A.M.C. 34th Welsh General Hospital.
EVANS, T. G. ...	Capt.	C.A.M.C.
EVERY-CLAYTON, L. E.	V., Temp. Captain. R.A.M.C. B.E.F.	
EWEN, H. W. ...	X-ray and Electrical Therapeutist at Isle of Wight War Hospitals.	
EWING, A. W. ...	Temp. Capt. ...	R.A.M.C.
FAGGE, C. H. ...	Temp. Lt.-Col.	R.A.M.C. (Major A.M.S,) Hampstead Military Hospital.
FAGGE, R. H. ...	Capt.	R.A.M.C.,T.F. 5th Northern Hospital, 1914—17. 59th General Hospital, B.E.F., 1917.
FALWASSER, A. T. ...	Temp. Lt.-Col.	R.A.M.C., T.F. Commanding 2/1 Home Counties Field Ambulance. Mentioned in despatches, 1917. D.S.O., 1918.
FARRANT, E. ...	Temp. Lieut. ...	R.A.M.C., Dental.
FARRINGTON, R. G....	2nd Lieut. ...	R.F.A., S.R. M.C., 1918.
FARRINGTON, W. B....	Capt.	Notts and Derby Regiment. Attached R.F.C. D.S.O., 1918.
FASKEN, N. E. ...	Lieut.	R.M.A.
FAULKS, Edgar ...	Lieut.	R.A.M.C. Killed in action in France, 27th September, 1915.
FAWCETT, F. W. ...	Temp. Capt. ...	R.A.M.C.
FAWCETT, J. ...	Brevet Major...	R.A.M.C. 2nd London Gen. Hosp.
FAWCUS, D. A. ...	Temp. Lieut. ...	R.A.M.C. 37th C.C.S.

FAWSSETT, F. W. ...	Capt.	R.A.M.C. No. 10 General Hospital, 1915—17. 1/5th Loyal North Lancs, 1917. Prisoner of war in Germany, 1917. Transferred home, 1918. No. 54 Gen. Hospital, B.E.F., 1918—19.
FEATHERSTONE, F. R.	Temp. Lieut. ...	R.A.M.C. Late Surgeon R.N.
FEATHERSTONE, J. W.	2nd Lieut. ...	Worcestershire Yeomany.
FELCE, G. E. W....	Surg. Sub.-Lieut.,	R.N.V.R. H.M.S. *Rob Roy*.
FELL, R.	Temp. Capt. ...	R.A.M.C. M.O. H.M.H.S. *Egypt*.
FELTON, Richard ...	Act. Major ...	R.A.M.C. M.O. 17th Middlesex, 33rd Division. B.E.F., 1915—16. Kinmel Park Hospital, 1915—17. No. 40 Stationary Hospital, B.E.F., 1917—19. M.C.. 1916. Wounded, 1916.
FINNEMORE, H. ...	Capt.	General List. Anti-Gas Departmt. R.A.M.C. College. 2nd Lieut. Inns of Court O.T.C., October, 1915—August, 1916. Captain Chemical Adviser to Northern Command, August, 1916—May, 1917.
FISHBURN, J. E. ...	Surg. Sub.-Lieut.,	R.N.V.R. H.M.S. *Brisk*.
FISHER, H. W. ...	Major	R.A.M.C. Indian Exp. Force. O.B.E., 1919.
FITZGERALD, A. H....	Temp. Lieut. ...	R.N.V.R.
FITZGERALD, G. H....	Temp. Surg.-Lieut.,	R.N., H.M.S. *Agememnon* and *Kinross*.
FITZMAURICE, A. L....	M.O.	Colonial Medical Service. Died on Service.
FLANDERS, F. G. P....	Temp. Lieut. ...	R.A.M.C., Dental. Guards Depôt, Caterham.
FLOWER, N. ...	Capt.	R.A.M.C. Surgical Specialist and O. i/c Surgical Division, Malta Command, 1917. M.O. i/c Yeovil Red Cross Hospital, and M.O. i/c Compton Red Cross Hospital, 1914—18.
FLOYD, W.	Capt.	S.A.M.C., Dental. In East Africa with General Smuts' Force.
FLYNN, W. A. ...	Temp. Lieut. ...	R.A.M.C.
FORREST, A. G. ...	Temp. Capt. ...	R.A.M.C., Dental.
FORTESCUE-BRICKDALE, J. M.,	Capt.,	R.A.M.C., T.F. 2nd Southern Gen. Hospital, 1914. O. i/c Medical Division, 23rd General Hospital, B.E.F., 1915. Isolation Hospital, B.E.F., 1915—16. O. i/c Medical Division, 13th Stationary Hospital, B.E.F., 1916—17. 2nd Southern General Hospital, 1917—19.
FORTY, A. A. ...	Temp. Capt. ...	R.A.M.C. 2nd Northern General Hospital, Leeds. Attached Northern Command, 1915—18. Mentioned for war services, 1917.
FOSTER, R. H. ...	Resident Surgeon,	2nd Birmingham War Hospital.

FOSTER-SMITH, G. T.	Capt.	R.A.M.C. 19th General Hospital, Alexandria. No. 3 Egyptian Stationary Hosp., Kantara, E.E.F.
FOTHERGILL, C. T. ...	Temp. Lieut. ...	R.A.M.C. M.E.F.
FOTHERGILL, E. R. ...	Temp. Major ...	R.A.M.C. Ment. for war services.
FOULSTON, E. ...	...	
FOURAKER, L. F. ...	...	
FOX, F. L. H. ...	...	R.G.A.
FOX, H. E. C. ...	Temp. Capt. ...	R.A.M.C., attached East Lancs. Field Ambulance.
FOX, H. W. ...	Capt.	R.A.M.C. M.E.F. H.M.H.S. *Delta.*
FOX, W. E. ...	Surg.-Lieut. ...	R.N. H.M.S. *Laurentic, Ganges* and *Resolution*, and R.N. Hospital, Chatham.
FRANCIS, C.	Capt.	R.A.M.C., T.F. Surgeon Specialist Ear, Nose and Throat, Army of Rhine.
FRANCIS, R. C. H. ...	Temp. Capt. ...	R.A.M.C. 20th General Hospital, France.
FRANKLIN, R. ...	Temp. Capt. ...	R.A.M.C.
FRASER, A.	Temp. Capt. ...	R.A.M.C. Ment. in despatches, 1917.
FRASER, E. L. ...	2nd Lieut. ...	Tank Corps. Killed in action, 1917.
FRASER, F. C. ...	Capt.	I.M.S. Mentioned in despatches. Mesopotamia.
FRASER, J. H. ...	M.O.	3/2 East Anglian R.F.A. M.O. i/c Military Auxiliary Hospital, Eastern Command.
FRAZER, A.	Temp. Capt. ...	R.A.M.C.
FRAZER, E. E. ...	Capt.	R.A.M.C. M.E.F., 1915—17. i/c X-ray at Citadel, Cairo.
FRAZER, F. M. ...	Temp. Capt. ...	R.A.M.C. X-ray Expert, Cairo Military Hospital.
FREMANTLE, F. E. ...	Lt.-Col. ...	R.A.M.C., S.R. Mentioned in despatches, Mesopotamia, 1918. O.B.E., 1919.
FRENCH, Herbert ...	Lt.-Col. ...	R.A.M.C. Consulting Physician, Aldershot Command, 1916—19. Consulting Physician to the Trench Fever wards, Hampstead Military Hosp., 1917—19. Member of War Office Trench Fever Committee, 1917—19. Belgium (Ypres Salient), 1917. Member of the Council of Consultants, War Office. Joint author of the following Official War Office Articles "Purulent Bronchitis" and "Influenza" (both for Official Medical History of the War.) Mentioned in despatches, 1918. C.B.E. (Military Division), 1919
FRIPP, Sir A. D. ...	Consulting Surgeon to the Admiralty.	
FRY, L. S.	Temp. Surg.-Lieut., R.N. H.M.S. *Victory.*	
FRY, W. K. ...	Capt.	R.A.M.C. Att. 1st Batt. Royal Welsh Fusiliers. M.C.
FRYER, E.	Temp. Lieut. ...	R.A.M.C.

FULLER, F. H. ...	Capt.	R.A.M.C. M.O. to Special Brigade R.E.'s. M.O. No. 2, General Hospital and 85th H.A.C., 14th Corps, Ypres, B.E.F., 1917. Home Service, 1917—19. M.C. Wounded, Sept. 21st, 1917.
FULTON, H.	Lt.-Col. ...	R.A.M.C., T. O.C. 12th (2nd London) F.A. Mentioned in despatches, 1917. Wounded.
GABELL, A. H. ...	2nd Lieut. ...	340th Brigade, R.F.A.
GAFFNEY, E. J. ...	Capt.	R.A.M.C. Dental Officer, Portsmouth Garrison.
GALBRAITH, D. H. A.	Capt.	R.A.M.C. Served in India, Secunderabad Division, 1916—17. 110 Combined F.A., 1/1 Gurkhas 2/124 Baluchistan Infantry, Mesopotamian Expeditionary Force, 1917—18. 112 Combined F.A., 3rd Lahore Div. Train, Egyptian Expeditionary Force, 1918—20. M.C., 1917. Wounded, 1917.
GALLOWAY, W. D. ...	Surg. Lieut. ...	H.M.S. *Cornwallis*. Commended for service in action at Gallipoli.
GARDINER, Ivan J. ...	Lieut.	Killed in action, 1917.
GARDNER, A. Linton...	Temp. Capt. ...	R.A.M.C. Killed in action, 1918.
GARLAND, J. O. ...	Capt.	R.A.M.C. Ment. in despatches, 1917, British East African Force.
GARRARD, N. ...	Capt.	R.A.M.C.
GASKELL, D. K. ...	...	
GATER, A. W. ...	Temp. Lieut.-Col.,	R.A.M.C.
GATER, H. J. ...	Temp. Capt. ...	R.A.M.C. M.O. 29th Heavy Bgde R.G.A.
GATHERGOOD, L. S. ...	Capt.	R.A.M.C., S.R.
GATLEY, C. A. R. ...	Temp. Capt. ...	R.A.M.C. M.O., Hall Walker's Hospital for Officers, 1914—15. 55th F.A., and 7th Buffs., B.E.F., 1916—17. Wounded, 1917.
GAVIN, L. P. W. ...	Surgeon to King	George Hospital, and five other Military and Naval Hospitals.
GENGE-ANDREWS, G. E.	Temp. Capt. ...	R.A.M.C. O.B.E., 1919.
GEORGE, A. L. ...	Temp. Capt. ...	R.A.M.C. Mesopotamia. Ment. in despatches, 1917.
GEORGE, J. D. ...	Temp. Lieut. ...	R.A.F., Medical.
GEORGE, W.	Capt.	R.A.M.C. M.C., 1917.
GEORGE, W. S. ...	Temp. Lieut. ...	R.A.M.C.
GERMAN, H. B. ...	Temp. Capt. ...	R.A.M.C. Leicester Regt. Att. R.F.A. Late Surgeon R.N., Mentioned in despatches, 1917. M.C., 1918. Bar to M.C., 1918. Wounded. Killed in action, 1918.
GIBB, C. De Wet ...	Major	R.A.M.C. 54th F.A., 1914—15. 15th F.A., B.E.F., 1915—17. 18th Casualty Clearing Station, 1917—18. D.A.D.M.S. 20th Div., B.E.F., 1918—19. Ment. in despatches, 1919.

GIBBONS, H. V. ... Temp. Lieut. ... R.A.M.C.
GIBSON, C. C. G. ... Temp. Capt. ... R.A.M.C. Prisoner of War in Germany, 1918.
GIBSON, F. G. ... Major ... ... N.Z.M.C. H.M.H.S. *Maheno.*
GIBSON, H. G. ... Major ... ... R.A.M.C. Mentioned for war services, 1917. Died, 1919.
GIE, J. C. ... ... Temp. Surg. Lieut., R.N. Chatham Hospital.
GILBERT, L. H. ... ...
GILKES, M. D'O. ... Hon. Surgeon Auxiliary Military Hospital, Ludlow.
GILL, L. ... ... Capt. .... R.A.M.C., S.R.
GILL-CAREY, C. ... Lieut. ... ... N.Z.M.C.
GLAISBY, K. ... ... Lieut. ... ... R.F.A. Killed in action, Nov.,1917
GLANVILLE, L. S. N. Temp. Capt. ... R.A.M.C. Attached Royal Irish Rifles. Prisoner in Germany, 1918.
GLENDINING, V. ... Capt. ... ... R.A.M.C.
GLOVER, C. ... ... Surg. Dent. ... H.M.H.S. *Plassy.*
GLOVER, E. N. ... Temp. Capt. ... R.A.M.C. Ment. in despatches, Mesopotamia, 1918.
GLOVER, J. A. ... Temp. Capt. ... R.A.M.C. O.B.E., 1919.
GOADBY, Sir Kenneth Member of War Office Committee for study of Tetanus. K.B.E., 1918.
GOBLE, E. W. ... Temp. Capt. ... R.A.M.C.
GOBLE, F. G. ... Surgeon Commander, R.N. H.M.S. *Gloucester.*
GODDING, H. C. ... Capt. .... R.A.M.C. M.C.
GODSILL, Stanley ... Lieut. ... ... London Regt. Killed in action, 23rd December, 1917.
GODSON, F. A. ... Temp. Capt. ... R.A.M.C.
GOLDIE, E. G. ... Temp. Capt. ... A.M.S. 127th Indian Combined Field Ambulance., E.E.F. Ment. in despatches, 1918. C.B.E.
GOLDSTEIN, H. M. ... Capt. .... R.A.M.C. 2nd N.Z. Field Ambulance. M.C., 1917.
GOODALL, Edwin ... Lt.-Col. ... R.A.M.C. O.C., Welsh Metropolitan War Hospital, Whitchurch, near Cardiff, 1915—19. C.B.E., 1919.
GOODALL, E. W. ... Lt.-Col. ... R.A.M.C. Grove Military Hospital, Tooting. Mentioned for war services, 1917. O.B.E., 1919.
GOODHART, G. W. ... Temp. Capt. ... R.A.M.C.,T.F. St Marks (No. 2 Gen. Hospital). Mentioned for war services, 1917.
GOODWIN, E. S. ... ...
GOSS, J. ... ... Temp. Capt. ... R.A.M.C.
GOUDGE, A. N. ... Temp. Lieut. ... R.A.F.
GOUGH, B. B. ... Lieut. ... ... R.A.M.C. 8th South Staffs. Killed in action, Belgium, 1916.
GOULD, C. H. ... Temp. Surg. ... R.N. H.M.S. *Dartmouth.*
GOVER, W. ... ... Temp. Surg. ... R.N. H.M.S. *Fearless.*
GRAHAM, L. A. J. ... Temp. Capt. ... R.A.M.C. E.E.F.
GRAHAM, S. G. ... Temp. Capt. ... R.A.M.C.
GRANGER, E. ... Surg. Lieut. ... R.N.
GRAY, A. C. H. ... Lt.-Col. ... R.A.M.C. Prisoner in Germany. 1918. Mentioned in despatches. O.B.E., 1919.
GRAY, E. E. D. ... Surg. Sub.-Lieut., R.N.V.R. H.M.S. *Martin.*
GRAY, H. M. ... Capt. .... Canadian A.M.C.

GRAY, St. G. B. D.	Surg. Sub.-Lieut., R.N.V.R.	H.M.S. *Pelorus.* Awarded Royal Humane Society Medal for Saving Life from Drowning.
GREAVES, H. N. ...	Capt.	Canadian A.M.C.
GREEN, Arthur ...	Lieut.	R.A.M.C. 2nd East Anglian F.A.
GREEN, C. L. ...	2nd Lieut. ...	Essex Regt. Killed in action, 9th June, 1917.
GREENE, C. W. ...	Capt.	R.A.M.C. Mentioned in despatches, Salonika.
GREENE, J. A. C. ...	Temp. Capt.	R.A.M.C. Attached West Yorks. Regt. M.C., 1917. Wounded.
GREENE, W. R. ...	Temp. Major ...	R.A.M.C., Dental.
GREENFIELD, D. G. ...	Temp. Lieut. ...	R.A.M.C., Dental.
GREENWOOD, A. A. ...	Temp. Capt.	R.A.M.C. 37th General Hospital, Salonika. Order of St. Sava (Serbian) and Croix de Guerre, 1919.
GREENWOOD, E. C. ...	M.O.	I/c Acheson Hospital for Officers, 1916—18. Anæsthetist, St. John and St. Elizabeth Hospital, 1914—18. Commander Special Constabulary, 1914—20. Ment. for war services, 1918—19. O.B.E., 1919.
GREGOR, J. B. ...	Surg. Sub.-Lieut., R.N.V.R.	
GRELLET, H. R. ...	Act. Major ...	R.A.M.C. Yorks. and Lancs. Regt. Wounded, 1917.
GREVES, E. H. ...	Consulting Physician to Red Cross Hospital, Bournemouth.	
GRICE, J. W. H. ...	Capt.	R.A.M.C., S.R.
GRIFFIN, E. H. ...	Temp. Capt. ...	R.A.M.C. Att. 12th Northumberland Fusiliers. Twice mentioned in despatches. M.C. and Bar 1917, D.S.O., 1917. Wounded, 1917; wounded & prisoner, 1918.
GRIFFIN, T. H. ...	Capt.	R.A.M.C., Dental. Mentioned in despatches, 1917.
GRIFFITHS, Chas. T....	Temp. Lieut.-Col., R.A.M.C, T.F.	Territorial decoration, Hon. Associate of Order of St. John of Jerusalem.
GRIFFITHS, H. L. S.	Temp. Capt. ...	R.A.M.C. 1st C.C.S.
GRIPPER, G. D. ...	Capt.	R.A.M.C. German East Africa.
GROBBELAAR, P. E. ...	Capt.	R.A.M.C., T.F. 1st Scottish General Hospital, O. i/c Centre for Treatment for Jaw Injuries, C. i/c Aberdeen Military Dental Centre, 1914—19.
GROMBIE, J. M. P....	Capt.	R.A.M.C., T.
GROVES, H. S. ...	Capt.	R.A.M.C. 72nd Field Ambulance.
GROWSE, W.	Senior Surgeon V.A.D.	Red Cross Hospital, Kenilworth.
GUINNESS, A. F. G....	Temp. Lieut. ...	R.A.M.C.
GWATKIN, A. J. ...	Temp. Capt. ...	R.A.M.C., Dental.
GWYN-DAVIES, W. ...	Capt.	3rd Batt. The King's Regiment.
GWYN, W. P. ...	Lt.-Col. ...	A.M.S. Egypt. Mentioned in despatches, 1918. C.M.G., 1919.

HAINE, C. F. ...	2nd Lieut. ...	14th Royal Fusiliers.
HALDEN, R. J. G. ...	...	Artists' Rifles O.T.C.
HALL, A. W. ...	Col.	A.M.S. Egypt. Mentioned in despatches.
HALL, E. S. ...	Temp. Capt. ...	R.A.M.C. M.E.F.
HALL, Maxwell ...	Pte.	Artists' Rifles (28th London), Infantry, France, 1916—17. R.F.A. 1917—18.
HALL, R. W. B. ...	Staff-Surg. ...	R.N. H.M.S. *Dolphin.*
HALLET, L. R. J. ...	...	5th Royal Sussex Regt.
HALSTEAD, D. V. ...	Capt.	R.A.M.C., S.R.
HAM, B. B.	Temp. Capt. ...	R.A.M.C.
HAMILTON, E. T. E....	Temp. Major ...	S.A.M.C. Mentioned for war services German South-West Africa, 1914—15. Died on service.
HAMILTON, Geo. ...	Temp. Surg. ...	R.N. Ment. in despatches.
HAMMOND, J. A. B.	Capt.	R.A.M.C. 24th General Hospital, B.E.F. Neurological R.M.O. King George Hospital, 1915—16. 1/3 West Riding F.A., B.E.F., 1916. Anæsthetist and M.O. i/c Chest Wards, No. 24 General Hospital, B.E.F., 1916—18. M.O. i/c Medical Division, Tooting Neurological Hospital, 1918—19.
HAMMOND-WILLIAMS, C. W., Capt., 1/5 Batt. Border Regt. Wounded, 1917.		
HAMPTON, F. A. ...	Lieut.	R.A.M.C. M.C.
HANAFY, J. Z. ...	R.M.O., British	Red Cross Society. Order of St. John of Jerusalem. R.M.O., King George Military Hospital, 1915—19. Mentioned in despatches, 1919. O.B.E., 1919.
HANCOCK, A. C. ...	Major	R.A.M.C. Att. H.L.I. 9th Scottish Division, Aldershot, and B.E.F., 1914—19. M.O. 10th Highland Light Infantry. Bearer Officer, 27th Field Ambulance. Mentioned in despatches, 1916. M.C., 1916. Bar to M.C., 1917. 2nd Bar to M.C., 1917.
HANCOCK, E. D. ...	Temp Major ...	R.A.M.C. Clandon Red Cross Hospital.
HANDSON, L. S. C....	Temp. Lieut.	R.A.M.C.
HANDLEY, W. Sampson	Capt.	R.A.M.C., T.
HARDEN, E. ...	Lieut.	R.A.M.C., T.F. Millbank Hospital
HARDENBERG, E. J. F.	Lieut.	R.A.M.C.
HARDY, E.	Pte.	R.A.M.C.
HARDY, G. F. ...	Temp. Capt. ...	R.A.M.C. M.O. 23rd Brigade, 17. M.O. No. 5 Reserve Brigade, R.F.A., Catterick, and No. 1 Infantry Command Depot, 1917. M.O. 11th West Yorkshire Regt. and No. 38 Stationary Hospital, Genoa, Italy, 1918. M.O. i/c Troops, Remount Depot, Romney, and Repatriation Camp, Winchester, 1919. Mentioned in despatches, 1917. M.C., 1917. Wounded, 1917.

HARDY, H. M. ...	Temp. Lieut. ...	R.A.M.C. 27th General Hospital, Mudros and Cairo.
HARE, E. C.... ...	Col.	R.A.M.C.
HARKNESS, A. H. ...	Surg.	R.N. H.M.S. *Emperor of India.*
HARLAND, G. B. ...	Capt.	I.M.S.
HARPER, J.	Temp. Lieut. ...	R.A.M.C.
HARPER, R. S. ...	Temp. Capt. ...	R.A.M.C.
HARRINGTON, F. J. ...	...	
HARRIS, H. O. W. ...	Hon. Dental Surgeon to Red Cross Hospital, Hinton St. George. Private, 3rd Batt. Somerset Volunteer Regt.	
HARRIS, L. Price ...	Major	R.A.M.C. D.A.D.M.S. 2/4 London Fld Am., 1915—17. D.A.D.M.S. 60th Division France, 1916. Salonika, 1916—17. Egypt and Palestine, 1917—19. M.C., 1918
HARRIS, W. J. ...	Temp. Capt. ...	R.A.M.C. M.B.E., 1919.
HARRISON, E. W. ...	Temp. Surg. ...	R.N. H.M.S. *Pembroke.*
HARRISON, Harold ...	Dental Surgeon to Anglo-Russian Hospital, Petrograd.	
HARRISON, S. S. B....	Major	R.A.M.C. South Staffs. Regiment. M.C., 1917. Died from gas poisoning on service, 1918.
HART, E. R. ...	Temp. Capt. ...	R.A.M.C.
HART, J. A.... ...	2nd Lieut. ...	2nd East Surreys. Wounded, 1915.
HARTNELL, E. B. ...	Temp. Capt ...	R.A.M.C. London Mounted Brigade. Died at Cairo, 25th April, 1916.
HARTNELL-BEAVIS, J.	Lieut.	R.A.M.C. Private Hospital work, Antwerp, France and Serbia.
HARVEY, C. P. ...	Civil Med. Pract.	A.S.C.
HARVEY, J. H. ...	Civil Med. Pract.,	3rd Dorset Regiment. O.B.E., 1919.
HAWES, W. A. ...	Lieut.	R.A.M.C., S.R.
HAWKESWORTH, H. ...	M.O.	I/c Devon & Cornwall Territorials.
HAWKINS, C. F. ...	Lieut.	R.A.M.C., Dental. M.M., 1917. Wounded, 1917.
HAYCRAFT, G. F. ...	Capt.	R.A.M.C., T. No. 4 Stationary Hospital.
HAYNES, C. G. ...	Capt.	Artists' Rifles, B.E.F. 1914. 4th King's Royal Rifles, 1915—17. Flight Commander, R.A.F., 1917. M.C., 1916. Bar to M.C. 1917. Missing, 1918. Killed in action.
HAYNES, F. ...	Dental Surgeon	V.A.D. Hospital, Rugby.
HAYWARD, M. C. ...	Capt.	R.A.M.C., T. Wounded at Ypres, died from wounds, Aug. 23rd, 1916.
HEARN, R. J. ...	Capt.	R.A.M.C. Attached R.A.F.
HEARNDEN, W. C. ...	On Staff, Auxiliary War Hospital, Leatherhead.	
HEASMAN, H. W. ...	Temp. Lieut. ...	R.A.M.C.
HEATH, F. R. H. ...	Temp. Lieut. ...	R.A.M.C.
HEATH, T. L. ...	Capt.	R.A.M.C. No. 40 British General Hospital and No. 40 Combined F.A. Mesopotamia, 1917—19. Attached 2nd Somerset L.I., Afghanistan and N. W. Frontier, India, 1919.

HEATHERLEY, F. ...	Capt.	R.A.M.C. Examiner & Chairman Recruiting Med. Board. M.O. 158th Howitzer Brigade. 20th D.L.I. 29th Northumberland Fusiliers. 8th and 9th K.L.R. M.O. i/c P.O.W. Camp, Leigh.
HEATON, T. B. ...	Capt.	R.A.M.C., S.R.
HECKELS, G. W. ...	Capt.	R.A.M.C., S.R. Mesopotamia.
HEDDEN, R.	M.O. to troops. Honiton.	
HELSHAM, C. T. ...	Temp. Surg. Lieut., R.N.	Private, R.A.M.C., T., 1914. Temp. Surg. and Sub.-Lieut., R.N.V.R., 1914. H.M.S. *Crusader*, 1914—16. H.M.S. *Broke*, 1916—17. H.M.S. *Canada*, 1919. R.N. Hospital, Haslar. D.S.C., 1917.
HENDERSON, H. J. ...	Temp. Lieut. ...	R.A.M.C. Attached Essex Regt. M.C., 1917. Wounded, 1917.
HENDERSON, T. E. ...	2nd Lieut. ...	South Staffs. Killed in action, Aug. 31st, 1916.
HENDERSON, W. ...	Temp. Capt. ...	R.A.M.C.
HENDREN, E. S. ...	A.B.	R.N.V.R.
HENRY, A. M. ...	Surg.	R.N. H.M.S. *President*.
HENRY, C. J. ...	Lieut.	R.F.A., S.R. 1st D.A.C., B.E.F. M.C., 1918.
HERBERT, A. S. ...	Lt.-Col. ...	N.Z.M.C. M.O. Military Orthopedic Hospital, Rotorua, N.Z., 1915—18. O.B.E.
HEWETSON, H. ...	Lt.-Col. ...	R.A.M.C. Twice mentioned in despatches, 1917 and 1918. D.S.O. Order of St. Anne, 2nd Class, with Swords (Russian). Order of Crown of Italy, 1918.
HIBBERD, C. E. ...	Temp. Capt. ...	R.A.M.C.
HIBBERT, W. L. ...	Capt.	R.A.M.C., T.F. 47th C.C.S., B.E.F.
HICKES, Chas. ...	Pte.	A.S.C., Motor Transport. Expeditionary Force.
HICKMAN, G. H. ...	Temp. Lieut. ...	R.A.M.C., Dental.
HIGGENS, Chas. ...	Senior Ophthalmic Surgeon County of London War Hospital, 1915—19.	
HILDRED-CARLILL ...	Temp. Surg. Lieut., R.N.	H.M.S. *New Zealand*, Battle Cruiser Fleet, 1914—16. Neurologist and Psychiatrist, R.N. Hospital Haslar, 1916—19. Mentioned in despatches.
HILLIARD, M. A. ...	Lieut.	R.A.M.C. No. 22 General Hosp.
HILLIER, H. N. ...	Lieut.	R.A.F., Dental.
HILLS, W. E. ...	Temp. Capt. ...	R.A.M.C. Egypt. E.F.
HILLSTEAD, H. T. ...	Civil M.O. ...	Rough Riders.
HILTON, C. T. ...	Temp. Capt. ...	R.A.M.C.
HILTON, G. J. ...	Capt.	R.A.M.C. 30th Stationary Hospital, Salonika.
HIND, G. R. ...	Surg.	Stoke-on-Trent War Hospital.
HIND, W.	Lt.-Col. ...	R.A.M.C. O.C. North Midland Heavy Battery. R.G.A., T.F., 1916. Transferred to R.A.M.C. Ment. for war services. 1917. Territorial Decoration. 1917.

HINDE, E. B. ... Temp. Major ... R.A.M.C., T.F. Ment. in desp.
HINTON, J. H. ... Capt. .... 1st North Midland Bde., R.A.F.
HIRSCH, V. R. ... Capt. .... R.A.M.C. India and Mesopotamia, 1916—19.
HITCHINGS, D. B. ... Lieut. ... ... 10th Batt. South Wales Borderers. Late Private, Artists' Rifles, 1914—15. 10th S.W.B., B.E.F., 1915—17. 3rd S.W.B., and 53rd S.W.B., England, 1917—19. Invalided Home, Trench Feet, 1917.
HODGKINSON, R. J. ... 2nd Lieut. ... 4th K.R.R. Wounded, 1915.
HODGSON, C. R. ... Capt. .... Australian A.M.C. 1st Australian Light Horse F.A. No. 14 A.G.H. Cairo. Egypt, Palestine and Syria, 1917—19. Mentioned in despatches, 1920.
HODGSON, F. ... Capt. .... R.A.M.C. East Lancs. Field Ambulance.
HODGSON, H. ... M.O. ... ... Hants. Carbineers Yeomanry.
HODGSON, J. W. ... Commandant, M.O. Exmouth Auxiliary Hospital. O.B.E., 1918.
HODGSON, Stanley ... Capt. ....R.A.M.C., T.F. 2/1 East Lancs Field Ambulance.
HODGSON, Stewart ... Capt. .... R.A.M.C. M.C.
HODGSON, V. J. ... Surg. ... ... Queen Mary's Naval Hospital, Southend-on-Sea.
HODGSON, W. A. ... Civil Dental Surgeon 3/6th London R.F.A.
HODSON, J. E. ... Temp. Lieut. ... R.A.M.C.
HOGARTH, B. W. ... Major ... ... R.A.M.C., T.F. M.O. to 1st Div. Bomb. School.
HOGBEN, H. F. T. ... Lieut. ... ... Norfolk Regt. Killed in Mesopotamia, 23rd November, 1915.
HOLBORN, F. M. ... 2nd Lieut. ... County of London Volunteers. Civil Dental Surgeon, Tooting Military Hospital.
HOLE, K. H. ... Surgeon Commander, R.N. H.M.S. *Thames*.
HOLLANDS, W. G. ... 2nd Lieut. ... 7th Batt. Royal Fusiliers. Killed in action, 1916.
HOLLINGTON, J. J. L. Lieut. ... ... R.F.A. Wounded, Messines, 1918.
HOLLIST, G. W. C. ... Act. Major ... R.A.M.C., T.F. Home Counties Field Ambulance.
HOLLOWAY, G. W. E. Surg. ... ... R.N. H.M.S. *Impregnable*.
HOLLOWAY, S. F. ... Surg. Lieut. ... R.A.M.C.
HOLMAN, C. C. ... Temp. Lieut. ... R.A.M.C. 40th General Hospital, B.E.F.
HOLMAN, H. E. ... M.O. ... ... Attached Fairfield Court Red Cross Hospital, Eastbourne.
HOLMAN, R. C. ... Medical Examiner of Recruits, Midhurst.
HOLMES, Thos. ... Capt. .... R.A.M.C. 5th Southern General Hospital.
HOLMES, T. F. ... Temp. Major ... R.A.M.C.
HOPKINS, F. G. ... Temp. Lieut. ... R.A.M.C.
HOPKINS, H. L. ... Lieut. ... ... R.A.M.C. Ment. in despatches. Killed in action, Oct. 1914.
HOPSON, M. F. ... Hon. Cons. Dent. Surg. to War Hospitals in London also R.N.V.R.
HOPSON, M. F. J. ... Surg. Lieut. ... R.N.V.R.
HOPSON, M. G. S. ... Lieut. ... ... A.S.C. Horse Transport.

HORSLEY, L. ...	Temp. Surg. ...	R.N.
HORTON, J. H. ...	Brevet Lieut.-Col.,	I.M.S., D.A.D.M.S., 12th Indian Division. Ment. in despatches, Mesopotamia. D.S.O. Died on service, 1917.
HOUSDEN, C. H. ...	Hon. Dental Surgeon to	Thorncombe Military Hospital.
HOWARD, C. Reginald	Temp. Capt. ...	R.A.M.C. Attached King's African Rifles, East African E.F. Twice ment. in despatches, 1917 and 1918. Killed 6th September, 1918.
HOWARD, J. A. ...	Radiographer,	Croydon Military Hospital.
HOWE, A. F. A. ...	Capt.	R.A.M.C., Dental.
HOWE, G. H. ...	Lieut.	London Rifle Brigade.
HOWE, J. C. C. ...	Capt.	R.A.M.C. 68th Field Ambulance, 22nd Divisional Train, R.A.S.C. 100th Bde., R.F.A., Salonika. 1917—19. 21st Stationary Hospital, Batoum, 1919.
HOWELL, J. B. ...	Temp. Major ...	R.A.M.C.
HOWELL, J. N. O. ...	Consulting Surgeon,	Cheltenham Red Cross, Hosp.
HOWELLS, J.	Temp. Capt. ...	R.A.M.C.
HUBBARD, G. R. ...	Capt.	R.A.M.C.,S.R.
HUDSON, E. P. ...	2nd Lieut. ...	R.F.A., S.R. M.C., 1918.
HUGHES, E. C. ...	Capt.	R.A.M.C., T.F. O.B.E., 1919.
HUGHES, E. P. L. ...	Surg.	R.N. H.M.S. *Crescent*.
HUGHES, Sidney ...	Capt.	R.A.M.C. 3rd H.C. Field Amb.
HUGH-JONES, K. H.	Capt.	5th, Attached 12th Rifle Brigade. Killed in action, 20th Sept., 1917.
HULL, A. J. ...	Temp. Col. ...	R.A.M.C. Twice mentioned in despatches.
HUMPHREY, L. ...	Brevet Colonel,	R.A.M.C. C.M.G., 1916. Twice mentioned in despatches, 1918.
HUMPHREYS, F. R. ...	Major	R.A.M.C., T.F. O.C. 3/2 London Field Ambulance.
HUNOT, F. G. ...	Surg.	R.N. Royal Naval Hospital, Cape.
HUNT, G. H. ...	Brevet Major ...	R.A.M.C. 1/2 London C.C.S., 1914. No. 25 General Hospital, B.E.F., 1916. Royal Military Hospital, Devonport, 1916—17. Royal Victoria Hospital. Netley, 1917. R.E. Experimental Station, Porton, 1917—19. Ment. in despatches, 1915.
HUNT, G. W. ...	Capt.	R.A.M.C.,T.F.
HUNTER, P. D. ...	Temp. Capt. ...	R.A.M.C.
HUNTLEY, Edgar ...	Temp. Lieut. ...	R.A.M.C. Military Hospital. Fovant, Wilts.
HURST, A. F. ...	Act. Lt.-Col....	R.A.M.C. O i/c Seale-Hayne Military Hospital. War Office Representative at Congress of American Neurological Society.
HUSBANDS, F. A. ...	Temp. Lieut. ...	Northants Medical Volunteer Corps.
HUTCHINSON, F. E. ...	Major	Australian A.M.C. 8th Field Ambulance. Egypt. 1916. B.E.F., France, 1916—18.
HYLTON, D. Y. ...	Dental Surgeon,	Bath War Hospital.

IBBOTSON, E. C. B. ...	Temp. Capt. ...	R.A.M.C.
IDE, H. L. ...	Dispatch Rider,	County of London Yeomany.
INFIELD, S.	Temp. Capt. ...	R.A.M.C.
INGRAM, P. C. P. ...	Act. Major ...	R.A.M.C., T.F. M.O. 1st Monmouth Regt., 1914. 3rd Welsh Field Ambulance. 53rd Welsh Division. Gallipoli, 1915. M.O. i/c Medical Div., Gen. Hosp., Western and Irish Command Venereal Hospitals, 1916.
INSTONE, N.	Temp. Lieut. ...	R.A.M.C.
IREDELL, A. W. ...	Surg. Lieut.-Commander,	R.N. H.M.S. *Victory*. Lt.-Col., R.A.F.
IRVINE, L. C. D. ...	Surg. Lieut. ...	R.N.V.R. H.M.S. *Hogue*. H.M.S. *Cornwallis*.
JACKSON, F. D. S....	Temp. Major ...	R.A.M.C.
JACKSON, R. W. P.	Act. Major ...	R.A.M.C. Croix de Guerre, 1917. M.C., 1918.
JACOB, E. D. ...	Temp. Major ...	R.G.A., T.F.
JALLAND, M. T. ...	Hon. Consulting	Surgeon to Military Hospital, York.
JAMES, B. E. ...	Temp. Lieut. ...	R.A.M.C., Dental, late Lance-Corporal 23rd Fusiliers (Sportsman's Battalion).
JAMES, J. S. H. ...	Lieut.	K.R.R., late Artists' Rifles. Killed in action, Rue de Bois, 16th May, 1915.
JAMES, W. Culver ...	Hon. Surg. Col.,	H.A.C.
JARVIE, J. M. ...	Temp. Lieut. ...	R.A.M.C.
JENKINS, H. H. ...	Temp. Capt. ...	R.A.M.C.
JEPHCOTT, C. ...	Capt.	R.A.M.C., T.F.
JEPSON, A. C. ...	Temp. Capt. ...	R.A.M.C.
JERWOOD, B. E. ...	Capt.	R.A.M.C., S.R. Lady Murray's Anglo-French Hospital, Le Tréport, 1915. Mesopotamia and No. 133 British General Hosp., Kut-el-Amara, 1917—20.
JESSOP, P. E. ...	Temp. Capt. ...	2/5 Battalion Loyal N. Lancs.
JOHN, D. W. ...	Capt.	R.A.M.C., S.R. 8th North Staffs. Twice mentioned in despatches, 1917.
JOHNSON, A. P. L....	Capt.	R.A.M.C., Dental.
JOHNSON, E. C. ...	Temp. Capt. ...	R.A.M.C., Dental.
JOHNSON, William ...	Major	R.A.M.C. 58th Field Ambulance. B.E.F., France, 1915—17. Physician and Neurologist, 62nd C.C.S., B.E.F., 1917—19. Joint Author, "Nervous Disorders," Official Medical History of the War. M.C., 1916.
JOHNSTON, W. R. ...	...	In charge of Ambulance Arrangements for Air Raids, Hull.
JOHNSTONE, J. L. ...	Temp. Lieut. ...	R.A.M.C.
JONES, B.	Temp. Capt. ...	R.A.M.C.
JONES, C. C. ...	Capt.	R.A.M.C. Prisoner in Germany, 1918.

JONES, C. E. M. ...	Capt.	R.A.M.C., T.F. Att. 1/4 Hampshire Regt. India, 1914—15. Mesopotamia, 1915—16. Siege of Kut, 1916. Prisoner of war in Turkey, 1916—18.
JONES, D. R. ...	Capt.	R.A.M.C. Western Comnd Depôt Chester, attached 54th R.F.A., 1915. Salonika, 1915—17. 85th F.A., 1917—18. 1st Suffolk Regt. Served in Servia, Struma Valley and Turkey.
JONES, E. Price ...	Temp. Lieut. ...	R.A.M.C.
JONES, Evan L. ...	Capt.	R.A.M.C. Attached Highland L.I. Killed in action, 1918.
JONES, E. Shelton ...	Temp. Capt. ...	R.A.M.C. 11th Royal Welsh Fus.
JONES, G. B. H. ...	Capt.	R.A.M.C. 4th Hants. Regiment.
JONES, G. H. ...	Temp. Lieut. ...	R.A.M.C.
JONES, G. M. ...	Temp. Capt. ...	R.A.M.C. Member of War Office Trav. Medical Board.
JONES, H. B. ...	Lieut.	6th Batt. Welsh Regt. Wounded, November, 1917.
JONES, Hugh E. ...	Hon. Consulting	Surgeon to Military Hospitals, Liverpool, for Diseases of Ear, Nose and Throat.
JONES, H. S. ...	Temp. Capt. ...	R.A.M.C.
JONES, H. W. ...	Hon. Capt. ...	R.A.M.C.
JONES, J. Gaymer ...	Capt.	R.A.M.C. Lond. Elect. Engineers, 1914. 4th Bde., R.F.A. India, 1916. Mesopotamia, 1916—18. Egyptian Ex. Force, 1918—20. Ear, Nose and Throat Specialist Cairo, 1919—20. M.C., 1918.
JONES, J. H. ...	Temp. Major ...	Canadian A.M.C. Wounded, 1917.
JONES, J. H. ...	Capt.	R.A.M.C. Late Staff Surg., R.N. H.M. Hospital Ships. *Newhaven*, 1915. *St. David*, 1915—16. *Nevara*, 1916—17. Attached 51st Stationary Hospital, Genoa and Salonika, 1918. No. 49th Stationary Hospital.
JONES, J. P. ...	Capt.	R.A.M.C. M.C. and Bar.
JONES, J. T. ...	Capt.	A.A.M.C. Ment. in desp., 1917. M.C., 1917.
JONES, L.	Major	R.A.M.C.
JONES, M. P. ...	Fleet Surg. ...	R.N. H.M.S. *Vivid.*
JONES, R. L. ...	Temp. Surg. ...	R.N.
JONES, R. O. H. ...	Act. Major ...	R.A.M.C. M.C., 1917. Wounded, 1917.
JONES, R. T. ...	Capt.	R.A.M.C. Western Gen. Hospital.
JONES, R. W. ...	Dent. Surg. ...	Mile End Military Hospital.
JONES, Sidney ...	Temp. Lieut. ...	R.A.M.C. Mesopotamia.
JONES, T. Lewis ...	Temp. Capt. ...	R.A.M.C. Welsh Hospital in the East.
JONES, W. H. T. ...	Temp. Capt. ...	R.A.M.C. Indian Service.
JOSLEM, H.	Capt.	R.A.M.C. Canadian A.M.C.
JOYNT, H. F. ...	Act. Major ...	R.A.M.C.
JOYNT, M. C. ...	Capt.	R.A.M.C.

KEARNEY, S. J. ...	Lieut.	R.A.M.C., T.F.
KEATS, H. C. ...	Major	I.M.S.
KEER, J. C. ...	M.O.	Rendlesham Park Camp.
KEER, K. J. T. ...	Temp. Capt. ...	1/6th Suffolk Regiment.
KEITH, T. Skene ...	Temp. Capt. ...	R.A.M.C.
KELBE, W. E. ...	Major	6th S.A.F.A.
KELSEY, A. E. ...	Temp. Capt. ...	R.A.M.C. Drowned in H.M. Hospital Ship *Glenart Castle*, torpedoed 26th February, 1918.
KELSEY, W.	Lieut.	R.A.M.C. M.C. Wounded.
KEMP, J. Wallace ...	Major	R.A.M.C., T.F. 1st London C.C.S.
KENDALL, J. ...	Surg. Sub.-Lieut.,	R.N.V.R. H.M.S. *Tuberose.*
KENDALL, N. E. ...	Act. Major ...	R.A.M.C. Mentioned in despatches, 1918.
KENNEALEY, W. J....	Trooper ...	Vanderventers Horse, South African Forces.
KENNEDY, Ronald S.	Major	I.M.S. Mentioned in despatches, 1918. M.C., 1917. Bar to M.C., 1918. Killed in action, 17th April, 1918.
KER, W. P.	Temp. Capt. ...	R.A.M.C.
KIELD, W. S. T. ...	Temp. Lieut. ...	R.A.M.C.
KEY, B. W. M. Aston	M.O.	I/c Reception Hospital, Portsmouth, 1914—19. O.B.E., 1919.
KIDD, W. S. ...	Temp. Surg. ...	R.N. Wounded, 1917.
KIDMAN, G. E. ...	Capt.	R.A.M.C., T.F.
KIDNER, C. H. ...	Pte.	Artists' Rifles. Wounded, 1917.
KILLARD-LEAVEY, F. J.	Capt.	R.A.M.C. O.C. Addington Park Military Hospital. M.O. Enteric Depot, Croydon. M.O. Shoebury Garrison.
KING, Geoffrey ...	Surg.	R.N.
KING, L. A. B. ...	Temp. Capt. ...	R.A.M.C., Dent. Dent. Surg. to Jaw Wounds, Hospital, Aldershot
KING, P.	2nd Lieut ...	East Surrey Regiment. Balloon Officer, R.A.F. Killed in action B.E.F., Aug. 8th, 1917.
KING, R. M. ...	Capt.	R.A.M.C., Dental. Army Dental Surgeon. Alexandia, Egypt.
KINSEY-MORGAN, A....	Lieut.	R.A.M.C.
KIRKLAND, G. B. ...	2nd Lieut. ...	Royal West Kents. L'Hôpital Anglo-Française, Le Tréport, 1916—18.
KIRKMAN, A. H. B.	Temp. Lieut ...	R.A.M.C. No. 11 General Hospital and No. 12 C.C.S., France.
KNAGGS, F. H. ...	Temp. Capt. ...	R.A.M.C. M.O. Huddersfield War Hospital. Died 24th June, 1917.
KNAGGS, R. L. ...	Major	R.A.M.C. 2nd Northern General Hospital, Leeds.
KNAPP, G. H. ...	Lt.-Col. ...	S.A.M.C. Mentioned for war services, German S.W. Africa, 1914—15.
KNIGHT, H. R. ...	Temp. Capt. ...	R.A.M.C.
KNIGHT, R. V. ...	Flight Sub.-Lieut.,	R.N. Accidentally killed, 12th March, 1917.
KNIGHTS-RAYSON, H.	Capt.	S.A.M.C. 1st Military General Hospital, Wynberg, South Africa, 1916—19.

KNOTT, F. A. ...	Temp. Surg. ...	R.N. H.M.S. *Achilles.*
KNOWLES, G. F. ...	Dentist to four	Red Cross Hospitals.
KNOX-DAVIES, E. A. C.	Capt.	S.A.M.C.
KYLE, J.	Lieut.	R.A.F.M.S. and Artists' Rifles.
KYNASTON, A. E. F....	Surg.	R.N. H.M.S. *Devonshire.* Died of enteric.
LABORDA, F. E. R....	Temp. Capt. ...	R.A.M.C.
LACEY, B. W. ...	Temp. Lieut. ...	R.A.M.C.
LACEY, G. E. W. ...	Temp. Surg. ...	R.N. H.M.S. *Victory.*
LACEY, T. W. ...	Temp. Major ...	R.A.M.C. R.M. Academy, Woolwich.
LACEY, W. S. ...	Temp. Lieut. ...	R.A.M.C. 140th Field Ambulance. Died of wounds.
LAMB, C. J. ...	Dental Surgeon,	Fortress Hospital, Devonport.
LANCASTER, H. F. ...	Capt.	R.A.M.C., T.F. 2nd London Gen. Hospital, 1915—19. Hampstead New End Military Hospital, 1919—20.
LANDON, E. E. B. ...	Capt.	R.A.M.C., T.F.
LANE, Sir W. A., Bt.	Temp. Colonel,	R.A.M.C. C.B., 1917.
LANGDALE, H. M. ...	Staff Surg. ...	R.N.
LANGDON, W. M. ...	Capt.	R.A.M.C., T.F. London Field Ambulance.
LANSDALE, W. M. ...	Capt.	R.A.M.C., S.R. Attached Royal Berkshire Regiment. Killed in action, 1918.
LANSDOWN, R. G. P.	Major	R.A.M.C., T.F. 2nd Southern Gen. Hospital. Royal Humane Medal.
LARKIN, R.	Temp. Lieut ...	R.A.M.C.
LAUDER, J. F. L. ...	Major	R.A.M.C. Ment. in despatches. 1917. D.S.O. M.C., 1916. Bar to M.C., 1918. Prisoner of war.
LAVER, B. L. ...	Lieut. and Adjutant,	R.F.A. Artists' Rifles, B.E.F., 1914—15. 37th Divisional Artillery, 1915—17. Adjutant, 124th Brigade R.F.A., 1916—17.
LAVER, C. H. ...	Surg. Lieut. ...	R.N. late Lance-Corporal Artists' Rifles. B.E.F., France, 1914—15. Lieut., R.F.A., B.E.F., France, 1915—16.
LAVERS, Norman ...	Temp. Lieut. ...	R.A.M.C. Physician to Bath War Hospital.
LAWRENCE, W. F. ...	Temp. Capt. ...	R.A.M.C.
LAWSON, F. W. ...	Temp. Surg. ...	R.N.
LAWSON, G. L. L. ...	Major	R.A.M.C., T.F.
LAWSON, S.	Temp. Lieut. ...	R.A.M.C., Dental.
LAYTON, T. B. ...	Act.Lieut.-Col.	R.A.M.C., T.F. O.C. 2/4 London F.A., Oct., 1914—July, 1918. B.E.F., 1916. B.S.F., 1916—17. E.E.F., 1917—19. 27th General Hospital, Cairo, 1918. Officer i/c Surgical Division, 87th Gen. Hospital, Alexandria, 1918—19. Twice mentioned in despatches, 1918. D.S.O., 1918.

LEAN, F. C. ...	Capt.	R.A.M.C., Dental, late Gunner, Cornwall R.G.A.
LEAN, J. L. ...	Bombardier ...	R.G.A., 479 Siege Battery, B.E.F., 1917—18. Gassed, 1918.
LEBLANC, F. R. ...	Capt	R.A.M.C. Bacteriologist at Bagdad. Pathologist, No. 1 Stationary Hosp., Rouen, 1919.
LECKIE, Malcolm ...	Capt.	R.A.M.C. Mentioned in despatches, 1914. D.S.O. Killed August 28th, 1914.
LE CLEZIO, G. H. L.	Capt.	R.A.F.M.S.
LEDGER, A. V. ...	Temp. Capt. ...	R.A.M.C.
LEE, F. W.	Temp. Lieut. ...	R.A.M.C. Canadian A.M.C.
LEE, Harry ...	Capt.	R.A.M.C., T.F. 1st West Riding F.A., 1914—15. B.E.F., France and Belgium, 1915—16. Ophthalmic Specialist, 53rd General Hospital, B.E.F., 1917. Ophthalmic Specialist, 2nd London Hospital.
LEEMING, A. ...	Act. Major ...	R.A.M.C., T.F.
LEEMING, A. N. ...	Temp. Lieut. ...	R.A.M.C. 10th C.C.S.
LEIGH, H. V ...	Major	R.A.M.C. 1/5th Welsh Regiment, T.F., Milford Haven and Firth of Forth Defences, 1914—1915. Transferred R.A.M.C., No. 22 General Hospital, B.E.F., 1915. Section Commander 42nd Field Ambulance, 42nd Divn., B.E.F., 1915. M.O. i/c 8th K.R.R. 14th Division, B.E.F., 1915. Registrar 31st General Hospital, E.E.F., 1915—17. Registrar 27th General Hospital, E.E.F., 1917. Registrar and O. i/c Medical Division 71st General Hospital, E.E.F. Mentioned in despatches, 1917.
LEIPOLDT, C. F. L....	Capt.	S.A.M.C. Mentioned for war services, German S.W. Africa, 1914—15.
LE SAGE, C. F. ...	M.O.	Norfolk War Hospital.
LEVISEUR. E. A. ...	Capt.	S.A.M.C.
LEVISEUR, H. J. ...	Temp. Surg. ...	R.N.
LEVY, A. G. ...	Lieut.	R.A.M.C.
LEWIN, G.	Capt.	R.A.M.C. Mesopotamia, 1916—17. R.A.F. Medical Service, 1918.
LEWIS, C. G. ...	Temp. Capt. ...	R.A.M.C. No. 10 Field Ambulance. B.E.F.
LEWIS, J. L. D. ...	Temp. Capt. ...	R.A.M.C.
LEWIS. R. P. ...	Lt.-Col. ...	R.A.M.C.,S.R. Twice ment. in despatches, 1917 and 1918. D.S.O., 1918. Wounded, 1917.
LIDDERDALE, J. F....	Temp. Capt. ...	R.A.M.C. Ment. in despatches, 1917.
LIEBSON, A. S. ...	Capt.	S.A.M.C. M.O., 3rd S. African Infantry. M.C. Killed in action.

LINDSAY, G. P. ...	Lieut.	2nd Border Regiment. Served with Artists' Rifles, 1914—15. B.E.F., France, 1915—17. M.C., 1917. Three times wounded, 1915, 1916 and 1917.
LINDSAY, W. J. ...	Civil Surgeon,	attached R.A.M.C. Ophth. Surg. 4th London General Hospital, 1915—20. M.B.E.
LISTER T. D. ...	Physician ...	Price of Wales Hosp. for Officers.
LITCHFIELD, E. M....	Capt	R.A.M.C. and N.Z.M.C. Attached 2nd Manchester Regiment. Mentioned in despatches.
LITCHFIELD, P. C. ...	Capt.	R.A.M.C. M.O., 4th Queen's, 1914—15. 94th F.A., 1915. O. i/c. 15th Motor Ambulance Convoy. B.E.F., France, 1915—18. Mentioned in despatches, 1919. M.C. 1918.
LITTLEJOHNS, A. S....	Temp. Major ...	R.A.M.C. Ment. in despatches. D.S.O., 1917.
LLARENA, E. F. ...	2nd Lieut. ...	Suffolk Regiment. Killed at Ypres, 20th June, 1915.
LLOYD C. E. ...	Capt.	R.W.F. Attached Nos. 38 and 60 General Hospitals, Salonika 1916—19.
LLOYD, E. T. ...	Surg. Sub.-Lieut.,	R.N.V.R., H.M.S. *Afride.* 6th Flotilla.
LLOYD, F. G. ...	Temp. Surg. ...	R.N. H.M.S. *Victory.* Attached R.M.A. Anti-Aircraft Brigade.
LLOYD, O. O. ...	Pte.	Artists' Rifles. M.M.
LLOYD, V. E. ...	Temp. Capt. ...	R.A.M.C. Attached 1st Leicester Regiment. M.C., 1918.
LLOYD, W. G. ...	Capt.	R.A.M.C., Dental.
LOBB, E. L. M. ...	Capt.	R.A.M.C. Surgical Specialist No. 66 General Hospital, Salonika, 1917. Surgical Specialist Nos. 66, 51, 29 Stationary Hospitals, and Mos. 9, 39, and 24 C.C.S., Italy, 1917—18.
LOCKYER, G. E. ...	Capt.	R.A.M.C. M.O. i/c 1st Wilts and 12th Hants, 1915. Special work H.Q., Southern Command, 1917. Member Medical Board, A.S.C., Discharge Centre, Winchester, 1917—18. M.O., Rec. Dis. Bttn. Mentioned in despatches. 1919.
LOGAN, F. T. B. ...	Hon. Surg. ...	Foye House Red Cross Hospital. Died.
LONG, G. B. S. ...	Temp. Surg. ...	R.N.
LONG, H. O. ...	Surg.-Lieut. ...	R.N. H.M.S. *Cleopatra,* 1918—19. H.M.S. *Awora,* 1918. R.N. Hospital, Haslar. H.M.S. *Pembroke,* Chatham Barracks, 1919.
LONG, P. S. C. ...	Surg.	R.N.
LONGHURST, S. H. ...	Temp. Capt. ...	R.A.M.C. Inspecting Dent. Officer, Western Command.
LONGSON, F. M. ...	Temp. Capt. ...	R.A.M.C.
LOUD, Frank ...	Major	R.A.M.C., and Sussex R.G.A., T.F.

LOVEDAY, W. D. ...	M.O.	I/c Red Cross Hospital, Wantage.
LOVELUCK, C. A. ...	...	
LOWE, E. C. ...	Capt.	N.Z.M.C. Pathologist to No. 2 N.Z. Gen. Hospital, 1917—19. M.B.E.
LOWE, F. A. ...	Lieut.	R.N.V.R. Collingwood Battalion. Killed Gallipoli, 1915.
LOWER, N. Y. ...	M.O.	V.A.D. Hospital, Corton, Radnorshire.
LUCAS, C. R. ...	Hon. Lieut. ...	R.A.M.C.
LUCAS, R. H. ...	Act. Major ...	A.M.S. Mentioned in despatches, Italy, 1918. M.C.
LUCAS, T. C. ...	Major	R.A.M.C. 62nd Division.
LUCE, Sir R. H. ...	Major-Gen. ...	R.A.M.C. A.D.M.S., 2nd M,T. Division, Egypt and Gallipolli, 1914—16. Western Front. Force, Egypt, 1916. Imperial Mnted. Division, Palestine, 1917—18. D.D.M.S. East Force, and 20th Corps. D.M.S., E.E.F., Palestine. Mentioned in despatches. 1917. K.C.M.G., 1919. C.M.G. 1918. C.B., 1916.
LUCEY, H. C. ...	Temp. Capt. ...	R.A.M.C.
LUMLEY, F. D. ...	Surg. Commander, R.N.	Surgeon and Agent to Royal Naval Torpedo Factory, Greenock.
LUND, H.	Capt.	R.A.M.C., T.F. 2nd Western Gen. Hospital.
LYNN, E.	M.O.	Auxiliary Hospital, Woolwich.
LYON, H. J. ...	...	
MACALISTER, G. H. K.	Temp. Capt. ...	I.M.S. Bacteriologist, Mesopotamian Expeditionary Force.
MCALPIN, K. F. ...	Major	Machine Gun Corps.
MCDERMOTT, B. ...	Temp. Capt. ...	R.A.M.C.
MACDONALD, W. D....	2nd Lieut. ...	Army Dental Surgeon.
MCDOUGALL, J. T. M.	Temp. Capt. ...	R.A.M.C. 29th Stationary Hospital, Salonika.
MCGREGOR, G. ...	Civil Medical Pract.,	Alexandria Military Hospital, Cosham.
MCKAY, W. K. M. ...	Trooper ...	Royal North West Mounted Police, 1914—16, and 1st King Edward's Horse, 1916—17. British Exp. Force, France.
MACKENZIE, Murdo ...	2nd Lieut. ...	3/1 Surrey Yeomanry.
MCKENZIE, Alan ...	Surg. Sub.-Lieut.,	H.M.S. *Gentian.*
MCMANUS, D. M. ...	Capt.	R.A.M.C. and Inns of Court O.T.C.
MCLACHLAN, A. R. ...	Lieut.	
MCNAIR, A. J. ...	Temp. Capt. ...	R.A.M.C. Late Surg., R.N, (Home Waters), 1914—15. R.A.M.C., T.C., 1916—19. Surgical Specialist, No. 2 General Hospital, Mesopotamia, and No. 9 C.C.S., N.W.F. Force, India, 1919.
MAELZER, N. H. S....	Lieut.	R.A.M.C., S.R.
MAGGS, W. A. ...	Dent. Surg. ...	King George Hospital.

MAGOWAN, P. D. ...	Temp. Capt. ...	R.A.M.C. Belfast War Hospital.
MAGRATH, C. W. S....	Lt.-Col. ...	R.A.M.C. O.C. troops, Hospital, Ships *Newhaven* and *Tagus*, President Standing Medical Brd., Portsmouth. Mentioned for war services.
MAHON, E. M. ...	Capt..... ...	R.A.M.C. Surgeon Croix Rouge Français Anglo-French Branch, France, 1914. R.M.O. i/c Endsleigh Palace Hospital for Officers, 1915—17. Served in Egypt and Palestine, 1917—19.
MAILE, W. C. D. ...	Hon. Capt. ...	R.A.M.C., T.F. Wounded, 1917.
MALE, H. C. ...	Civil Med. Pract.,	Croydon War Hospital.
MALLESON, H. C. ...	Temp. Capt. ...	R.A.M.C. Hon. Consulting Dental Surg. to London War Hospitals.
MANDEL, L.	Surg.-Lieut. ...	R.N. H.M.S. *Vivid*, 1914. H.M.S. *Donegal*, Grand Fleet, 1914—16. H.M.S. *Crescent*, 1916—18. H.M.S. *Europa*, Ægean Squadron, 1918—19 Served at Cuxhaven and Jutland.
MANFIELD, G. H. H.	Act. Major ...	R.A.M.C. 2nd North Midland Field Ambulance. M.C., 1916.
MANN, H. Corry ...	Surg.-Lieut. ...	R.N. H.M.S. *Racer*. O.B.E., 1919.
MANNING, G. E. ...	Capt..... ...	R.A.M.C.
MANNING, T. D. ...	Temp. Capt. ...	Dorset Medical Volunteer Corps.
MANSER, F. B. ...	Major	R.A.M.C. Connaught Military Hospital, Aldershot, 1915—1916. 43rd Casualty Clearing Station, B.E.F., France, 1916—19.
MARGOLIES, Ivor ...	Sergt.	13th Yorks.
MARRIOTT, H. B. ...	Fleet Surg. ...	R.N. H.M.S. *Egmont*. H.M.S. *Resolution*. O.B.E.
MARRIOTT, Oswald ...	Lieut.	R.A.M.C. B.E.F. 1918—19, and Prisoners of War Camp, Bramley
MARSH, A. P. ...	Temp. Capt. ...	R.A.M.C., Dental. Civil Dentist to Troops at Seaford, Rye, and Lydd.
MARSH, H. E. ...	2nd Lieut. ...	R.F.A. T.F. M.C., 1917.
MARSH, H. R. ...	Temp. Lieut. ...	R.A.M.C.
MARSHALL, B. G. ...	2nd Lieut. ...	3rd Northants Regiment. Killed in action at Loos.
MARSHALL, Claude H.	Capt..... ...	Uganda Field Ambulance. O.C. Medical (British) att. Belgian Troops, Uganda.
MARSHALL, E. S. ...	Temp. Capt. ...	A.M.S. H.Q. Staff. Twice mentioned in despatches. M.C. 1918.
MARSHALL, Geoffrey...	Act. Major ...	R.A.M.C., S.R. B.E.F., 1914—19. No. 13 Stationary Hospital, 1914. 2nd Ambulance Flotilla, 1915. 17th C.C.S., 1915—18. No. 10 C.C.S., 1918—19. Adviser in Anæsthetics, 2nd Army, B.E.F., France. Author of "Anæsthetics," in Official Manual on Diseases and Injuries of War. Ment. in despatches. O.B.E.

MARSHALL, G. ...	Temp. Lieut. ...	R.A.M.C.
MARSHALL, Herbert M.	Dental Commandant, R.N.M.S.	Killed accidentally. H.M.H.S. *China.*
MARSHALL, R. P. ...	Capt.	R.A.M.C. Royal Herbert Hosp., Woolwich, 1915 and 1917. M.O. 35th Heavy Artillery Group, B.E.F. and Egypt, 1916—17. No. 53 General Hospital, Wimereux, 1917. M.O., Labour Camp, Blargies, France, 1917—19. Ment. in despatches, 1919.
MARSHALL, W. L. W.	Lt.-Col. ...	R.A.M.C. C.O. and Surgical Specialist War Hospital, Huddersfield, 1915—19. Twice ment. for war services. C.M.G., 1917.
MARSTON, A. D. ...	Temp. Surg.-Lieut., R.N.	
MARTIN, A. ...	Major	N.Z.A.M.C. Died of wounds.
MARTIN, J. Birch ...	Capt.	R.A.M.C. Mesopotamia Exp. Force 1916—18. Royal Victoria Hospital, Netley, 1918—20.
MARTIN, J. N. ...	2nd Lieut. ...	A.S.C.
MASH, O. N. ...	Lieut.	R.F.A. M.C., 1917. Killed in action, 1st June, 1918.
MASON, J. B. ...	Temp. Capt. ...	R.A.M.C.
MASTERS, J. A. ...	Hon. Col. ...	R.A.M.C., T.F.
MATHER, Horace ...	Capt.	R.A.M.C. Sling Camp, Salisbury, 1915, Tidworth Military Hosp., 1916. No. 41 Stationary Hospital, B.E.F., France, 1917—19.
MATSON, R. C. ...	Capt.	R.A.M.C.
MATTHEWS, G. ...	Temp. Lieut. ...	R.A.M.C.
MATTHEWS, J. ...	Lt.-Col. ...	R.A.M.C. Ment. in despatches.
MATTHEWS, T. A. ...	Temp. Capt. ...	R.A.M.C.
MAURICE, H. ...	Dent. Surg. ...	Red Cross Auxillary Hospital, Brighton.
MAXTED, G.	Capt.	R.A.M.C. 50th General Hospital, Salonika Ex. Force, 1917—18. No. 2 London General Hospital and O. i/c Ophthalmic Centre, Ipswich.
MAXWELL, E. J. ...	Temp. Capt. ...	R.A.M.C. 29th General Hospital, Salonika.
MAXWELL, J. E. ...	Sub.-Lieut. ...	R.N.V.R. Att. R.N.A.S. Killed in Bulgaria, March 30th, 1917.
MAXWELL, R. ...	Wireless Telegraph Operator, R.N.R.	H.M. Yacht *Iolaire.*
MAY, P. M. ...	Surg. Commander, R.N.	H.M.S. *Pembroke.*
MAY, R. E. G. ...	Hon. M.O. ...	Fairlawn Military Hospital, Honor Oak, S.E.
MAY, W. N.	Temp. Capt. ...	R.A.M.C. Civil Surgeon, Military Hospital, Reading.
MAYBURY, A. V. ...	Capt.	R.A.M.C., T.F. 26th Field Amb., B.E.F.
MAYER, R. G. ...	...	
MAYNARD, E. F. ...	Lt.-Col. ...	R.A.M.C. Ment. for war services.
MAYSTON, J. H. ...	Temp. Capt. ...	R.A.M.C. Attached Border Regt.
MEADE-KING, W. T. P.	Temp. Major ...	R.A.M.C. Wessex Field Ambulance. Prisoner in Germany, 1918.

MEARES, A. L. D....	...	Government Dist. Examiner of Recruits, Sydney, N.S.W.
MEDLOCK, C. H. ...	Temp. Capt. ...	R.A.M.C.
MESSENGER, H. L. ...	Capt.	R.A.M.C. No. 28 General Hosp. 67th Field Amb, 1916—18. M.O. i/c 12th Cheshires. M.O. i/c 22nd Divisional Train. Ment. in despatches, British Salonika Force, 1916—19. M.C., 1918, Bar to M.C., 1918.
MESSENT, R. J. ...	Temp. Capt. ...	Sussex R.G.A., T.F.
METCALFE, B. B. ...	Temp. Capt. ...	R.A.M.C.
MEW, G. M. ...	2nd Lieut. ...	1st Royal Irish Rifles.
MEYRICK-JONES, H. M.	Capt.	R.A.M.C. X-ray Specialist, No. 15 General Hospital, M.E.F., 1915. Codford Military Hospital 1916. No. 30 General Hospital, B.E.F., 1916—17. S.M.O. The Priory Red Cross Hospital, Cheltenham, 1917—19.
MICHELL, R.	Capt.	R.A.M.C., T.F.
MICKLEM, T. E. ...	Temp. Capt. ...	R.A.M.C., S.R. 121 Field Amb., Damascus, Mesopotamia.
MILLER, A. ...	Lt.-Col. ...	I.M.S.
MILLER, A. A. ...	Act. Major ...	R.A.M.C. 24th C.C.S. Ment. in despatches, Italy, 1918.
MILLER, A. H. ...	Temp. Hon. Lieut., R.A.M.C.	
MILLER, E. A. ...	Temp. Capt. ...	R.A.M.C.
MILLER, F. C. ...	...	Universities and Public Schools Battalion.
MILLER, G. S. ...	Capt.	R.A.M.C. No. 1 Field Ambulance. Killed in Action, Sept. 8th, 1916
MILLER, W. H. ...	Surg. Sub.-Lieut., R.N.	H.M.S. *Fervent.*
MILLETT, H.	Temp. Surg. ...	R.N., late Lieut. Royal Marines, R.N.D. Ment. in despatches, Dardanelles, 1915.
MILLIGAN, R. A. ...	Major	R.A.M.C., T.F., 1914—15. 1st Eastern Hosp., Cambridge.
MILLS, C. H. ...	Temp. Capt. ...	R.A.M.C.
MILLS, P. S. ...	Major	I.M.S. D.A.D.M.S., M.E.F. Mentioned in despatches. 1917.
MILLS, T. I. ...	Capt.	R.A.M.C., T.F. 2/1 West Riding Field Ambulance.
MILNE, J. B. ...	Capt.	R.A.M.C. Attached R.F.A.
MILNER, A. E. ...	Major	R.A.M.C.
MILTON, E. F. ...	Temp. Lieut. ...	R.A.M.C. 89th Field Ambulance, B.E.F.
MILTON, Leonard ...	Capt.	R.A.M.C. M.C., 1918.
MILTON, W. T. ...	Temp. Lieut. ...	R.A.M.C.
MILWARD, J. K. ...	Surgeon Sub.-Lieut., R.N.V.R.	Black Sea and Crimea, 1918—19.
MINETT, E. P. ...	Major	R.A.M.C., T.F. Water Officer, 6th London Field Amb., 1914—15. 60th London Division, B.E.F., 1915—16. 60th Division, Salonika, 1917. Officer i/c Water Supplies, 60th Div., Palestine, 1917. M.O.H. Jerusalem and

		P.M.O., Haifa District, Palestine, 1917—18. M.O., No. 6 Military Laboratory, Egypt, 1918—19. Twice ment. in desp.
MINETT, P. F. ...	Surg. Lieut.-Commander, R.N.	
MINNS, A. G. ...	Civil Practitioner, I/c Troops 69th (E.A.) Division.	
MINNS, A. N. ...	Capt.	R.A.M.C. 13th and 39th F.A. Twice mentioned in despatches (Mesopotamia and Gallipoli). D.S.O. M.C.
MITCHELL, D. A. ...	Surg. Commander, R.N.	H.M.S. *Diamond.*
MITCHELL, H. E. H.	Temp. Capt. ...	R.A.M.C.
MITCHELL, H. V. ...	Temp. Capt. ...	R.A.M.C. Resigned.
MOBERLY, A. V. ...	Temp. Lieut. ...	R.A.M.C.
MOFFATT, H. A. ...	Lt.-Col. ...	S.A.M.C. Mentioned for services, German South West Africa (surgical Specialist.) D.S.O., 1917.
MONAGHAN, P. J. ...	Capt.	S.A.M.C. 1st Field Amb. South African Expeditionary Force.
MONK, G. B. ...	2nd Lieut. ...	2nd Battalion Royal Warwicks. Killed in action, 1914.
MONTGOMERY, R. ...	Capt.	R.A.M.C., S.R. Mentioned in desp.
MOON, R. O. ...	Major	R.A.M.C.
MOORE, A. G. H. ...	Capt.	R.A.F. Medical Board.
MOORE, J. ...	Temp. Lieut. ...	R.A.M.C.
MOORE, J. Y. ...	Act. Major ...	R.A.M.C. Ment. in despatches, Gallipoli. O.B.E., 1919, France.
MOORE, L. W. ...	Act. Capt. ...	Gloucester Regiment. Killed in action, August 29th, 1916.
MOORE, P. W. ...	Capt.	R.A.M.C. Ment. in despatches (Egypt), 1918.
MOORE, R. A. ...	Lieut.	R.G.A.
MORGAN, E.	Temp. Capt.	R.A.M.C.
MORGAN, E. C. deM.	Temp. Surg. ...	R.N. H.M.S. *Victory.*
MORGAN, M. J. ...	M.O.	Aberystwith Red Cross Hospital.
MORGAN, O. G. ...	Temp. Capt. ...	R.A.M.C. No. 9 British Red Cross Hospital.
MORGAN, W.	Temp. Lieut. ...	R.A.M.C., T.F. Welch Border Mounted Brigade Field Amb.
MORLEY, T. S. ...	Admiralty Surgeon.	
MORRELL, F. H. ...	Temp. Capt. ...	R.A.M.C. Mentioned in despatches (Salonika), 1918.
MORRES, F	Temp. Capt. ...	R.A.M.C.
MORRIS, Arnold ...	Capt.	R.A.M.C., T.F. Royal Warwick Regiment. Wounded, 1917.
MORRIS, G. H. ...	Temp. Capt. ...	R.A.M.C.
MORRIS, H. W. G. ...	Civilian Dentist to Royal Engineer Camp, Houghton Regis.	
MORRIS, Ll. A. ...	Dent. Surg. ...	Attached R.A.M.C.
MORRIS, O. Gwyn ...	Lieut.	Royal Welsh Fusiliers. Late 6th Welsh Regt., 1916, and Artists' Rifles, 1915—16. Wounded, 1918.
MORRIS, W. R. ...	Temp. Lieut. ...	R.A.M.C.
MORRISH, D. B. ...	2nd Lieut. ...	King's Own Yorks. L.I. Killed in action in France, August 18th, 1916.
MORRISON, J. H. L.	Lt.-Col. ...	R.A.M.C., T.F.
MORRISON, J. T. J.	Major	R.A.M.C. 1st Southern General Hospital.

MOSSOP, C. H. ...	Temp. Capt. ...	R.A.M.C.
MOTHERSOLE, R. D.	Temp. Lieut.	R.A.M.C. 25th General Hospital and No. 31 C.C.S.
MOTTRAM, G. N. ...	Temp. Lieut. ...	R.A.M.C.
MOTTRAM, M. ...	Temp. Capt. ...	R.A.M.C. India.
MOYLE, H. H. ...	Lieut.	R.A.M.C. 143rd Field Ambulance, 28th Division, Salonika Force, 1917.
MUGFORD, J. L. ...	Lieut.	R.A.M.C. (D.)
MUIR-SMITH, E. A.	Capt.	R.F.A.
MUIR-SMITH, H. ...	Lieut.	1/7 Middlesex and M.G.C.
MUIR-SMITH, L. ...	Act.Major ...	R.A.M.C. 25th C.C.S. and 32nd Field Ambulance, Salonika, 1916—19. Caucasia (Baku), 1919.
MULLALLY, G. T. ...	Major	R.A.M.C., S.R. Surgical Specialist No. 8 C.C.S., B.E.F., France, 1914—18. Mentioned in despatches, 1916. M.C., 1917.
MULLINS, H. R. ...	Temp. Major ...	S. African M.Corps.
MULLINS, R. C. ...	Temp. Capt. ...	S.A.M.C. No. 1 S. African Gen. Hospital. Mentioned for war services, German S.W. Africa, 1915.
MUMFORD, W. G. ...	Temp. Capt. ...	R.A.M.C. Surg. Spec. Twice mentioned in desp., 1918. O.B.E., 1919.
MUNDAY, R. B. ...	Prob. Flight Sub.-Lieut.	
MUNDEN, M. M. ...	Lieut.	R.A.M.C. 89th Field Ambulance, 1917. 2nd Royal Fusiliers, 1917—18. Belgian Croix de Guerre.
MUNDEN, W. P. H.	Capt.	R.A.M.C. Attached 16th Sherwood Foresters. B.E.F., France, 1916. M.O. i/c Reserve Cavalry Aldershot, 1917.
MUNRO, D. T. ...	Temp. Surg. ...	R.N.
MUNRO, H.	Temp. Capt. ...	R.A.F
MURPHY, Sir Shirley	Lt.-Col. ...	R.A.M.C. Mentioned for war services. K.B.E., 1919.
MURRAY, C. M. ...	Act. Lt.-Col. ...	S.A.M.C. Twice mentioned in despatches, 1917—18. D.S.O., 1918.
MURRAY, H. S. ...	...	R.F.A.
MURRAY, R. W. ...	Major	R.A.M.C. Resident Surgeon, Fazakerley Hospital.
MUSGROVE, E. H. ...	Capt.	R.A.M.C. South Wales Borderers. Aden, Arabia, India.
MYOTT, E. C. ...	Temp. Capt. ...	R.A.M.C.
NASH, L. G. ...	Lieut.	R.A.M.C.
NEAL, F. D. ...	...	
NEELY, H. B. ...	2nd Lieut. ...	3rd Batt. Suffolk Regt. Killed in action, Ypres, April 25th, 1915.
NEELY, W. G. S. ...	Temp. Capt. ...	R.A.M.C. 143rd Field Ambulance.
NELSON, K. M. ...	Temp. Capt. ...	R.A.M.C. Mentioned in despatches, 1917. M.C., 1917. Wounded, 1917.
NEWLAND, W. D. ...	Temp. Capt. ...	R.A.M.C. 92nd Field Ambulance. M.C., 1918.

Newland-Pedley, F.	Dental Surgeon,	No. 2 Red Cross Hospital, Rouen.
Newman, F. C. ...	Temp. Surg.-Lieut.,	R.N. H.M.S. *Commonwealth.* Mentioned for war services, 1919
Nicholls, E. C. ...	Lieut.	Royal Berkshires. Wounded; invalided out.
Nicholls, F. J. ...	Anæsthetic ...	Kempston Red Cross Hospital.
Nichols, W. H. ...	Capt.	R.A.M.C. Accidentally killed in India, February 22nd, 1916.
Nicholson, C. R. ...	Major (Act. Lt.-Col.),	R.A.M.C. C/o St. Ignatius Hospital, Malta. Served with British Hospital attached to Serbian Army. Mentioned in despatches, 1918. Order of St. Sabe, 5th Class, by King of Serbia.
Nicholson, J. W. ...	Lt.-Col. ...	R.A.M.C. No. 1 General Hospital.
Nicol, Burton ...	Temp. Major ...	S. African M. Corps. German E. and S.W. Africa.
Ninnis, R. P. ...	Temp. Surg. ...	R.N. H.M.S. *Neptune,* Esquire of Order of St. John of Jerusalem.
Norburn, A. E. ...	Surg.	Bath War Hospital.
Norman, Albert ...	Hon. Staff of King George Hospital.	
Norman, T.	Surg. Lieut. ...	R.N. H.M.S. *Comus.* Mentioned for war services, 1919.
Northcott, J. F. ...	Surg.	H.M.T. *Malwa,* 1917—19. Employed in Mediterranean.
Nunn, G.	Surg. Commander,	R.N. Wounded. O.B.E., 1919.
Nutman, B. K. ...	Temp. Lieut. ...	R.A.M.C.
Oates, J. L. ...	...	Universities and Public Schools Battalion, Naval Division. Killed in action, 1918.
O'Callaghan, T. T.	Temp. Lieut. ...	R.A.M.C. Karachi, India.
Odgers, N. B. ...	Temp. Major ...	R.A.M.C.
Ogilvie, W. H. ...	Temp. Col. ...	I.M.S. Mentioned in despatches, E.E.F., 1918. C.M.G. Order of the Nile (3rd Class), by Sultan of Egypt, 1919.
Ogilvie, W. H. ...	Temp. Capt. ...	R.A.M.C. No. 5 General Hospital, France.
Oliver, C. H. ...	Temp. Lieut. ...	14th York and Lancaster, Machine Gun Officer.
Oliver, N.	Temp. Capt. ...	R.A.M.C. I/c No. 4 Hospital for Officers, Ham Common.
Ollis, M. S.... ...	Civil Dental Surgeon.	H.M.S. *Impregnable.*
O'Meara, E. J. ...	Lt.-Col. ...	I.M.S. Principal, Medical School, Agra. O.B.E., 1919.
O'Meara, D. J. ...	Surg. Sub. Lieut.	R.N.V.R.
Oram, R. G.... ...	Act. Major ...	R.A.M.C.
Orchard, H. P. ...	Capt.	Territorial Force.
Ord, A. G.... ...	Surg. Sub.-Lieut.,	R.N.V.R. H.M.S. *Forester.*
Ordish, F. J. ...	Lieut.	Essex Regiment.
Ormond, A. W. ...	Brevet Major ...	R.A.M.C., T. Ophthalmic Spec. to London District. O/c Ophth. Dept. 2nd London General Hospital, 1914—19. Ophth. Surg. Sir John Ellerman's Hospital.

		Ophth. Surgeon St. Dunstan's Hostel for Blinded Soldiers, 1914—19. C.B.E., Military Division, 1919.
ORMOND, S. J. ...	Capt.	R.A.M.C. Hospital at Alexandria.
OSBORN, A. G. ...	Capt.	R.A.M.C., T. M.O.. 4th Battalion Coldstream Guards. 2/4 Queen's (Royal West Surrey Regiment.) Gallipoli (Suvla Bay), Egypt, and Palestine, 1915—17. H.M. Hospital Ship *Dunluce Castle.* East Africa, 1917—18.
OSBORN, F. A. ...	Temp. Capt. ...	R.A.M.C.
OSBURN, A. C. ...	Temp Lt.-Col.	R.A.M.C. C/o Field Ambulance. Twice mentioned in despatches, 1917—18. D.S.O. and Bar, 1918
OSMAN, A. A. ...	Prob. Sub.-Lieut.,	R.N. Destroyers of Grand Fleet Flotilla. D.S.C., 1918.
OWEN, J. H.... ...	Capt.	R.A.M.C., S.R. Wounded, 1914.
OWEN, J. M.... ...	Civil Surgeon to Admiralty, Fishguard.	
OWSLEY, G. C. ...	Visiting Anæsthetist Brook War Hospital.	
OZANNE, R. C. ...	Brevet Major ...	R.A.M.C. 22nd C.C.S. B.E.F. Mentioned in despatches.
PACKER, H. D. ...	Lt.-Col. ...	R.A.M.C.
PACKHAM, G. ...	Capt.	R.A.M.C.
PAGET, P.	Lt.-Col. ...	R.A.M.C. India. Territorial Decoration, 1917.
PAKES, A. E. H. ...	Temp. Capt. ...	S. African Union Defence Force.
PAKES, W. C. C. ...	Capt. and Adjt.,	S.A.M.C. 4th F.A. German East Africa.
PALLANT, H. A. ...	Temp. Capt. ...	R.A.M.C. 1st Loyal N. Lancs. Mentioned in despatches, 1917. D.S.O., 1917. M.C. Wounded.
PALLANT, S. L. ...	Brevet Lieut.-Col.,	R.A.M.C. Twice mentioned in despatches. D.S.O., 1917.
PALMER, A. H. ...	Major	R.A.M.C., T.F. Died of wounds at Cairo, May 2nd, 1917.
PALMER, A. S. M. ...	Temp. Capt. ...	R.A.M.C. Commandant, Red Cross Hospital, Worthing.
PALMER, B. H. ...	Temp. Capt. ...	R.A.M.C. 1st Royal Lancs. Regt.
PALMER, F. W. M....	Capt.	R.A.M.C. Cliff Hospital, Felixstowe, 1916. Nos. 16 and 47. General Hospitals, France, 1916—17. 35th F.A., 1917. Medical Specialist, No. 1 C.C.S., 1917—19.
PALMER, H. J. ...	2nd Lieut. ...	D.C.L.I. Killed in action near St. Quentin, March 29th, 1918.
PALMER, H. T. ...	Temp. Capt. ...	West African Medical Staff. Cameroon Exp. Force.
PALMER, J. S. ...	2nd Lieut. ...	2nd Durham L.I. Died of wounds, 1st October, 1916.
PANTIN, C. S. ...	Temp. Capt. ...	R.A.M.C.
PANTIN, W. L. ...	Capt.	R.A.M.C.
PARFITT, F. W. ...	Pte.	A.S.C.

PARKER, W. G. ...	Capt.	R.A.M.C. Nos. 24 and 26 Stationary Hospitals, Egyptian Ex. Force, 1916—18. No. 8 P.O.W. Hosp., Belbeis, Egypt, 1918—19.
PARKES, H. P. ...	2nd Lieut. ...	
PARMITER, B. R. ...	Capt.	R.A.M.C. Connaught Hospital, Aldershot; No. 15 General Hospital, Egypt; attached 6th R.I.F., Salonica, 1915. 32nd Field Ambulance, Salonika, Egypt and Palestine, 1916—17. No. 15 General Hospital, Egypt, Nos. 43 and 67 General Hospitals, Salonika. Attached 3rd K.R.R.C. and 8th O.B.L.I., Constantinople, 1919.
PARRY, J. H. ...	Lieut.	I.M.S. Hospital Ship *Glengorm Castle*.
PARRY, L. A. ...	Temp. Capt. ...	R.A.M.C.
PARRY, R.	Temp. Lieut. ...	R.A.M.C. M.O. I/c Auxiliary Hospital, Carnarvon.
PARRY-JONES, O. G....	Capt.	R.A.M.C., S.R. Mentioned in despatches. Died of wounds.
PARRY-PRICE, H. ...	Surg. Lieut. ...	R.N. H.M.S. *Lion*.
PARSONS, J. E. H. ...	M.O.	261st Coy. R.D.C.
PARTRIDGE, A. H. ...	Red Cross Hospital, Sutton.	
PARTRIDGE, W. L. ...	Capt.	R.A.M.C. 14th Gloucester Regt. M.C.
PASSEY, R. D. ...	Temp. Capt. ...	R.A.M.C. B.E.F., France, 1914—15. Late 2nd Lieut., 3rd Gordon Highlanders, B.E.F. (combatant commission), 1915—17. B.E.F., & Italy, 1917—19. M.O., 18th K.R.R., & Bacteriol. 66th General Hospital, 1917—19. M.C., 1918. Wounded, 1916.
PAUL, F. T.... ...	Major	R.A.M.C., T.F. Surgeon, No. 1 Western General Hosp., 1915—18. Consulting Surgeon, Western Command till 1919.
PAUL, F. W. ...	Dent. Surg. ...	H.M. Hospital Ship *Garth Castle*.
PAYNE, J. Lewin ...	Hon. Consulting	Dental Surgeon to Richmond Military Hospital and Belmont Military Hospital. O.B.E., 1919.
PAYNE, O. V. ...	Temp. Capt. ...	R.A.M.C. 49th Stationary Hospital, Salonika.
PAYNE, W. W. ...	Surg. Sub.-Lieut., R.N.V.R.	
PEACOCK, R.		Killed in action, October, 1916.
PEALL, G. H. ...	Capt.	East African M.S.
PEALL, P. A. ...	Temp. Major ...	R.A.M.C. City of London War Hospital.
PEARCE, D. G. ...	Capt.	1st East Kent Regiment. Killed in action, September 3rd, 1916.
PEARCE, F. J. ...	Hon. Cons.	Dental Surg. to Military Hospitals of London, attached 1st London General Hospital. Dental Surgeon, American Red Cross Hosp.
PEARSON, G. B. ...	Capt.	R.A.M.C. Royal Berks. Hussars. Wounded at Gallipoli. Egypt.

PEARSON, J. D. ...	Capt.	R.A.M.C.
PEARSON, M.	Temp. Surg.-Lieut., R.N.	
PEATFIELD, S. J. ...	2nd Lieut. ...	Royal Berkshire Regiment. Att. M.G.C. Died of wounds, 1916.
PEATY, A. E. ...	Temp. Lieut. ...	R.A.F., Dental.
PEDLEY, C. F. ...	Surg.	Belgian Field Hospital. Chev. de l'Ordre de la Couronne, 1916.
PENDLEBURY, J. P. ...	Senior Medical Officer, Ormskirk Auxiliary Military Hospital.	
PEDRICK, P. V. G....	Hon. Lieut. ...	R.A.M.C.
PENFOLD, W. D. ...	...	Universities and Public Schools Battalion.
PENNY, C. H. G. ...	Capt.	R.A.M.C., later I.M.S.
PENNY, E. A. ...	Temp. Major ...	I.M.S. M.O. 14th Lancers, Indian Army. Mesopotamia.
PERCEVAL, J. L. ...	Capt.	R.A.M.C., S.R. 132nd Field Ambulance, B.E.F.
PERCIVAL, H. F. ...	Temp. Surg.-Lieut., R.N.	H.M.S. *Africa*. O.B.E., 1919.
PEREGRINE, H. L. P.	Surg.	R.N. Haslar Hospital, 1915. H.M. Hospital Ship *China*, 1915—18. attached Grand Fleet. H.M.S. *Crescent*, Rosyth, 1918, for ophthalmic duties.
PERKINS D. S. ...	Temp. Lieut. ...	R.A.M.C. H.M.H.S. *Goorkha*.
PERKINS, H. E. ...	Surg. Lieut. Commander.	R.N. H.M.S. *Pembroke*.
PERN, L.	Temp. Capt. ...	R.A.M.C.
PERN, Montague ...	Temp. Lieut. ...	R.A.M.C. Killed in action, 1915.
PETER, G. F. ...	Temp. Lieut. ...	R.A.M.C.
PETERS, E. A. ...	Temp. Capt. ...	R.A.M.C.
PETLEY, C. E. ...	Act. Major ...	R.A.M.C. (T.F.), transferred to Regular Force after Armistice. 2/4 London F.A., B.E.F., 1916. B.S.F., 1916—17. E.E.F., 1917 onwards. No. 121 Combnd India F.A. Sanitary Officer Cairo Dist. (D.A.D.M.S., Cairo Bde.) Mentioned for war services, 1917. M.C., 1918.
PHILLIPPS, W. A. ...	Act. Major ...	R.A.M.C. Attached East Kent Regt., 1915. I/c Medical Divn. Fort Pitt Military Hospital, Chatham, until July, 1918. Twice mentioned for war services.
PHILLIPS, E.	Act. Lt.-Col. ...	R.A.M.C. Twice mentioned in despatches, 1918. M.C., 1918. Croix de Guerre, 1919.
PHILLIPS, E. S. ...	Temp. Lieut. ...	R.A.M.C. Prisoner in Germany, 1918.
PHILLIPS, F. B. W....	Temp. Capt. ...	R.A.M.C. 1st Bedford Volunteer Regiment.
PHILLIPS, G. R. ...	Temp. Capt. ...	R.A.M.C. Wounded, 1918.
PHILLIPS, R. E. G. ...	Capt.	R.A.M.C.
PHILLIPS, W. J. ...	Capt.	A.A.M.C.
PHIPPS, J. H. ...	Lt.-Col. ...	A.M.C. O.C. 5th Australian F.A.
PICKETT, L. R. ...	Temp. Capt. ...	17th King's Royal Rifle Corps.
PICTON-PHILLIPS, W. E.	Capt.	R.A.M.C. M.O. 1st Batt. Welsh Guards.

PIERCE, C. E. ...	Temp. Capt. ...	R.A.M.C.
PIGEON, H. W. ...	Temp. Capt. ...	R.A.M.C. Attached R.A.F.
PIGGOT, A. P. ...	Temp. Capt. ...	R.A.M.C.
PIKE, D. R.	Temp. Capt. ...	R.A.M.C.
PILBEAM, E. L. ...	Temp. Capt. ...	R.A.M.C., Dental. B.E.F.
PILBEAM, L. S. ...	Lieut.	R.A.M.C., Dental.
PILCHER, E. M. ...	Lt.-Col. ...	R.A.M.C. Mentioned in despatches. 1918. Ment. for war services. C.B. 1918. C.B.E. 1919. D.S.O.
PITMAN, K. C. ...	Hon. Lieut. ...	R.A.M.C.
PITT, G. N.	Major	R.A.M.C., T.F. 2nd London General Hospital and King George Hospital. O.B.E., 1919.
PLATT, D. H.... ...	Capt.	R.A.M.C., T.F. City of London Field Ambulance.
PLATT, H.	Capt.	R.A.M.C., T. 2nd Western Gen. Hospital.
PLUMLEY, A. G. G....	Temp. Capt. ...	R.A.M.C. M.E.F.
PLUMMER, W. E. ...	Lieut.	R.A.M.C.
PLUMPTRE, C. M. ...	Capt.	I.M.S. Mentioned in despatches, 1918. Mesopotamia.
POCOCK, T. C. ...	Capt.	R.A.M.C.
POLLARD, C. A. ...	Major	R.F.A. Wounded.
POLLARD, G. S. ...	Lt.-Col. ...	R.A.M.C. Lt.-Col. 4th Somerset Light Infantry, 1914. Recruiting Officer, 1914—16. Taunton Military Hosp., 1914—15. Medical Board, 1916—19. V.D.
POLLOCK, C. E. ...	Lt.-Col. ...	A.M.S., H.Q. Staff, B.E.F. Three times mentioned in despatches. C.B.E., 1919. D.S.O.
POLLOCK, R. G. ...	M.O.	Warlingham Camp.
POMEROY, J. M. ...	Temp. Capt. ...	R.A.M.C., Dental.
PONDER, C. W. ...	Capt.	R.A.M.C. Research in cerebro-spinal meningitis for Local Government Board.
PONDER. R. R. B....	Civilian Dentist.	
POOCK, G.	Dent. Surg. ...	Royal Naval Division.
POOLE, S. K. ...	Surg.	Duchess of Portland War Hospital. Chesterfield.
POOLE, T. B. ...	M.O.	I/c Overcliff Red Cross Hospital, Westcliff-on-Sea.
PORTWAY, R. L. ...	Temp. Capt. ...	R.A.M.C.
POWELL. J. E. ...	Temp. Lt.-Col.	R.A.M.C. Mentioned in despatches D.S.O., 1917.
POWELL-SMITH, C. ...	2nd Lieut. ...	Durham Light Infantry.
POYSER, R. C. ...	Temp. Capt. ...	R.A.M.C.
PRALL, S. E. ...	Lt.-Col. ...	I.M.S. H.M. Hospital Ship *Glengorm Castle.* Mentioned in despatches, 1917.
PRENTICE, Z. ...	M.O.	No. 70 Kent V.A.D. Hospital.
PRENTIS, J. E. ...	Temp. Lieut. ...	R.A.M.C. Alexandria.
PRETORIUS, W. J. ...	Trooper ...	King Edward's Horse.
PRICE (son of J. Dodds Price), Lieut.,		King's Royal Rifles. France.
PRICE, C. E. ...	Temp. Capt. ...	R.A.M.C.
PRICE, E. S. ...	Capt.	R.A.M.C. O/c 3/6 London Field Ambulance.
PRICE, H. P. ...	Temp. Surg. ...	R.N. North Sea, Gallipoli, and Atlantic Patrol.

PRICE, J. A. P. ...	Major	R.A.M.C., T.F. I/c Surgery Section, Reading War Hospital.
PRIDEAUX, A. E. D.	...	Dorset Volunteer Regiment. Transport Department.
PRINCE, P. C. ...	Temp. Capt. ...	R.A.M.C.
PRITCHARD, G. B. ...	Act. Major ...	R.A.M.C., T.F. 2/4 London Field Ambulance. B.E.F., 1916. B.S.F., 1916—17. E.E.F., 1917—19. 121st Combined Indian F.A. Mentioned in despatches.
PRITCHETT, H. N. ...	Capt.	R.A.M.C.
PROBERT, C. M. ...	Surg. Sub.-Lieut., R.N.	
PRYN, R. H. C. ...	Capt.	R.A.M.C. Wounded, 1918.
PRYN, W. R. ...	Lieut.	R.A.M.C. Died in Belgium, 1915.
PRYN, Sir W. W. ...	Surg. Rear-Admiral, R.N.	Deputy Surg.-General I/c R.N. Hospital, Gibraltar, 1914—16. Deputy Surg.-General R.N. Hospital, Plymouth, 1916. Surg. General and Surg. Rear-Admiral I/c R.N. Hospital, Plymouth, 1917—19. C.B., Civil, 1918. K.B.E., (Military), 1919.
PUGH, H. S. ...	Capt.	R.A.M.C., Dental. 1st C.C.S
PUNCH, A. L. ...	Temp. Surg. ...	R.N. H.M.S. *Pembroke.*
PURDOM, H. N. ...	Civil Dental Surgeon to Troops, Red Cross Hospital, Clevedon.	
PURDOM, W. B. ...	Act.Lieut.-Col.	R.A.M.C. D.S.O. M.C.
PURKISS, K. N. ...	Capt.	R.A.M.C. 20th Combined Field Ambulance I.E.F. M.C., 1919.
PYE-SMITH, C. D. ...	Lt.-Col. ...	R.A.M.C. 69th F.A. M.C., 1916. D.S.O. and Bar, 1917. Twice mentioned in despatches, 1917—18.
RAHMAN, M. A. ...	Brevet Major ...	I.M.S. No. 12 Meerut Indian Gen. Hosp., I.E.F. France, 1914—15. Senior M.O. Sistan Field Force, 1915—17. D.A.D.M.S., Eastern Persian Codon Field Force, 1918. D.A.D.M.S., L.ofC., East Persia Field Force, 1918—19. Twice ment. in despatches.
RAHMAN, W. R. ...	Lieut.	1st Battalion 10th Gurkha Rifles.
RALPH, C. D. H. D.	Senior M.O. ...	Colonial Med. Service.
RAND, T. A. ...	Lieut.	2nd Wessex R.F.A.
RANDALL, C. N. ...	Temp. Lieut. ...	R.A.M.C.
RANDELL, R. M. H.	Temp. Capt. ...	R.A.M.C., T.F. V.A.D. Hospital, Kent.
RANKINE, J. L. ...	Major	R.A.M.C.
RANKINE, R. A. ...	Temp. Surg. ...	R.N. H.M.S. *Latona.* O.B.E., 1919.
RANSFORD, A. C. ...	Capt.	R.A.M.C.
RANSFORD, J. E. ...	Capt.	R.A.M.C., T.F. 2/7 Lancs. Fus.
RANSFORD, L. V. ...	Capt.	R.A.M.C., T.F.

RANSFORD, W. R. ...	Act. Major ...	1/11 Gurkha Rifles. 2nd Lieut., Indian Army Reserve of Officers, 1915. 10th Gurkha Rifles, Burma and India, 1915—17. Served as Company Commander, Mesopotamia, with 5th Gurkha Rifles (Frontier Force), 1917—18. N.W. Frontier and Afghanistan, 1919. Medal and Clasp, Afganistan, 1919.
RASHLEIGH, H. G. ...	Temp. Lieut. ...	R.A.M.C.
RATTRAY, M. G. ...	Temp. Lt.-Col.	R.A.M.C. I/c Field Ambulance.
RAWNSLEY, G. T. ...	Lt.-Col. ...	A.M.S. Three times ment. in despatches, 1916—17—18. Salonika. C.M.G., 1916. C.B, 1918.
RAY, E. R.	Surg.	County of London War Hospital.
RAYNER, A. E. ...	Act. Major ...	R.A.M.C., T.F. Mentioned in despatches, 1917. O.B.E., 1919.
RAYWOOD, J. R. I. ...	Col.	A.M.S. A.D.M.S., Midland Division. 48th Div. T.F.
READ-WILSON, A. ...	Temp. Lieut. ...	R.A.M.C. Served in Ireland, Belgium and France, 1914—15.
READER, N. C. M.	Capt.	R.A.M.C.
READER, S.	Temp. Lieut. ...	R.A.M.C.
RECKITT, Chas. E. ...	Temp. Surg. ...	R.N. Died at Haslar Hospital, 1917.
REED, J. C. G. ...	Fleet Surg. ...	R.N. H.M.S. *Thunderer.*
REES, G. H. ...	Major	R.A.M.C.
REES, M. J. ...	Temp. Capt. ...	R.A.M.C. Wounded October 22nd while attending wounded under Fire. Died of wounds, October 1916.
REEVE, E. F. ...	Capt.	R.A.M.C.
REEVE, H. M. ...	Temp. Lieut. ...	R.A.M.C.
REEVE, W.	Capt.	F.A. Section, National Reserve of New Zealand.
REEVES, Albert ...	Capt.	R.A.M.C. M.T. Reserve Depot, A.S.C., Grove Park and Upper Norwood, 1916—19.
REID, A.	Capt.	R.A.M.C., T.F. 1st London Sanitary Company, 1915. O.C. 57th Sanitary Sect., 1916. Specialist Sanitary Officer, 1917.
REID, Edgar ..	Major	R.A.M.C. 3rd Western General Hospital, Cardiff.
REINHOLD, C. H. ...	Temp. Lieut.-Col.,	I.M.S. 111th Indian Field Amb. E.E.F. Twice ment. in despatches. M.C.
REMINGTON, W. ...	Pte.	Artists' Rifles.
RENDALL, R. M. ...	Lieut.	R.A.M.C.
REYNELL, W. R. ...	Capt.	R.A.M.C. The Coulter Hospital,
REYNOLDS, A. J. ...	Dental Surgeon	to troops, Yarmouth.
REYNOLDS, L. G. ...	Temp. Lieut. ...	R.A.M.C.
REYNOLDS, L. L. C....	Lt.-Col. ...	I/c 1st Battalion Oxford & Bucks L.I. D.S.O. Wounded.
REYNOLDS, Russell J.	Temp. Lieut. ...	R.A.M.C. Radiologist to Tooting and Streatham War Hospital.
REYNOLDS, W. ...	Capt.	R.A.M.C. Canadian A.M.C.

Reynolds, W. L. E.	Capt.	R.A.M.C. 56th Field Ambulance, 1915—16. M.O. i/c 7th Batt. Royal West Kent Regt., 1916—18. 15th Convalescent Depot, 1918. 2nd Cavalry Div., B.E.F. and Germany. 155th Field Ambulance, North Russian Relief Force, 1919. M.C., 1917.
Rice, H. G.	Capt.	R.A.M.C. Attached Durham Light Infantry. Salonika. Wounded.
Richards, D. O. ...	Capt.	R.A.M.C. 29th General Hospital. 68th Field Ambulance. M.O. i/c 9th K.O.R.L. Regt., Salonika, 1916—17. River Sick Convoy Unit, M.O. i/c Paddle Ambulance, No. 2, Mesopotamia, 1918—19.
Richards, E. H. ...	Ordinary Seaman,	R.N.D., Crystal Palace. Invalided, May, 1916.
Richards, E. H. R....	2nd Lieut. ...	21st Manchesters. Killed in action at Croisilles, April 2nd, 1917.
Richards, J. F. G....	Capt.	R.A.M.C. 15th F.A. Ment. in despatches. D.S.O., 1918.
Richards, J. G. ...	2nd Lieut. ...	66th East Lancs. Divisional Cyclist Company. T.F.
Richards, L. P. ...	Temp. Lieut. ...	R.A.M.C., Dental.
Richards, N. L. ...	Fleet Surg. ...	R.N.
Richards, Owen ...	Temp. Capt. ...	R.A.M.C. Ment. in despatches. D.S.O.
Richardson, I. K. ...	Staff Surg. ...	R.N.
Richardson, H. ...	Temp. Col. ...	R.A.M.C. D.S.O., 1918. A.D.M.S. Twice mentioned in despatches. Egyptian E.F.
Richardson, P. L. ...	Surg. Sub.-Lieut.,	R.N.V.R.
Richardson, W. S. ...	Capt.	R.A.M.C., T.F. Surg. Specialist, No. 29 C.C.S. Served in Belgium, France and with Army of Occupation in Germany.
Riches, L. V. H. ...	Temp. Lieut. ...	R.A.M.C., Dental.
Riddiough, S. ...	Lieut.	R.A.M.C., S.R.
Rigby, J. A.	Temp. Major ...	R.A.M.C. T.D.
Riley, C. Meadows...	Surg. Lieut. ...	R.N.
Ring, C. A. E. ...	Lieut.	R.A.M.C. Salonika.
Ripman, C. H. ...	Temp. Lieut. ...	R.A.M.C.
Risdon, T. O. ...	...	
Rivers, A. T. ...	Surg. Lieut.	Commander, R.N. Mentioned in despatches. Radiographer, Chatham Hospital.
Roberts, Astley C....	Col.	O.C. 2nd Home Counties Brigade R.F.A. India.
Roberts, C. S. Lane	Temp. Capt. ...	R.A.M.C. B.E.F. Ment. in desp.
Roberts, D. W. O.	Lieut.	R.A.M.C.
Roberts, E. C. ...	Temp. Capt. ...	R.A.M.C.
Roberts, H. Jones ...	Lt.-Col. ...	R.A.M.C.
Roberts, H. W. ...	Surgeon Colonel,	National Reserve. V.D.
Roberts, R. ...	Temp. Capt. ...	R.A.M.C.
Roberts, R. J. ...	C.M.P. ...	C.O. Auxiliary Hospital, Ventnor, and M.O. i/c Troops, Ventnor District.

Roberts, R. T. F. D.,	Temp. Surg Lieut.,	R.N. H.M.S. *Sydney* and Haslar Hospital.
Roberts, T. E. ...	Capt.	R.A.M.C. T.F. No. 62 Field Amb. B.E.F., 1915—18. No. 5 and 53 C.C.S., 1918. No. 39 Stationary Hospital, Lille, 1919. Wounded.
Roberts, T. H. F. ...	Temp. Capt. ...	R.A.M.C.
Roberts, W. O. ...	Temp. Lieut. ...	R.A.M.C.
Robertson, E. Guy...	Temp. Capt. ...	R.A.M.C. Died 28th Oct., 1918.
Robertson, G. S. ...	Temp. Capt. ...	R.A.M.C.
Robertson, J. ...	Lt.-Col. ...	R.A.M.C. Mentioned in despatches, 1917. Mentioned for war services, 1917.
Robertson, J. C. ...	2nd Lieut. ...	Cameron Highlanders, Killed in action, 1917.
Robertson, J. F. ...	Capt.	R.A.M.C. Ment. in despatches.
Robinson, F. C. ...	Surg. Commander,	R.N. H.M.S. *Forward.*
Robinson, G. C. ...	Capt.	R.A.M.C.
Robinson, J. F. ...	Temp. Capt. ...	R.A.M.C. 2/2nd South Midland Field Amb., and 3rd Southern General Hospital.
Robinson, J. H. ...	Lt.-Col. ...	R.A.M.C. D.A.D.M.S. 2nd Rawal Pindi Division.
Robinson, W. ...	Temp. Major ...	R.A.M.C. Sunderland War Hosp.
Robinson, W. B. ...	R.M.O. ...	Chelsea Military Hospital. Died.
Robinson, W. E. ...	Anæsthetist ...	King George Hospital.
Robinson, W. H. ...	Lieut.	R.A.M.C. Mesopotamia, 1916—17.
Robson, T. S. ...	Temp. Lieut. ...	R.A.M.C.
Robson, W. M. ...	Temp. Major ...	R.A.M.C.
Roche, E. H. ...	Capt.	R.G.A. M.C., 1916.
Rodgers, N. P. ...	Hon. Dental Surgeon to Auxiliary Military Hosp., Southall.	
Rogers, F. E. W. ...	Act. Major ...	R.A.M.C., T.F. Ment. in despatches, 1918.
Rogerson, F. ...	Temp. Lieut. ...	R.A.M.C.
Rook, A. F.	Temp. Capt. ...	R.A.M.C. Attached R.A.F.
Rook, H. C. ...	Brevet Major ...	R.A.M.C., S.R. No. 4 Cavalry Field Ambulance, 1914, B.E.F. 11th Gloucester Regt., 1915. Cameroon Exp. Force, 1915—16. Ophthalmic Resident, 2nd London General Hospital, Chelsea, 1917—18. D.A.D.M.S. Allied Forces, Archangel, North Russia, 1918—19. Ment. for services rendered in England, 1917.
Rooke, E. M. ...	Temp. Capt. ...	R.A.M.C.
Roome, A. M. ...	Temp. Capt. ...	R.A.M.C. Attached 1/7 Highland Light Infantry.
Rooney, J. J. F. ...	Lieut.	4th Lancashire Fusiliers. Attached to 1st and 10th Batt., B.E.F., 1915—18. Twice wounded.
Roper, R. S. ...	Temp. Lieut. ...	R.A.M.C.
Rose, Percy	Temp. Capt. ...	R.A.M.C
Rosenberg, I. ...	...	
Ross, J. Hampden ...	Pte.	4th Devon T.F. Died of wounds in Mesopotamia, 5th June, 1916.

ROUTH, Chas. F. ...	Lt.-Col. ...	R.A.M.C. M.O. i/c Med. Section, 5th Southern General Hospital, Portsmouth. Mentioned for war services.
ROUW, R. Wynne ...	Hon. Con. Dent. Surg., attached London Hospitals.	
ROWELL, G.	Anæsthetist ...	King George Hospital. Died.
ROWELL, H. Ellis ...	Lt.-Col. ...	O/c 2/5 Norfolk Regt. Territorial Decoration. Ment. in despatches, July, 1916.
ROWLAND, E. W. S....	Temp. Capt. ...	R.A.M.C. 3rd Southern General Hospital and i/c Reading War Hospital, No. 2.
ROWLAND, F. W. ...	Capt.	R.A.M.C. Military Hospitals at Colchester and Woodstock Park, Epsom, 1915—17. H.M.H.S. *Kalyan*, 1917—18, and Archangel, Russia, 1918—19.
ROWLANDS., R. P. ...	Capt.	R.A.M.C., T.F. Surgeon to 2nd London Hospital. O.B.E., 1919.
ROWLETT, A. E. ...	Hon. Consulting Dentist to 5th Northern General Hospital.	
RUCK, C. F. L. ...	Lieut.	R.A.M.C., T.
RUDD, F. E. ...	Temp. Lieut. ...	R.A.M.C., Dental.
RUSSELL, G. H. ...	Temp. Capt. ...	R.A.M.C.
RUSSELL, J. W. ...	Major	R.A.M.C., T.F. 1st Southern Gen. Hospital.
RUST, A. B. Wills ...	Temp. Capt. ...	R.A.M.C. C.O. Dental work at Malta.
RYAN, T. F. ...	Temp. Capt. ...	R.A.M.C. Missing, 1917. Prisoner of war; transferred home, 1918.
RYCROFT, E. C. ...	Temp. Lieut. ...	R.A.M.C., Dental.
RYFFEL, J. H. ...	Capt.	R.A.M.C., T.F.
RYLE, J. A.	Capt. (Act. Major), R.A.M.C., S.R. M.O. i/c Base Details, 1914—15. No. 7 Gen. Hospital, St. Omer, 1915—16. Medical Specialist, No. 10 C.C.S., 1916—18. 94th F.A., 1918.	
RYLEY, C. M. ...	Temp. Surg. Lieut., R.N.	
SALT, H. O. ...	Temp. Lieut. ...	R.A.F., Dental.
SALVAGE, J. V. ...	Lt.-Col. ...	R.A.M.C. Ment. for war services.
SAMPSON, B. ...	Temp. Surg. ...	R.N. Haslar Hospital.
SAMPSON, W. ...	Capt	R.A.M.C. 3rd London General Hospital.
SAMUELS, Isidore ...	Médecin Dentiste, Croix Rouge Française.	
SAMUT, R. P. ...	Temp. Lieut.-Colonel, R.A.M.C. King's Own Malta Regiment of Militia. Mentioned for war services.	
SAMWAYS, D. W. ...	M.O.	No. 5 War Hospital Exeter. 1915—19.
SANDFORD, H. A. ...	Lieut.	R.A.M.C.
SANDISON, A. ...	Capt. (T.C.)., R.A.M.C. Royal Herbert Hospital. 1916. No. 17 Gen. Hosp., Egypt 1916—17. B.E.F. France, 1917	

		—19. Acting Assistant Inspector of Drafts and President Standing Medical Board, Boulogne, and Senior Medical Officer Rest Camps, Boulogne.
SANDOE, M. W. A....	2nd Lieut. ...	9th Devons. Served in France and Belgium. Killed in action May 7th, 1917.
SANER, F. D. ...	Temp. Capt. ...	R.A.M.C. Surgeon No. 9 Red Cross Hospital, B.E.F.
SANER, J. G. ...	...	R.A.M.C.
SANFORD, D. ...	Temp. Capt. ...	Australian Transport Service.
SAUL, E. R. ...	Temp. Lieut. ...	R.A.M.C. Advisory Dental Officer Bedford District.
SAUNPERS. S. J. ...	Temp. Lieut. ...	R.A.M.C., Dental.
SAUNDERS, S. McK.	Capt.	R.A.M.C. Ment. in despatches, 1917. Sedan.
SAVAGE, P. ...	Lieut.	I.M.S.
SAVATARD, L.... ...	M.O.	I/c Heyesleigh Auxiliary Military Hospital.
SAW, N. H. W. ...	Capt.	R.A.M.C. M.O. i/c 4th Battalion Worcester Regt. M.C., 1916. Killed in action, Oct. 9th, 1917.
SAWARD, A. H. M....	Temp. Capt. ...	R.A.M.C. Hon. Surgeon Richmond Red Cross Hospital.
SAWDAY, A. E. ...	Pte.	Inns of Court O.T.C.
SCHOFIELD, G. ...	Temp. Major ...	R.A.M.C.
SCOTT, A.	Act. Major ...	R.A.M.C., Dental.
SCOTT, B. C.... ...	Temp. Capt. ...	R.A.M.C.
SCOTT, D. C. ...	Capt.	R.A.M.C. 35th Field Ambulance, 1914. Dardanelles, 1915. 1st West Riding Field Amb. B.E.F., France, 1916. 1/4 West Riding Regt., 1917. 10th Field Amb., attached 1st Rifle Brigade and 1st Somerset L.I. D.A.D.M.S. 22nd Corps, attd. D.M.S. Office, G.H.Q. Rhine Army. Gassed. 1917. O.B.E.
SCOTT, E. D. ...	Temp. Surg. ...	R.N. R.M.O. Queen Mary's R.N. Hospital, Southend. O.B.E.
SCOTT, G	Anæsthetist ...	Tooting Military Hospital.
SCOTT, M.	Capt.	R.A.M.C. M.O. 1st Norfolks.
SCOTT, P. D.... ...	Temp. Capt. ...	R.A.M.C.
SCOTT-PILLOW, H. M.	2nd Lieut. ...	R.F.C. Killed in action, August 8th, 1917.
SEABROOKE, A. ...	Capt.	R.A.M.C. Died, 1916, in Mesopotamia.
SEARLE, Chas. F. ...	Major	R.A.M.C. 1/4th Northamptons. Twice mentioned in despatches. M.C., 1917. Wounded.
SECCOMBE, S. H. ...	Major	Australian A.M.C.
SECRETAN, W. B. ...	Capt.	R.A.M.C., T.F.
SELLS, H. T. ...	M.O.	I/c Rosherville V.A.D. Hospital.
SELLS, R.	Surg.	R.N. Queen Mary's Royal Naval Hospital, Southend.

SEYMOUR-PRICE, P. ...	Major	R.A.M.C., T.F. Home, 1914. Adjutant, 6th London F.A., O.C. 3/6 F.A., 1915—17. Brit. Salonika Force, O.C. R.A.M.C. Base Depot, 1917—18. Registrar, Nos. 28 and 36 General Hospitals, 1918. O.C., Nos. 2 and 8 Convalescent Depots. D.A.D.M.S., G.H.Q. Staff, 1919. Twice mentioned in despatches, 1918 and 1919.
SHACKLOCK, G. A. S.	Temp. Surg. ...	R.N. H.M.S. *Collingwood.*
SHAHEEN, Kersan ...	Surg.	I/c Ear and Throat Department, Kasr-el-Ainy Hospital, Cairo.
SHANNON, S. S. H.	Staff Surg. ...	R.N.
SHARP, H.	Hon. Surg. ...	Royal Naval Auxiliary Hospital.
SHARP, N. A. D. ...	Temp. Lieut. ...	R.A.M.C. Att. Nigerian Regiment. Received thanks of H.M. Government. M.C.
SHARPE, H. ...	Brevet Major ...	R.A.M.C.
SHARPE. S A. ...	2nd Lieut. ...	R.F.C.
SHARPLEY, T. S. ...	Temp. Lieut. ...	R.A.M.C.
SHAW, G. D. ...	Lieut	R.F.A., B.E.F., France & Italy. Ment. in despatches, 1917. M.C. 1917. Wounded, 1917.
SHAW, T. A. ...	2nd Lieut. ...	R.F.A.
SHEAF, E. W. ...	Temp. Capt. ...	R.A.M.C.
SHEARWOOD, A. L. ...	Act. Major ...	R.A.M.C., S.R. 34th Field Amb. Wounded at Suvla and ment. in despatches, 1918. M.C., and bar, 1918.
SHEEN, A. W. ...	Col.	R.A.M.C. I/c 34th (Welsh) Gen. Hospital. Late Consulting Surgeon, Bombay. Ment. in desp., 1918. C.B.E., 1918.
SHELDON, T. M. ...	Capt.	R.A.M.C. 139th Field Ambulance. B.E.F.
SHELDON, T. S. ...	M.O.	I/c Park Hall Camp, Oswestry.
SHELSWELL. A. H. ...	Sub.-Lieut. ...	R.N.V.R.
SHENTON, E. W. H.	Radiographer,	Hampstead Military Hospital.
SHEPHERD, C. ...	Capt.	Australian A.M.C.
SHELTON, H. L. C....	Temp. Capt. ...	R.A.M.C. Royal Fusiliers (Labour Bat.) Ment in desp., 1917.
SHEPHERD-TURNEHAM, N. P., Capt.		Yorkshire Reg. Killed in action.
SHERRIS. C	Capt.	R.A.M.C. 65th Wing, R.A.F.
SHIPWAY, F. E. ...	Hon. Anæsthetist,	King George Hospital, Fishmonger's Hall Hospital, Coulter Hospital, and others.
SHORLAND, E. T. ...	M.O.	Haywood Subsidiary Hospital.
SHORLAND, George ...	Temp. Surg. ...	R.N. Died in action on H.M.S. *Invincible*, Jutland Battle.
SICHEL, G. T. S. ...	Temp. Major ...	R.A.M.C. Mentioned for war services, 1917.
SIDEBOTHAM, F. N....	Capt	R.A.M.C., S.R.
SILK, J. F. W. ...	Lt.-Col. ...	R.A.M.C. Consulting Anæsthetist, Malta, 1915—16. Home Commands, 1916—1919.
SIMMINS, A. G. ...	Surg.	R.N. H.M.S. *Bellerophon.*

SIMMONDS, G. W. ...	Temp. Capt. ...	R.A.M.C. B.E.F.
SIMMS, Harold ...	Civil Dent. Surg.,	2nd General Western Hospital.
SIMONS, G. E. L. ...	Capt.	R.A.M.C., S.R.
SIMPSON, G. S. ...	Temp. Capt. ...	R.A.M.C., T.F. Northern General Hospital.
SIMSON, H. ...	Acting Colonel,	R.A.M.C.
SKELTON, W. Bevill...	M.O.	I/c Fort Gomer, Gosport.
SLATER, W. A. ...	Temp. Capt. ...	R.A.M.C.
SLESINGER, E. G. ...	Temp. Surg.-Lieut.,	R.N. Gallipoli and France. Ment. in despatches. O.B.E., 1919. Croix de Guerre, 1915.
SMALL, D. F. ...	Capt.	R.A.M.C. Attached 15th Cheshire Regiment. Wounded and missing, 1918.
SMART, H. D. ...	Major	R.A.M.C. Attached Lancs. Regt. Twice mentioned in despatches. M.C. Wounded, 1917.
SMEDLEY, R. D. ...	Temp. Capt. ...	R.A.M.C.
SMITH, A. Ayre ...	Temp. Lieut.-Colonel,	R.A.M.C., T.F. Assistant Director of Dental Service.
SMITH, A. H. ...	Capt.	R.A.M.C. Wounded, 1917.
SMITH, A. Henry ...	Civil Dent. Surg.,	3/4 Welsh Brigade R.F.A.
SMITH, C. R.... ...	Capt.	R.A.M.C.
SMITH, D. W. ...	Capt.	R.A.M.C. Att. 6th Manchester Regt. Killed in action, Fricourt, July, 1916.
SMITH, E.	Temp. Capt. ...	R.A.M.C., Dental.
SMITH, E. Bellingham	Capt.	R.A.M.C. Egypt and Serbia.
SMITH, E. G. ...	Capt.	S.A.M.C. Ment. in desp., 1917.
SMITH, F. J. ...	2nd Lieut. ...	1/4 King's Own Royal Lancs. Regt., late 4/2 City of London R.F., and 8th O.C.B. Twice wounded at Ypres.
SMITH, F. M. V. ...	Surg. Lieut. Commander,	R.N. H.M.S. *Chaguinola*. Retired, 1918.
SMITH, G. Warwick...	Capt.	A.M.S. H.Q. Staff. Twice mentioned in despatches, 1917 and 1918. O.B.E., 1919.
SMITH, H. Joste ...	Capt.	R.A.M.C., T.F. East Anglian F.A. M.C., 1917.
SMITH, H. L. ...	Temp. Capt. ...	R.A.M.C.
SMITH, Philip ...	Temp. Capt. ...	R.A.M.C. Twice ment. in desp. M.C. Wounded, 1915.
SMITH, W. H. M. ...	Temp. Lieut. ...	R.A.M.C.
SMYTH, W. J. D. ...	Temp. Capt. ...	R.A.M.C.
SMYTHE, W.	Lieut.	R.A.M.C.
SNELL, Herbert ...	2nd Lieut. ...	Lancs. Fusiliers. Killed in action, 9th April, 1917.
SNELL, Norris... ...	Capt.	8th East Yorks. Regt. Killed in action, 14th July, 1916.
SNOW, Chas. F. ...	2nd Lieut. ...	R.F.A. Killed in action.
SOLOMON, E. E. ...	Capt.	R.F.A. Hampshire R.G.A., T.F.
SOOTHILL, V. F. ...	Major	R.A.M.C. 11th Field Ambulance, 4th Division R.E. No. 7 Convalescent Depot. 1st Somerset L.I. 12th and 10th Field Ambulance. British Exp. Force, Belgium and France, 1914—19. Mentioned in despatches.

SOPER, A. W. ...	Temp. Capt. ...	R.A.M.C.
SOPER, G. B. S. ...	Lieut.	R.A.M.C. Hospital Ship *Ebani*, East Africa.
SOUTHGATE, H. W. ...	Surg. Sub.-Lieut.,	R.N.V.R.
SOUTHWELL, C. S. ...	Lieut.	R.A.M.C., Dental.
SOWERBY, V. H. ...	2nd Lieut. ...	Lincs. Regiment. Killed in action, August 1st, 1917.
SPALDING, F. L. ...	Temp. Lieut. ...	R.A.M.C.
SPENCER-PAYNE, A. L.	Temp. Surg. ...	R.N. H.M.S. *Roxburgh.*
SPICER, A. H. ...	Temp. Capt. ...	R.A.M.C. Mentioned in despatches 1917. Order of St. Anne (Russian) 3rd Class.
SPILLER, J. E. ...	Civ. Dent. Surg.,	Queen Mary's Hospital.
SPON, H. J. ...	M.O.	Private Hospital for Officers.
SPONG, R. W. ...	Lieut.	R.A.F., Dental. Died on service. Shorncliffe, Oct. 30th, 1918.
SPRAGUE, C. G. ...	Surg. Lieut. Commander,	R.N. H.M.S. *Thistle.* Mentioned in despatches, 1917. North Sea, 1914—15. E. Africa, 1916—18. North Russia, 1919.
SPRIGGS, N. I. ...	Capt.	R.A.M.C. 1/5 Northern Base Hospital.
SPURRELL, W. Roworth	Lieut.	R.F.A. Artists' Rifles, B.E.F., 1915—16. R.A. Cadet School, Exeter, 1916—17. D/170 Bde. R.F.A. B.E.F., France, 1917—18. Wounded, 1917, at Vimy Ridge.
STACEY, J. E. B. ...	2nd Lieut. ...	Killed in action.
STAINER, Claude H.	Lieut.	Loyal North Lancs. Killed 15th November, 1916.
STALEY, R. C. W. ...	Temp. Surg. ...	R.N. 19th Royal Fusiliers, 1914—15. H.M.S. *Marjoram.* 1918. 42nd Division, B.E.F., France, 1918.
STALLMAN, J. F. H.	Temp. Capt. ...	R.A.M.C. Mesopotamian E. Force, 1917—18. Surgical Specialist, 8th Indian General Hospital Tanoomah-Basra, 1917-18. Venereal Specialist 21st Indian Gen. Hospital, Amarah, 1918. No. 2 British General Hospital Refugee Camp, Bakuba, 1918—19.
STAMFORD, R. B. ...	Temp. Capt. ...	R.A.M.C. South Africa.
STAMM, L. E. ...	Lieut.	R.A.F. M.O., Home Stations, chiefly Northolt Aerodrome.
STAMP, L. D. ...	Temp. Capt. ...	R.A.M.C. M.O. i/c 3rd E. Lancs.
STANSFIELD, T. ...	Temp. Capt. ...	R.A.M.C. Att. Manchester Regt. Mentioned in despatches, 1917. Wounded 1917.
STANWELL, W. A. ...	Lieut.	3rd Lancashire Fusiliers. Killed in action, July 9th 1915.
STARLING, E. C. W.	Capt.	R.A.M.C., S.R. 9th King's Own Yorkshire L.I., B.E.F. M.C., 1917. Wounded, 1918.
STARLING, E. H ...	Lt.-Col. ...	R.A.M.C. Mentioned in despatches, 1917. C.M.G.
STARLING, H. J. ...	Capt.	R.A.M.C.

STATHAM, J. C. B. ...	Col.	R.A.M.C. A.D.M.S. Lines of Communication, Salonica. C.M.G. C.B.E., 1919.
STEAD, C. C. ...	M.O.	V.A.D. Hospital, Hawkhurst.
STEBBING, G. F. ...	M.O.	Royal Marine Depôt, Queenstown
STEEL, R.	Temp. Lieut. ...	R.A.M.C.
STEELE, R	M.O.	Auxiliary Military Hosp., Hampstead.
STEELE, W. K. ...	Lt.-Col. ...	R.A.M.C.
STEELE-PERKINS, D.	Temp. Capt. ...	R.A.M.C.
STEELE-PERKINS, J. S.	Act. Major ...	R.A.M.C.
STEINBACH, H. ...	Lieut.	R.A.M.C.
STENHOUSE, J. R. ...	Capt.	R.A.M.C.. T.F. R.M.O. 2nd East. General Hospital.
STEPHEN, L. H. Y. ...	Temp. Capt. ...	R.A.M.C. Mentioned for war services. Died on service, 1918.
STEPHENS, H. F. ...	Temp. Capt. ...	R.A.M.C.
STEPHENS, Lockhart	M.O	Northlands Auxiliary Hospital, County Director for Herts of British Red Cross. C.B.E.
STEPHENSON, John ...	Act. Major ...	R.A.M.C. B.E.F.. France, 1915—18. Twice mentioned in despatches, 1917. M.C. and Bar, 1917.
STERNE-HOWITT, H.	Capt.	S.A.M.C. S.A.M. Hospital, Richmond, Surrey.
STEVENS, John ...	Capt.	R.A.M.C. Aldershot and London Commands, 1916—19.
STEVENS, T. G. ...	Temp. Capt. ...	R.A.M.C.
STEVENSON, C. M. ...	Capt.	R.A.M.C. Trooping, America and West Indies, 1917.
STEWARD, F. J. ...	Temp. Lt.-Col.	R.A.M.C., T.F. 2nd London Gen. Hospital, 1914—19. 53rd Gen. Hospital. B.E.F., France. 1917
STEWART, H. ...	Temp. Lt.-Col.	R.A.M.C. Twice mentioned in despatches, 1917.
STEWART, J. L. ...	Temp. Capt. ...	R.A.M.C. Gordon Highlanders. Twice mentioned in despatches. 1918. M.C., Bar to M.C., D.S.O. Wounded.
STEYN, S. S. L. ...	Lieut.	115th Brigade, R.F.A. Killed in action, 1915.
STIVEN, F. W. ...	...	Royal Fusiliers.
STOHR, F. O. ...	Temp. Capt. ...	R.A.M.C.
STOKER, G. M. ...	Lieut.	R.F.A. 458 Army Bde., B.E.F.. 1917—18.
STOKES, D. L. ...	2nd Lieut. ...	Royal West Kents.
STONE, C. H. ...	2nd Lieut. ...	L.R.B.
STONE, E. R. ...	Temp. Capt. ...	R.A.M.C.
STONE, F. D. S. ...	Temp. Capt. ...	R.A.M.C.
STONE, F. W. ...	Hon.Capt. ...	R.A.M.C. Mentioned for war services, 1917.
STONER, P. B. ...	Capt.	A.S.C. Salonika.
STOTT, H.	Major	I.M.S. Mentioned in despatches. O.B.E., 1918.
STOTT, M.	Temp. Capt. ...	R.A.M.C.
STOUT, R.	Capt	N. Z. Medical Corps.
STOUT, T. D. M. ...	Temp. Major ...	N.Z.M.C. Ment. in despatches. D.S.O., 1917.

STRANACK, W. S. ...	Temp. Lieut. ...	Queen Victoria Rifles. Wounded at Gommecourt, 1916.
STRANGE, E. W. ...	Temp. Capt. ...	R.A.M.C., T.F. 1/3 North Midland F.A.
STRINGER, L. B. ...	Capt.	R.A.F. (Medical), late Surgeon, R.N., H.M.S. *Victory*.
STROVER, H. C. ...	M.O.	1/c V.A.D. Hospital, 1916—19. I/c P.O.W. Camp, 1916—19.
STUART, H. D. ...	Lt.-Col. ...	R.A.M.C. 8th Lincs. Regt. Twice ment. in despatches. D.S.O., 1917.
STUART, J. A. W. ...	Lieut.	R.A.M.C., Dental. Salonika.
STUART, W. L. ...	Temp. Lieut. ...	R.A.M.C.
SUMMERSKILL, W. H.	Surg. Sub-Lieut.,	R.N.V.R.
SUTTON, A.	Col.	A.A.M.C. 2nd Australian Divsn. A.D.M.S. C.M.G.
SWAN, R. H. J. ...	Major	R.A.M.C. Senior Surg. to Royal Herbert Hospital. Consulting Surgeon, Woolwich District, Eastern Command, 1914—19. Various Casualty Clearing Stations, B.E.F., France; Surg., Queen Mary's Royal Naval Hospital. Southend; Royal Air Force Hospital, 1917. Ment. in desp., 1917. O.B.E. (Military), 1918.
SWAYNE, W. C. ...	Major	R.F.A., T.F. V.D. Bristol University O.T.C., 1914. O.C. N.Z. (Reserve) F.A., 1916. Attached 2nd Southern General Hospital, and Standing Medical Board No. 2 Area S.C., 1917.
SYMNS, J. L. M. ...	Capt.	R.A.M.C. 88th Field Ambulance.
SYMONDS, Sir Charters J.,	Temp Col.,	R.A.M.C. Consulting Surgeon. Royal Victoria Hospital. Netley. Ment. in despatches, Salonika. C.B., 1916. C.M.G. K.B.E., 1919.
SYMONDS, C. P. ...	Capt.	R.A.M.C. Médaille Militaire as Combatant at Mons.
SYMS, G. F. ...	Surg.	R.N.
SYMS, J. L.	Lieut	R.A.M.C., T.F.
TAIT, E. S.	Lieut.	R.A.M.C. Egypt.
TANNER, W. E. ...	Capt.	R.A.M.C. Surg. Derby War Hospital, Warrington, 1917—8. Surgical Specialist, Military Hosp., Gibraltar, 1918—19.
TAYLOR, A. D. Vernon	Capt.	R.A.M.C.
TAYLOR, A. S. ...	Capt.	2nd Surrey Vol. Corps. Visiting Surgeon Kingston and District Red Cross Hospital, 1915—19. Surgeon Oakenshaw Anx. Hosp., 1914—18.
TAYLOR, A. S. ...	Temp. Capt. ...	R.A.M.C.
TAYLOR, C. D. L. ...	Temp. Lieut. ...	R.A.M.C., Dental.

TAYLOR, Sir E. Stuart,	Act. Major,	R.A.M.C., T.F. Adviser in Anæsthetics, 5th Army. B.E.F., France, 1915—19. Twice mentioned in despatches. O.B.E. (Military), Médaille des Epidemics (French)
TAYLOR, J. G. ...	Temp. Major ...	R.A.M.C. Mentioned for war services, 1917.
TAYLOR M. Bramley	Lieut.	R.A.M.C. Wounded, 1917, at Langsmarees. M.O. attached 53rd Field Ambulance. M.O. i/c 7th East Yorks. Reg., B.E.F. France and Belgium, 1917.
TAYLOR, W. B. ...	M.O.	Red Cross Society.
TAYLOR, W. P. ...	Temp. Lieut. ...	R.A.M.C.
TELLING, W. H. M.	Temp. Lieut.-Col.,	R.A.M.C. 2nd Northern General Hospital.
TEMPLE. P. G. ...	Lieut.	R.A.M.C.
THOMAS. A.	Major	R.A.M.C., T.F. O.C. 266th Bde. R.F.A. Mentioned in despatches, E.E.F., 1918. Territorial decoration.
THOMAS. A. R. ...	Surg. Commander,	R.N. H.M.S. *Talbot,* 1914—15. Served at Gallipoli (both landings). R.N. Hospital, Malta, 1915—19. North Russian E.F., 1919. O.B.E., 1919.
THOMAS. C. E. ...	2nd Lieut. ...	5th East Kent (Buffs). Mesopotamia.
THOMAS, F. G. ...	Capt.	R.A.M.C., T.F. Ophthalmic Surgeon, 3rd Western Gen. Hosp.
THOMAS, F. L. ...	Temp. Lieut. ...	R.A.M.C. Mesopotamia. 21st Indian General Hospital.
THOMAS, T. M. ...	Major	R.A.M.C., T.F.
THOMAS. T. P. ...	Capt.	R.A.M.C., T.F. O.C. Military Hospital, Brecon.
THOMAS. W. M. ...	Temp. Lieut. ...	R.A.M.C.
THOMPSON, A. R. ...	Capt.	Artists' Rifles. Consulting Surg., Grove Military Hosp., Tooting, S.W.
THOMPSON. F. C. L.	Lieut.	R.A.M.C. Salonika.
THOMPSON. G. G. ...	Capt.	R.A.M.C.
THOMPSON. H. Q. F.	...	Anglo-Russian Hosp., Petrograd.
THOMPSON, I. M. ...	Capt.	R.A.F., Dental.
THOMPSON. Robert ...	Temp. Major ...	Australian M.C.
THOMSON. C. B. ...	M.O.	V.A.D. Hospital, Wimborne.
THOMSON, D. A. ...	Temp. Lieut. ...	R.A.M.C.
THOMSON, G. ...	Capt.	R.A.M.C., T.F. Wounded, 1917.
THOMSON. G. Y. ...	Capt.	R.A.M.C. I.M.S. 10 General Hospital. Mesopotamia.
THOMSON, J. M. ...	Surg. Sub-Lieut.,	R.N. H.M.S. *Strongbow.* Wounded, 1917.
THORN, H. L. ...	Temp. Capt. ...	R.A.F.
TICEHURST, C. B. ...	Temp. Capt. ...	R.A.M.C.
TICEHURST, G. A. ...	Capt.	R.A.M.C. 33rd Field Ambulance. France, 1916—17. Served at Gibraltar, 1918—19.

TICEHURST, N. F. ...	R.M.O. ...	I/c Auxiliary Military Hospital, Normanhurst, 1915—19. Ment. War Office List, 1919 O.B.E., 1919.
TILBURY, A.	Capt.	R.A.M.C. Missing, believed drowned on transport *Transylvania*, May 4th, 1917.
TILBURY, R. ...	Temp. Lieut. ...	R.A.M.C.
TIMPSON, G. G. ...	Temp. Capt. ...	R.A.M.C. No. 6 Casualty Clearing Station, B.E.F. Mentioned in desp., 1917. Wounded, 1918.
TIPPER, E. H. ...	Senior M.O. ...	Colonial Medical Service, Nigeria.
TIPPER, F. J. ...	Major	R.A.M.C., Dental. Dental Officer, Royal Herbert Hosp., Woolwich, 1914. Advisory Dent. Officer, Woolwich District, 1915—16. Inspecting Dent. Officer, Eastern Command, 1916—19.
TIPPING, H.	Temp. Capt. ...	R.A.M.C., T.F. M.O. 1st Batt. Middlesex Vol. Regt.
TODD, A. H. ...	Major	R.A.M.C. O.C. R.A.F. Hospital, Blandford. Surg. King George Hospital and Lewisham Military Hospital.
TOLHURST, St. J. A. M.	Capt.	N.Z.M.C. H.M.N.Z. Hospital Ship *Mahins*. Killed in action, May, 1918.
TONGUE, E. J. ...	Surg. Lieut. ...	R.N. H.M.S. *Egmont*.
TONKIN, B. M. ...	Surg. Sub.-Lieut.,	R.N.V.R. H.M.S. *Hydra*.
TOOTH, F.	Capt.	R.A.M.C., T.F.
TOTTON, J.	Lieut.	London Brigade R.F.A., T.F.
TOWNROW, V. ...	Temp. Capt. ...	R.A.M.C.
TOWNSEND, T. A. ...	Capt.	R.A.M.C., T.F. 24th London Reg. M.C., 1916. Bar to M.C., 1918. Order of St. Sava (Serbia). Wounded, 1917. Missing, 1918. Reported killed in action at Rocquigny, 24th March, 1918.
TRACEY, H. E. H....	Temp. Capt. ...	R.A.M.C. Oral Dept. No. 6 Gen. Hospital, B.E.F.
TRAIL, D. H. ...	Temp. Capt. ...	R.A.M.C. Civil Surgeon, Military Hospital, Falmouth.
TRAILL, A.	Temp. Capt. ...	R.A.M.C. 2/2 W. Riding F.A. Died on service, 1917.
TRAILL, K. R. ...	Lieut.	Royal Berks. Regt. Killed in action, July 1st, 1916.
TRAILL, R. R. ...	Capt.	R.A.M.C., S.R. I.E.F. Mesopotamia.
TRESSIDER, M. E. ...	...	War Office Secret Service.
TRETHOWAN, W. H....	Temp. Capt. ...	R.A.M.C.
TROUNCE, T. R. ...	Capt.	R.A.M.C. 26th Casualty Clearing Station, Suvla Bay. Various Units. B.E.F., France, 1916—19. Wounded, 1918.
TUBBY, A. H. ...	Col.	A.M.S. Cons. Surg. to British Mediterranean E.F. in Egypt. Twice mentioned in despatches. C.M.G., 1916. C.B., 1917.

TUCK, E. S. ... Fleet Surg. ... R.N. H.M.S. *Natal.*
TUCKER, P. A. ... Lieut. ... ... 2nd London Regt.
TURNER, A. H. ... Capt. .... R.A.M.C.
TURNER, A. Scott ... Temp. Capt. ... R.A.M.C. 5th East Surrey.
TURNER, Fulham ... Capt. .... R.A.M.C. Adjutant Fargo Hosp.
TURNER, H. M. Stanley, Major, R.A.M.C. Major Falkland Islands Volunteer Force. Member of Commission's Board, R.F.C. Commanded Falkland Islands Defence Force. Served in France as Specialist in Diseases of Ear, Nose and Throat. Special Army Council Medical Board. Mentioned in despatches.
TURNER, J. S. ... ... Military Representative Penge Tribunal.
TURNER, Philip ... Temp. Major ... R.A.M.C. O. i/c Surgical Div., Nos. 3 and 22 General Hospitals, B.E.F. Ment. in desp., 1917.
TURNER, S. C. ... Temp. Lieut. ... R.A.F., Dental.
TURNER, Thos. ... Surg. ... ... R.N.V.R.
TURNER, W. A. ... Capt. .... R.A.M.C., T.F. 1st Eastern Gen. Hospital. Surgical Specialist to the Millicent Sutherland Hospital. B.E.F., 1915. Surgical Specialist No. 55 Gen. Hospital, B.E.F., France.
TURNER, W. A. ... Surg. Sub.-Lieut., R.N. Order of St. Stanislas (3rd Class).
TURNER, W. H. ... Lieut ... ... R.F.A.
TWEED, M. B. M. ... Capt. .... N.Z.M.C. No. 3 Field Amb.
TYSON, Wilson ... Capt. .... R.A.M.C., T.F. Surgical Specist. to the Millicent Sutherland Hospital, B.E.F., France, 1915. Surgical Specialist No. 55 Gen. Hospital. B.E.F., France.
TYSON, W. J. ... Physician Royal Victoria Hosp., Folkestone. M.O. to Sussex Cyclist Batt., 1917. M.O. Kent (Buffs) Cyclist Batt., 1918. Examined the doctors of Kent, Surrey and Sussex for Military service, 1918. Lecturer for the Government in Cologne. 1919.

UHTHOFF, J. C. ... M.O. ... ... Brighton Red Cross Hospital.
UNDERHILL, S. W. F. Temp. Surg.-Lieut., R.N. H.M.S. *Moldavia.* North Atlantic Patrol, 1917, and Convoy Work in Atlantic, 1917—18. H.M.S. *Boadicea,* Nore Reserve Fleet, 1919.
UNDERWOOD, A. B. G. Surg. ... ... R.N.
UNDERWOOD, R. M.... Pte. ... ... O.T.C.

VALLANCE, H. ... Bacteriologist Military Hospital, Colchester.
VANCE, W. J. ... Temp. Capt. ... R.A.M.C.

VANDERMIN, H. F....	Lieut.	R.A.M.C.
VAN-DER-SPUY, W. C.	Pte.	Artists' Rifles.
VEALE, R. McKenzie	Temp. Lieut. ...	A.M.S., Dental. Scotch Command.
VENABLES, J. F. ...	Capt.	R.A.M.C. M.O., Military Hosp., Swanage.
VENUGOPAL, S. V. ...	Lieut.	I.M.S.
VERTUE, H. St. H....	Capt.	R.A.M.C., S.R.
VICARS, F. G. ...	Capt.	R.A.M.C. 322nd Welsh Field Am.
VICARY, W. R. ...	Temp. Surg. ...	R.N. H.M.S. *Vivid.*
VIDOT, S.	Capt.	R.A.M.C., (S.R.). Attached 6th K.O.Y.L.I. M.C., 1917.
VISICK, Hubert C. ...	Hon. Dentist, Fairfield Court Red Cross Hospital, Eastbourne.	
VISICK, Hedley ...	Dental Officer, attached R.A.M.C.	
WACHER, G.... ...	Temp. Capt. ...	R.A.M.C.
WACHER, H.... ...	Temp. Capt. ...	R.A.M.C.
WACHER, H. S. ...	Temp. Capt. ...	I.M.S.
WAGHORN, L. P. ...	2nd Lieut. ...	Royal Berks. Regiment. Killed in action.
WAIGHT, H. G. ...	...	
WAIN, D.	Temp. Capt. ...	R.A.M.C. No. 3 C.C.S.
WALKER, A.	Brevet Major ...	R.A.M.C., T.F. 88th Provisional Batt. Mentioned in despatches, 1918. D.S.O., 1918.
WALKER, H.	Temp. Major ...	R.A.M.C. Ment. in desp., 1917. Order of St. Sava (Serbian).
WALKER, H. F. B. ...	Capt.	S.A.M.C. 21st M.B.F.A. in German South-West Africa, 1914—15.
WALKER, J.	Temp. Lieut. ...	R.A.M.C.
WALKER, James ...	Major	R.A.M.C.
WALKER, Josiah ...	Act. Major ...	R.A.M.C., S.R. A.M.S. Staff. Twice mentioned in despatches, 1917 and 1918. M.C., 1918. Wounded, 1917.
WALKER, T. M. ...	Lieut.	R.A.M.C.
WALLACE, F. H. ...	Capt.	R.A.M.C., Special List. Army Dental Surgeon. Att. Devonport Hospital.
WALLACE, J.	Major	R.A.M.C., T.F. Territorial Decoration.
WALLACE, J. H. ...	M.O.	Hôpital du Casino, Fecamp.
WALLEY, Thos. B. ...	Temp. Capt. ...	Australian M.C.
WALLIS, A. E. W. ...	Temp. Lieut. ...	R.A.M.C.
WALLIS, F. R. ...	Capt.	General List. Dental Surgeon. Military Hospital, Tidworth, and 3rd Southern General Hospital, Oxford, 1915—16. 49th C.C.S., France, 1916—18.
WALLIS, Herbert ...	Lieut.	R.A.M.C. Dental Surgeon R.N. Division, Blandford Camp.
WALLIS, M. E. A. ...	Temp. Capt. ...	R.A.M.C.
WALLIS, M. J. T. ...	Temp. Major ...	R.A.M.C. 91st Field Amb. Ment. in despatches, 1917.
WALLIS, T. R. ...	Temp. Capt. ...	R.A.M.C.
WALLIS, V. M. ...	Lieut	R.A.M.C., T.F. Eastern Mounted Brigade Field Ambulance.

WALLIS, W.	Temp. Capt. ...	R.A.M.C.
WALLIS, W. E. ...	Temp. Capt. ...	R.A.M.C. Wounded. British Exp. Force, France.
WALTERS, W. J. ...	Capt.	R.A.M.C.
WARD, F.	Temp. Major ...	R.A.M.C., T.F. Croix de Guerre (French), 1918.
WARD, L. W. ...	Temp. Lieut. ...	R.A.M.C., Dental.
WARD, P. H. ...	2nd Lieut. ...	North Rhodesian Vol. Force.
WARLOW, F.	Civil Dentist, Wessex R.E.	Hon. Dentist to Red Cross Hospital, Christchurch.
WARNER, C.	Temp. Surg. ...	R.N. Royal Naval Barracks, Portsmouth.
WARRICK, R. W. ...	Dresser ...	L'Hôpital Anglo-Française, Le Tréport.
WATKIN, J. P. ...	M.O.	I/c 9th Australian A.S.C.
WATKIN, P. J. ...	Capt.	R.A.M.C. Att. Bedfordshire Regt. M.C., 1917.
WATNEY, H. A. ...	Temp. Capt. ...	R.A.M.C. 9th Cavalry Field Amb.
WATSON, C. E. S. ...	M.O.	West African M.S. Mentioned in despatches. Cameroons. Lost at Sea, 1918.
WATSON, C. T. ...	Lieut.	Sherwood Foresters.
WATSON, D. P. ...	Major	R.A.M.C. O.C. 48th Field Amb. D.S.O., 1918.
WATSON, J. N. ...	Temp. Surg. ...	R.N. H.M.S. *Duncan*, Grand Fleet.
WATSON, L. K. ...	2nd Lieut. ...	Northumberland Fusiliers.
WATSON, M. G. ...	Dent. Surg. ...	No. 1 General Auxiliary Hospital, Brondesbury.
WATSON, W. E. ...	Capt.	R.A.M.C., Dental. Dental Surg. to troops, Bedford District, 1914—16. Attached R.A.M.C. to 2nd Thames and Medway Bdes., 1916. Brigade Dental Officer, 32nd Casualty Clearing Hospital, Egyptian Exp. Force, 1918—19.
WATSON, W. H. ...	Capt.	S.A.M.C. S.A. General Hospital, Muttuga, British East Africa.
WATT, N. L. ...	2nd Lieut. ...	King Edward's Horse. Killed in action.
WATTS, H.	Capt.	I.M.S.
WAY, M.	Capt.	R.A.M.C. 29th Stationary Hospital, Salonika.
WEARING, D. G. ...	Temp. Capt. ...	R.A.M.C., Dental.
WEBB, A. E. ...	Temp. Lieut. ...	R.A.M.C., Dental.
WEBB, H.	Temp. Capt. ...	R.A.M.C. 84th Field Ambulance, and attached 1st Suffolks, B.E.F., France, 1915. 2nd East Kent Regt., 1916. 37th Army Troop, R.E., 1917—18. Salonika, 1916—18. 50th S.A. Brigade R.G.A., France, 1918—19.
WEBB, H. J.	Lieut.	R.N.V.R.
WEBB, S. J. F. ...	Capt.	R.A.M.C., Dental. Egypt.
WEBB, W. L. ...	Temp. Capt. ...	Uganda Medical Service.
WEBBER, A. M. ...	Temp. Capt. ...	R.A.M.C. Ment. in despatches, 1917. 27th General Hospital, Cairo.

WEBBER, H. W. ...	Brevet Colonel,	A.M.S.
WEBSTER, E. M. ...	2nd Lieut. ...	Royal Berks Regiment. Killed in action.
WEBSTER, V. T. ...	Temp. Capt. ...	R.A.M.C. Hon. Surg. Red Cross Hospital, Aberdare.
WEDD, B. H. ...	Capt.	R.A.M.C. M.O. Royal Engineers. Mentioned in despatches.
WEINBERG, A.... ...	Pte.	S.A.M.C. Killed in action, 1918.
WELLER, C.	Temp. Capt. ...	R.A.M.C. 3rd Cavalry Division. Killed in action, 1917.
WELLS, L. R. A. ...	Surg. Sub-Lieut.,	R.N.V.R.
WELTON, F. E. ...	Temp. Capt. ...	R.A.M.C., Dental.
WERMIG, M. H. ...	Captain, Dental Surgeon,	attached R.A.M.C.
WENYON, C. M. ...	Temp. Lieut.-Col.,	R.A.M.C. Salonika and Egypt. Twice mentioned in despatches. O.B.E. C.M.G., 1919.
WERNET, A. J. ...	Fleet Surg. ...	R.N. H.M.S. *Canopus.*
WESTLAKE, B. B. ...	Temp. Capt. ...	R.A.M.C. St. Patrick's Hospital, Malta.
WESTMAN, C.... ...	R.M.O. ...	Swedish War Hosp. for Wounded Officers, 1916—19. I/c Dept. for Massage and Electro Therapy, Viscountess Ridley's Hospital for Officers.
WETHERELL, F. C. ...	Capt.	R.A.M.C. M.O. i/c Belgian wounded soldiers, 1914. M.O. Various Hospitals, Ipswich. M.O. att. Somerset Yeomanry, Ipswich, 1916.
WETHERELL, M. C. ...	Lt.-Col. ...	R.A.M.C.
WHATLEY, J. L. ...	Temp. Capt. ...	R.A.M.C. Attached R.A.F.
WHEELER, F. J. ...	Capt.	R.A.M.C. M.O. 2nd Batt. Hampshire Regt., 29th Divn., Dardanelles, 1915. Served in evacuation at Helles and Suvla Bay. Also served in Egypt and France
WHELDON, G. W. ...	2nd Lieut. ...	5th Royal Fusiliers.
WHELPTON, L. G. ...	Lieut.	2/4 Royal Berks. Regt.
WHITCOMBE, D. M. P.	Temp. Surg. ...	R.N.
WHITE, E.	Capt.	R.A.M.C., T.F. 2/3 West Riding Field Ambulance.
WHITE, R. W. ...	Dental Surgeon,	R.N.
WHITE, Sir W. Hale	Brevet Colonel,	A.M.S. Chairman and Consulting Physician, Queen Mary Royal Naval Hospital, Southend. K.B.E., 1919.
WHITTEN, M. G. ...	Lieut.	R.F.A., T. Wounded, 1916. Transferred to R.A.M.C. Dental, 1918.
WHITTY, C. J. ...	Hon. Physician,	Bath War Hospital.
WHITMORE, S. C. ...	Major	R.A.M.C. Wessex F.A.
WHITWORTH, H. P. ...	Capt.	R.A.M.C. Att. Scottish Borderers. M.C., 1918. Died of wounds, 1918.
WICKENDEN, Stanley	Major	R.A.M.C., S.R. 48th Field Amb., B.E.F., 1914—15. 90th F.A., and 45th C.C.S. B.E.F. Belgium and France, 1915—18.
WILCOCKS, A. J. ...	Lt.-Col. ...	I.M.S. Mentioned in despatches. 1917.

Wilkes, J. H. ...	Saddler Sergt...	Hon. Artillery Coy.
Wilkinson, H. B. ...	Capt.	R.A.M.C. attached to 2nd G.B. The King's Regt. Overseas, 1916 Served with North Western (Egyptian) Frontier Force. M.O. i/c Troops at Imbros, Salonika Army, 228 Bde., Struma Front. M.O. i/c Troops, Army of Black Sea, 1916—19.
Wilkinson, J. Cooper	Resident Anæsthetist, Horton War Hospital, Epsom.	
Wilks, J. H. ...	Temp. Lieut. ...	R.A.M.C.
Willan, G. T. ...	Act. Lt.-Col....	R.A.M.C., T.F. 2nd Home Counties Field Amb., British Ex-Force, France and Belgium, 1914—15. O.C. 82nd Field Ambulance, Salonika Forces, 1915—18. O.C., 302 Field Ambulance, England, 1918—19. Mentioned in desp. by Gen. Milne, 1916. D.S.O., 1917.
Willan, R. ...	Capt.	R.A.M.C. Welsh Field Ambulance.
Willan, Richard ...	Staff Surg. ...	R.N. H.M.S. *Phaeton.*
Williams, A. D. J. B.,	Lt.-Col. ...	R.A.M.C., T.F. Twice ment. in despatches, 1917 and 1918.
Williams, A. E. ...	Capt.	R.A.M.C., T.F.
Williams, C. Hammond,	Capt., R.A.M.C.	1/5 Border Regt. Wounded, 1918.
Williams, G. ...	Dent. Surg. ...	Military Hospital, Bangor Red Cross Hospital.
Williams, G. T. ...	Temp. Lt.-Col.	R.A.M.C. Home Counties F.A.
Williams, J. H. ...	Army Dental Surgeon, late Artists' Rifles.	
Williams, W. A. H.	Temp. Lieut. ...	A.S.C. B.E.F.
Williams, W. R. E.	Major	R.A.M.C.
Williamson, G. C....	2nd Lieut. ...	Essex Regiment. Wounded and missing, 1917.
Willis. G. P. W. ...	Pioneer, Chemistry Section, R.E.	France.
Wills, A.	Temp. Lieut. ...	R.A.M.C. British Red Cross Hospital, Netley.
Wills, W. K. ...	Surg. Commander, R.N.V.R. O.B.E., 1919.	
Wilshere, G. ...	Temp. Lieut. ...	R.A.M.C., Dental. Mesopotamia.
Wilson, A R. ...	Temp. Lieut. ...	R.A.M.C. Ment. for war services. Wounded.
Wilson, E F. ...	Surg. Sub-Lieut.,	R.N.V.R. H.M.S. *Ursula.*
Wilson, O. R. L....	Major	R.A.M.C. Colchester Military Hospital, 1914. 10th Field Ambulance, and M.O., 1st East Lancs. Regt., B.E.F., 1915. 7th Norfolk Regt., B.E.F., 37th Field Amb., 1915—16.
Wilson, T. F. ...	Temp. Capt. ...	R.A.M.C.
Wilson, W. ...	Temp. Hon. Capt.,	R.A.M.C. Mentioned in desp., 1918. Wounded, 1918.
Winckworth, H. C.	Major	R.A.M.C.
Winter, T. B. ...	Lt.-Col. ...	R.A.M.C. Mentioned for war services.
Withers, S. A. ...	Capt.	R.A.M.C., S.R. 22nd Indian Base General Hospital, M.E.F. Late 2nd Lieut. 3rd Lancs.

WITTS, C. J. ...	Temp. Capt. ...	R.A.M.C. Mesopotamia.
WOOD, C. A. ...	Capt.	I.M.S. 1/4 Gurkhas. M.C. and Bar, 1917.
WOOD, C. D. ...	Army Dental Surgeon.	
WOOD, F. T. H. ...	Capt.	R.A.M.C., T.F. Home Counties Division, San. Sect. Mentioned in despatches, 1918. O.B.E. 1919.
WOOD, G. E. ...	Temp. Dent. Surg., R.N.V.R.	
WOOD, J. A. ...	Temp. Capt. ...	R.A.M.C.
WOOD, W. R. ...	Capt.	R.A.M.C., T.F.
WOODROFFE, B. C. ...	...	
WOODRUFF, K. M. ...	Temp. Lieut. ...	I.M.S. M.O., I/c Detention Hospital, R.A.F.
WOODWARD. W. A. ...	Cadet	R.A.F.
WORMALD, W. J. ...	Temp. Capt. ...	R.A.M.C.
WORSTER-DROUGHT, C.	Lieut.	R.A.M.C.
WORTHINGTON, S. ...	Temp. Surg. ...	R.N. H.M.S. *Pembroke* and *Inflexible.*
WOTTON, W. H. ...	Temp. Capt. ...	R.A.M.C., Dental.
WRAGG, E.	Temp. Lieut. ...	R.A.M.C.
WRENCH, G. T. ...	Capt.	R.A.M.C.
WRIGHT, C. S. E. ...	Act Major ...	R.A.M.C. Twice mentioned in despatches, 1917.
WRIGHT, G. A. ...	Lt.-Col. ...	R.A.M.C. Mentioned for war services, 1917.
WRIGHT, J. A. S. ...	Capt.	R.A.F. French Red Cross, in France, 1914—15. R.N.A.S. (Flight Lieut., R.N.), 1916. R.A.F., 1918. A.F.C., 1918.
WRIGHT, L. D. ...	Temp. Capt. ...	R.A.M.C. Mesopotamia.
WRIGHT, T. J. ...	Major	R.A.M.C. Twice ment in desp. Mesopotamia. D.S.O., 1917.
WYAND, E. H. ...		
WYATT, H. D. ...	Capt.	R.A.M.C. 13th Yorkshire Regt. B.E.F.
WYLIE, A.	Temp. Capt. ...	R.A.M.C.
WYLIE, D. T. ...	M.O.	1st Military Hospital, Cowley, Oxon.
YERBURY, E. O. ...	Pte.	Artists' Rifles.
YOUNG, F.	Surg. Sub-Lieut., R.N.	
YOUNG, J.	Temp. Col. ...	R.A.M.C., T.F. A.D.M.S.
YOUNG, J.	Temp. Major ...	R.A.M.C., T.F. East Lancs. Field Amb. Mentioned in despatches, 1918. D.S.O., 1918.
YOUNG, J.	Temp. Capt. ...	R.A.M.C. Attached Durham L.I. Wounded, 1917.
YOUNG, J. F. ...	Temp. Capt. ...	R.A.M.C.
YOUNG, W. A. ...	Temp. Capt. ...	R.A.M.C. M.O., 3rd Surrey Regt. 1914—15. Pathologist, No. 14 Stationary Hosp., B.E.F., 1915—16. O. i/c No. 16 Mobile Bacteriological Laboratory, Brit. Ex. Force, 1916—17. M.O. i/c 18th Hussars, 1918. Pathologist, Royal Herbert Hospital Woolwich, 1919—20.

ADMINISTRATIVE STAFF.

ADDINGTON, J. A. ...	Pte.	R.A.M.C. 77th Casualty Clearing Station. Base Depôt Egyptian Expeditionary Force.
ANDREWS, W. ...	Pte.	Royal Engineers.
BAKER, A.	Pte.	5th Veterinary Hospital, B.E.F.
BAKER, Tom ...	Pte.	Special Corps, Royal Engineers, B.E.F., France.
BARRITT, W. ...	Corp.	R.F.C.
BATERIP, T. A. ...	Pte.	8th Devon Regiment.
BISHOP, H. C. ...	2nd Air Mechanic, R.F.C.	
BONEST, J. ...	Pte.	Royal Fusiliers. Wounded.
BOX, T. H.	Lance-Corp. ...	Northumberland Fusiliers. Killed in action, May 4th, 1917.
BUSH, W. T. ...	Rifleman ...	6th City of London Rifles.
CHAPMAN, E. W. P.	Staff Sergt.-Major, R.A.S.C. (Canteen Service).	Basra, Egypt and Mesopotamia. Mentioned in despatches.
CHILD, E.	Pte.	R.A.M.C.
CLARK, W.	Pte.	25th Labour Co., A.S.C.
COLE, A.	Pte.	8th Royal Berks Regt. Died on Service, May 22nd, 1918.
COOTE, J.	Sgt.	24th Queens Regt.
COWIE, W.	Pte.	1st London R.F. Wounded 1916 and 1918.
FARMER, A.	Corp.	1st Army Headquarters.
FINNEMORE, H. ...	Capt.	General List. 2nd Lieut., Inns of Court O.T.C., 1915—16. Chemical Adviser, Northern Command, 1916—17. Anti-Gas Dpt. R.A.M.C. College, 1918—19.
FRANKS, H. D. ...	Corp.	A.S.C.
FURLONG, D. W. ...	Staff Capt. ...	Adjutant 1st Royal Berks Regt., later attached H. Q. Staff, 2nd Division. Later attached H.Q. Staff 4th Army. O.B.E., 1919. M.C.
GEORGE, A. J. ...	Corp.	8th Royal Fusiliers.
GREENWOOD, F. W. ...	Pte.	Duke of Cornwall's Light Infantry
HANSON, J. F. ...	Gunner ...	112 Heavy Battery, R.G.A. Mentioned in despatches.
HARRIS, H.	Pte.	24th Queen's Regt.
HARRIS, W. A. ...	Pte.	6th London Regt. Killed in action at Loos, Sept., 1915.
HENNESSEY, P. W. H.	Corp.	Queen's Regt. Mentioned in despatches. Killed in action, July 31st, 1917.
HERBERT, E. ...	2nd Class Stoker, H.M.S. *Pembroke*, Chatham.	
HERBERT, H. ...	Pte.	Royal Engineers. Wounded.
HOLTHAM, F. J. ...	Pte.	London Rifle Brigade.

JONES, F. W. ...	Pte.	Middlesex Regt.
KENT, F. J. ...	Rifleman ...	18th London Rifle Brigade.
LAKER, A. A. ...	Lance-Corp. ...	Military Foot Police.
LANE, E. B. ...	Lance-Corp. ...	29th Middlesex Regt.
LANE, W. P. ...	Pte.	1st East Surrey Regt., attached No. 54 C.C.S., B.E.F.
LAW, S. H. ...	Pte.	6th Somerset Light Infantry.
LAW, W. D. ...	Sapper ...	Royal Engineers.
LOWDER, E. H. ...	Pte.	R.A.M.C.
MANKELOW, H. ...	Pte.	1st Grenadier Guards. Wounded.
MATTHEWS, E. ...	Pte.	24th Queens Regt.
MOORE, T. E. ...	Lance-Corp. ...	7th K.R.R. Wounded.
MORRIS, W. D. ...	Corp.	R.A.M.C. 83rd Stationary Hosp., M.E.F.
MUIR, F. H. ...	Pte.	Machine Gun Corps.
NASH, O. A. ...	Pte.	25th Training Reserve.
NEAL, E. C. ...	Pte.	Grenadier Guards. Wounded, 1916 Prisoner in Germany, 1918.
NOBLE, J. ...	Pte.	Labour Corps, B.E.F.
OCKMORE, A. ...	Pte.	London Rifle Brigade. Wounded. 1917.
POPHAM, Rev. A. E.	Capt.	4th Class Chaplain. B.E.F. Mentioned in despatches. M.C.
REEVES, H. C. ...	Flight Sub.-Lieut., R.N.A.S.	
RUDMAN, G. F. ...	Sgt.	R.A.M.C. British East Africa.
STANTON, O. ...	Pte.	K.R.R.
START, S. ...	Lance-Corp. ...	M.G.C. M.M. Wounded. Died of wounds. 1917.
STEELE, V. ...	Lieut.	R.E. (Special Brigade), late Hampshire Regt. Wounded.
STOCKTON, R. ...	Sgt.	R.A.M.C.
STREVENS, R. F. ...	Chief Yeoman	of Signals. H.M.S. *Daedalus*.
STUCKBURY, H. ...	Corp.	A.V.C.
SUTTON, R. B. ...	Pte.	R.A.M.C. Pathological Assistant 2nd London General Hospital.
THOMPSON, A. W....	Pte.	A.S.C., M.T. B.E.F., France.
THORNTON, H. J. ...	Pte.	R.F.A.
TILEY, S. ...	Gunner ...	R.F.A., B.E.F.
UNWIN, H. ...	Pte.	29th Middlesex Regt.
WHITBREAD, J. H. ...	Sgt.	Anti-Aircraft Gun. R.F.A., late 29th Div., Gallipoli. Wounded.
WINSTON, J. H. E....	Lieut. (Act. Capt.), 5th Yorkshire Regt.	London University O.T.C., 1914—15. P.T. and B.F. Officer. 3rd Line Northumbrian Div., 1916. B.E.F. France, 1916—18. Prisoner in Germany, 1918. Wounded, 1917.

Guy's Nurses and The European War. 1914 to 1919.

The following list of war services has been compiled from particulars sent in by Members of the Guy's Hospital Past and Present Nurses' League.

Queen's Alexandra's Imperial Military Nursing Service.

Allen, Gertrude M.	...	France.
Cheetham, Edith C.	...	France.
Corbishley, Mary C.	...	France and England.
Davidson, Mary E....	...	France.
Davis, Mabel ...	...	France and England.
Greg, B. Mary ...	...	England and the Rhine.
Haughton, Louisa V.	...	England.
Morrison, Maud ...	...	England and Egypt.
O'Neill, Mary E. ...	...	England.
Potter, Mary L. ...	...	Hospital Ship and Egypt.
Rooke, Rosa M. ...	...	England and France.
Sheldon, Alice ...	...	East Africa and Hospital Ship.
Suart, Hannah ...	...	England and France.
Willes, Amy ...	...	France and England.

Queen Alexandra's Imperial Military Nursing Service Reserve.

Barton, Gladys M....	...	Egypt.
Batley, Eva A. ...	...	Gibraltar and Malta.
Baylor, Florence J.	...	Malta.
Beesley, Ada M. ...	...	France.

BELL, Margaret H. ... ... England and Hospital Ship.
BELOE, Ethel F. ... ... England and France.
BENNETT, Mabel C.... ... East Africa.
BLEWITT, Clara ... ... Hospital Ship and England.
BODENHAM, Emily M. ... England, France and Cologne.
BONIFACE, Norah ... ... France.
BOTT, Edith Elton... ... England, Hospital Ship and Malta.
BOTTOMLEY, Charlotte M. ... Mesopotamia.
BOURDILLON, Mary ... ... France.
BREITHAUPT, Alice ... ... Malta and Mesopotamia.
BRIGGS, Josephine ... ... Egypt.
BROWNE, Annie M. ... ... England and France.

CAMPBELL, Mary W.... ... Belgium and France.
CANNELL, Gertrude E. ... England.
CAREY, Margaret ... ... England and Hospital Ship.
CARROLL, Violet M.... ... France.
CARTER, Ethel M. ... ... France, Egypt, Salonica and England.
CHERRY, Ethel ... ... France.
CLARKE, Marie ... ... England.
CLIFTON, Alice ... ... England.
COLLINS, Ellen ... ... Home Hospital, Mesopotamia and India.
COLSTON, Mary A. E. ... France.
CONNOLLY, Norah ... ... France.
CORDER, Grace ... ... Malta and France.
CORNWELL, Lucy ... ... England.
COX, Edith M. ... ... France and Italy.
CRISFORD, Reenie ... ... Salonika and England.
CUSTANCE, Gertrude E. ... France.

DALE, Catherine ... ... France.
DANIELS, Ada M. ... ... France.
DANIELS, Bessie H.... ... France.
DART, Phyllis, M. ... ... East Africa and England.
DIXON, Margaret L.... ... England and Salonika.

EVANS, Elizabeth G. ... Salonika.

FARAH, Aseely ... ... India.
FARR, Ada W. ... ... France.
FIGG, Edith ... ... England.
FINNIS, Florence M. ... France.
FORD, Florence E. ... ... Syria and England and Egypt.

Fox, Louisa ... ... Egypt.
Fraser, Maggie M.... ... India.
Freeman, Kate R. ... ... England.
French, Ettie M. ... ... England and France.
Fuller, Gertrude A. ... East Africa.

Gerard, Caroline ... ... France.
Grant, Ella A. ... ... Hospital Ship and England.
Gray, Marion L. ... ... England.
Gregg, B. Mary ... ... India.

Harris, Kathleen B. ... England and France.
Hepburn, Florence M. ... France.
Hickling, May ... ... France.
Hills, Jane ... ... France.
Hobhouse, Mabel E. ... England.
Hogan, Bridget ... ... England.
Howes, Janet H. ... ... England.
Hudd, Mabel ... ... Salonika and Turkey.
Hulbert, Annie E.... ... England.
Hutchins, Gertrude M. ... England.

Jackson, Mollie ... ... Hospital Ship, England and Turkey.
Jenkins, Lily M. ... ... France.
Johnson, Mabel ... ... France.
Johnson, Mildred ... ... France.
Jolley, Lucy E. ... ... France.
Jones, Jessie E. ... ... France, Salonika and England.
Jones, Marie A. ... ... England.
Jones, Winifred M.... ... Salonika, Malta and Mesopotamia.
Jordan, Mina ... ... England, Salonika and Constantinople.

Keeble, Ida ... ... France.

Layton, Honoria M. ... France.
Lear, Edith M. ... ... France.
Leggoe, Ruth ... ... Egypt, Persian Gulf and England.
Leng, Minnie ... ... Egypt,
Levy, Polly ... ... France.
Loughnan, Marjorie... ... England and Hospital Ship.
Lulham, Evelyn V. ... Egypt, Mesopotamia and India.
Lustic, Constance E. ... England.
Lyons, Margaret J. L. ... France.

MACFARLANE, Violet K. ... Salonika.
MACDONALD, Flora ... ... Egypt.
MACKENZIE, Katherine ... France.
MALLANDAINE, Lucy M. ... France.
MANN, Margaret C.... ... England and France.
MANSFIELD, Margaret M. ... England.
MARSHALL, Annie H. ... England.
MARSHALL, Helen O. ... Salonika and Italy.
MARTYN, Gwendoline ... Ireland.
MASTERS, Rosa M.... ... France.
MAY, Florence E. ... ... France.
MCLAREN, Margaret J. ... France and England.
MCMORLAND, Rose ... ... France and Salonika.
MEDLEY, Beatrice C. ... Egypt and India.
MILLER, Ellin M. ... ... France.
MITCHELL, Mary ... ... France.
MORGAN, Florence A. ... France and Belgium.
MORRELL, Mary L. ... ... France.
MUDGE, Georgetta ... ... England.
MULLAN, Margaret M. ... India and Mesopotamia.
MUTFORD, Ada S. ... ... France.

NAWN, Josephine ... ... India and Egypt.
NEALE, Winifred .. ... France.
NIXON, Cicely ... ... Italy and England.
NORTHEY, Pollie W.... ... England.

OPIE, Dorothy A. ... ... England.
ORCHARD, Emma C. P. ... France.
O'RORKE, Elsa M. ... ... Ireland.

PATON, Gladys A. ... ... England.
PEARSON, Cecilia ... ... Egypt.
PHILLIPS, Agnes M.... ... France.
PILKINGTON, Alice B. ... France.
PISANI, Phyllis I. ... ... France.
PLANT, Alice ... ... Malta.
PORTER, Edith H. ... ... England.
PRESTON, Ellen E.... ... England.
PRIESTLEY, Millicent C. ... Hospital Ship and England.
PROBERT, Florence M. ... England.

QUILTER, Elsie E. ... ... France.

REES, Gladys M. ... ... England.
RENNIE, Ellen B. ... ... Salonika and Italy.
RICE, Mary G. ... ... Ireland.
RISDON, Emma J. ... ... England.
ROBINSON, Louisa A. ... England.
ROGERSON, Kathleen M. ... England.
ROUSSIANO, Angelica... ... Salonika and Constantinople.
RUSSELL, Winifred ... ... East Africa.

SAWYER, Margaret D. ... France and the Rhine.
SELBY, Dorothy M. ... ... Italy.
SHANN, Clara L. ... ... Egypt and France.
SHARWOOD, H. M. ... ... France.
SHEPHERD, Marjory ... ... Salonika.
SHERRIN, Mary ... ... England.
SHORTER, Kathleen ... ... Egypt.
SLADE, Dora ... ... England.
SOMERVILLE, Lilian C. ... Hospital Ship and England.
SOUTHCOTT, Frances E. ... The Rhine.
SOUTHWELL, Catherine ... France.
SPOUNCER, Elsie M.... ... France.
STRANGE, Constance E. ... France.
STEDMAN, Eliza ... ... England.
TAYLOR, Hannah ... ... England.
THACKRAY, Gladys M. ... England and Salonika.
TURNBULL, Lilian ... ... England and Egypt.
TURNER, Emmeline ... ... England and France.

VIVIAN, Bessie ... ... India.

WADE, Florence ... ... England.
WADLOW, Jessie R.... ... Egypt and Constantinople.
WARNER, Hilda J. ... ... Malta, Italy and England.
WATERMAN, Agnes W. ... England.
WATERS, Gertrude F. ... France.
WATKINS, Ethel F. ... ... France.
WEBSTER, Mary A.... ... Salonika and England.
WELLER, Elizabeth M. ... England and Hospital Ship.
WILLIAMS, Beatrice M. ... Salonika.
WILLIAMS, Ethel ... ... France and Flanders.
WOOD, Marion ... ... England.
WOOLLETT, Dorothy M. ... England and the Rhine.
WRIGHT, Lilian ... ... England, Egypt and Palestine.

Civil Hospital Reserve.

ABRAHAM, Margaret K. ... France.
ADAMS, Ethel E. ... ... France.
AMES, Isabel ... ... Salonika and Italy.

BAKER, Edith C. ... ... Salonika and England.
BANBURY, Hilda M.... ... France.
BARKER, Constance E. ... France.
BEARDSHAW, Mary F. ... France and England.
BISHOP, Katherine ... ... Hospital Ship and England.
BOWDLER, Emily F.... ... France.
BRENNAND, Florence G. H. France.
BROOME, Florence ... ... France.
BROWN, Mildred ... ... France.
BULLOCK, Edith ... ... France.

CONES, Violet R. ... ... France.
COOKE, Margaret ... ... France.
CORNWELL, Lucy ... ... France.

DAVIS, Florence L.... ... France.
DODDS, Frances ... ... Mesopotamia and India.
DRUCE, Constance E. ... France.

EVANS, Winifred ... ... France.

FAULKNER, Mabel I. ... France.
FENNELL, Winifred A. ... France.
FINLOW, Ada B. ... ... Russia, Malta and Turkey.
FRANK, Georgina M. ... Malta.
FRASER, Elsie G. ... ... France.

GIBSON, Sarah J. ... ... France.
GLADSTONE, Ethel M. S. ... France.
GLEGG, Marcia E. ... ... France.
GOODCHILD, Marianne E. ... France.
GOWER, Delia W. ... ... France.
GREGG, B. Mary ... ... England.
GRUNDY, Dora ... ... France and England.

HANMER, Mary ... ... England.
HAYNE, Kathleen F. ... France.

HAYTER, Alice A. ... ... Mesopotamia and India.
HILES, Sarah N. B.... ... France.
HILLIARD, Margaret A. ... France.
HOCKIN, Gladys M.... ... England and Mesopotamia.

JOHNSON, S. Evelyn... ... France.

KIDDLE, Violet N. ... ... France, Salonika and India.
KING, Dorothy ... ... France and England.

LITHGOW, Agnes M.... ... France.
LONG, Ada V. ... ... Salonika.

MACKENZIE, Katherine ... France.
MACMANUS, Emily E. P. ... France.
MADDISON, Maud ... ... France.
MANNELL, Louisa G. ... Salonika.
MARSHALL, Dorothy... ... Hospital Ship and France.
MARTIN, Bertha ... ... France and Salonika.
MCARA, Amelia M.... ... France.
MCKINNEY, Margaret ... France.
MOORE, Nona ... ... Salonika.
MORIARTY, Evelyn ... ... France.

NELSON, Martha I. ... France.

OWEN, Margaret R. ... France.
OWENS, Martha J. ... ... France.

PARSONS, Margaret ... ... France.
PATERSON, Jentie ... ... France and Hospital Ship.
PEARSE, Cassandra ... ... Malta and England.
PRINCE, Amelia E. ... ... France and England.

RAE, Mary N. K. ... ... Alexandria, Salonika and England.
RAVEN, Emily ... ... France.
RICHARDSON, Gladys I. M. France.
RICHARDSON, Kate L. ... France.
RIPLEY, Margaret ... ... France.
ROBINSON, Louisa A. ... France.
ROUSSIANO, Marie ... ... France.
ROYCE, Katharine L. ... France.

Sadleir, Angela M.	...	France and Italy.
Savage, Margaret D.	...	France.
Sawyer, Margaret D.	...	France.
Self, Mary E. ...	...	France.
Shackleton, Eleanor H.	...	France and Salonika.
Sharwood, Hilda M..	...	France.
Southcott, Frances E	...	France.
Spedding, Frances A.	...	France.
Squire, Edith E. ...	...	France.
Stone, E. Gladys ...	...	France.
Strutt, Vivienne M.	...	France.
Surtees, Sybil E. M.	...	France.
Symons, Mary Langham	...	Mesopotamia and India.
Todd, Winifred A. ...	...	France.
Twose, Blanche A. ...	...	France.
Vine, Hilda M. ...	...	Hospital Ship and England.
Vine, Kathleen M. ...	...	Hospital Ship and England.
Wade, Frances H. ...	...	India and Mesopotamia.
Wolfe, Elsie M. ...	...	France.

The Territorial Force Nursing Service.

Archer, Jessie A. E.	...	England.
Ballance, Elaine M.	...	England.
Brown, Mary A. ...	...	England.
Carey, Dorothea ...	...	England.
Coward, Amy I. ...	...	England and France.
Dickson, Martha McB.	...	England.
Gill, Eva R. ...	...	England.
Halfacre, Mabel F....	...	England.
Harden, Gertrude F.	...	England.
Horton, Emily ...	...	England and Salonika.
Jefferson, Daisy ...	...	England.
Lulham, Gertrude ...	...	England and France.
Macreath, Agnes G.	...	England.
Marsh, Margaret E.	...	England.
McKay, Christina A.	...	England.
Moles, Florence M.	...	England.

Newton, Enid M....	...	England and Egypt.
Pearson, Winifred M.	...	England.
Ray, Emily ...	...	England and Italy.
Shepherd, Dorothea M.	...	England and Malta.
Slack, Florence ...	...	England and Salonika.
Staines, Florence ...	...	England and Salonika.
Taylor, Kate E. G....	...	England.
Turner, Lucy ...	...	England and France.
Whittam, Elizabeth	...	England and France.
Wood, Edith ...	...	France.

The Royal Air Force Nursing Service.

Browne, Florence R.	...	England.
Campbell, Mary W.	...	England.
Cornwell, Lucy ...	...	England.
Cruickshank, Margaret	...	England.
Dickson, Martan McB. McI.		England.
Doig, Margaret S. ...	...	England.
Fox, Emily M. ...	...	England.
Jolley, Lucy E. ...	...	England.
Molesworth, Winifred	...	England.
New, Kate E. ...	...	England.
Petrie, Adeline E....	...	England.
Sautoy, Adeline du	...	England.
Scott, Eva	...	England.
Urquhart, Geraldine L. M.		England.
Wellsted, Amy ...	...	England.
Yates, Ethelreda ...	...	England.

Queen Alexandra's Military Nursing Service for India.

CONES, Violet R.	Mesopotamia.
CORFIELD, Eliza R.... ...	Mesopotamia.
DAVIDSON, Lilian M. ...	India.
EVANS, Winifred	India.
EXSHAW, Phoebe	France and Mesopotamia.
GOUCHER, Alice	India.
HART, Alice M.	India and Mesopotamia.
ILES, Helen L.	India.
LOWE, Alice R.	India and Mesopotamia.
MACFARLANE, Violet K. ...	India.
NORTHEY, Pollie W. ...	India.
RABBIDGE, Mary D.	India.
STEBBING, Flora A.... ...	India.
TIPPETTS, Melanie	India and Mesopotamia.
VEECH, Annie G.	India

South African Military Nursing Service.

BROWN, Annie M.	Africa.
EDWARDES, Florence T. M.	Africa.
FRESHNEY, Frances H. ...	South Africa and France.
LEDLIE, Eva	South West Africa.
NOTT, Grace	Africa.
NUTT, Mary A. M.	Africa.
RITCHIE, Ruby S.	East Africa.

New Zealand Military Nursing Service.

BATES, Jessie M.	New Zealand.
GILKES, Mary R.	France.
MORLEY, Sarah E.... ...	Egypt and England, and New Zealand.
ROBBINS, Annie	New Zealand and France and Hospital Ship
SHUKER, Margaret E. ...	New Zealand and France.

American Military Nursing Service.

COLLINS, Jessie H. ... ... France.

Queen Alexandra's Royal Naval Nursing Service and Reserve.

FRESHNEY, Mildred D. ... England.
MEEHAN, Eleanor A. ... England and Eastern Waters.
MESSENGER, Christine ... England.
MIDDLETON, Muriel A. ... England.
NOBLE, Mary A. ... ... England.
SHEWELL, Dora C. ... ... England and Gibraltar.

British Red Cross Society.

Matron-in-Chief, Trained Nurses' Department.

Dame SARAH A. SWIFT, G.B.E. R.R.C.

ALLEN, Laura ... ... England.
ALLCOCK, Annie ... ... England.
ANSON, Lucy F. ... ... England.
AUSTIN, Bessie M. ... ... England.

BAKER, Frances M.... ... England.
BARBER, Ethel M. ... ... England.
BARKER, Mary ... ... England.
BARTLETT, Muriel E. ... France.
BAYLOR, Florence ... ... England.
BEVINGTON, Gladys ... ... England.
BISHOP, Elizabeth ... ... England.
BLENKARN, Edith M. ... England.
BLENKARN, Maud ... ... England.
BLENKARN, Katherine ... England.
BOUVIER, Marie ... ... England.
BOWDLER, Emily ... ... France.
BOYS, Agnes F. ... ... France.
BRAKSPEAR, Dorothy M. ... France and England.
BRERETON, Florence... ... England.

BRIDGES, Annie	...	England.
BRIERLEY, Alice	...	England and France.
BRITTON, Clara	...	England.
BROOME, Florence	...	France.
BROWN, Frances E.	...	France and England.
BROWN, Kathleen	...	England.
BROWNE, Florence R.	...	England.
BRYAN, Noelle R.	...	England.
BURDETT, Mary I.	...	England.
BURTON, Frances M.	...	England.
BYRNE, Josephine	...	Egypt.
CADELL, Katherine J.	...	France and England.
CALDWELL, Jessie L.	...	England.
CANTY, Constance	...	England.
CARPENTER, Alice M.	...	England.
CARPENTER, Margaret	...	England.
CHISHOLM, Alice	...	England.
CHITTOCK, Mabel A.	...	France.
CLUTTON, Katie E.	...	England.
COCHRANE, Marjory H.	...	England.
COCKIN, Edith J.	...	England.
COLECLOUGH, Annie M.	...	England.
COLLIE, Isabel	...	England.
COLLINS, Hilda M.	...	England.
COOK, Katharine	...	Uganda.
COOK, Marion E.	...	England.
COOMBS, Elizabeth J.	...	England.
CORFIELD, Eliza Ryman	...	England and Egypt.
CORNFORTH, Emma	...	England.
CRONIN, Anna M.	...	England.
CUTHBERT, Anna M.	...	England.
DALE, Catherine	...	France.
DAVIDSON, Jessie E.	...	England.
DAVIES, Kathleen	...	England.
DAVIS, Florence K.	...	England.
DEAN, Amy E.	...	England.
DENNEY, Henrietta	...	England and France.
DENSHAM, Constance	...	England.
DENSHAM, Evelyn	...	France and England.
DENTON, Louisa	...	England.

DICKENSON, Elizabeth	...	England.
DINGLE, Janet ...	...	England.
DIXON, Janet E. ...	...	England.
DOTTRIDGE, Sophie C.	...	France and England.
EAGLE, Mary J. ...	...	England.
EDWARDS, Janet ...	...	England.
FARNHAM, Dorothy ...	...	England.
FARRAR, Ada E. ...	...	Italy and Russia.
FERGUSON, Florence	...	England.
FIELD, Grace ...	...	England.
FRICKER, Ada ...	...	England.
FOX, Emily M. ...	...	Russia.
FOX, Louisa ...	...	England.
FULLER, Vera ...	...	England.
FULLER, Ester A. ...	...	Belgium and England.
GOODCHILD, Marianne	...	England.
GOOD, Augusta C. ...	...	England.
GOSS, Edith M. ...	...	England.
GOSSAGE, Kate ...	...	England.
GROOM, Effie R. ...	...	England.
GWILLIAM, Margaret L.	...	France.
HART-SYNNOTT, Violet F.	...	England.
HAWARD, Gwendoline M.	...	England.
HAWKINS, Mary ...	...	England.
HEALY, Mary	...	South Africa.
HODGSON, Lucy ...	...	England.
HOLMAN, Blanche A.	...	England.
JOHNSON, Mildred ...	...	France.
JONES, Jessie ...	...	England.
JOYNER, Winifred M.	...	England.
KELLY, Mai C. ...	...	England.
KEW, Edith ...	...	France.
LANE, Ella M. ...	...	England.
LAYNG, Alice ...	...	England.
LENG, Minnie ...	...	France.
LUCAS, Cecilia A. ...	...	Canada.

MARLER, Amy E.	...	England.
MASTERS, Rosa M.	...	France.
MAYES, Mary	...	England and Italy.
MCLAREN, Margaret	...	France.
MCRAE, Margaret	...	England and France.
MIDDLETON, Muriel A.	...	England.
MULQUEEN, Agnes M.	...	France.
MILLIDGE, Elizabeth	...	England, France and Alexandria.
MOLESWORTH, Winifred	...	France.
MORRIS, Lily	...	England.
MOORE, Katie	...	Serbia.
MORGAN, Mabel T.	...	England.
MORRALL, Kate L.	...	England.
NURSE, Elizabeth A.	...	England.
PATTERSON, Marion G.	...	France.
PETTIFER, Wilhemina	...	England.
PHILLIPS, Alice M.	...	England and France.
PLANT, Frances M.	...	England.
POWER, Margaret M.	...	England and Holland.
PRIESTLEY, Rosa A.	...	England.
PRICKETT, Sarah A.	...	England.
PRYKE, Gertrude M.	...	England.
RAY, Kate L.	...	Belgium and France.
RANDLES, Ethel M.	...	France.
RICHARDSON, Alice M.	...	England.
ROSE, Constance L.	...	England and France.
SHELDON, Frances A.	...	England.
SLEAP, Beatrice	...	England.
SIMPSON, Mabel L.	...	England.
SMITH, Violet	...	England.
SOUTHEY, Edith M.	...	England.
STALLMAN, Mary B.	...	England.
STEPHENS, Cecilia C.	...	Boulogne.
SULLIVAN, Hilda M.	...	England.
TODD, Constance E.	...	France.
TOWLER, Hilda	...	England.
TURNER, Emmeline M.	...	England.
TURNER, Helen B.	...	England.

WARD, Augusta M. ... India.
WESTON, Kate B. ... ... England.
WHITE, Gladys L. ... ... England and France.
WILKS, Esmeralda V. ... England.
WILSON, Lizzie H. ... ... England.
WILSON, Olive M. ... ... England.
WOOD, Lorna B. ... ... Egypt.

YELL, Minnie L. ... ... England.

Foreign Red Cross Hospitals and Other Units.

DENSHAM, Evelyn J. ... France.

FLETCHER, Alice M.... ... Belgium and France.

FLETCHER, Gladys H. ... France.

HILL, Ina F. ... ... France.

IZAT,, Jessie ... ... Belgium.
JONES, Gladys M. ... ... France.

LAVELAYE. Marie E. de ... Belgium and France.
LEAR, Edith M. ... ... France.
LUDERS, Valborg ... ... Serbia.
LYNDON, Charlotte ... ... Italy.

MOLESWORTH. Winifred ... France.

REES, Gladys A. R. ... France.
RIPLEY, Margaret ... ... France.
ROWLANDS, Eunice ... ... France.

SAUTOY, Cathin du ... ... France and Belgium.
SPENCER-PAYNE, Ivy S. ... France.

TODD, Winifred A. ... ... France.
TOWLER, Hilda ... ... Poland.
TUBBS, Ellen F. ... ... France.

VAN WEDDINGEN, Madeleine Belgium.

WHITTINGHAM, Sarah T. ... France.

Auxiliary Hospitals.

Appleton, Margaret	...	England.
Barker, Nellie ...	...	Basrah.
Barker, Amy H. ...	...	England.
Beard, Ada M. ...	...	England.
Blayney, Edith K. ...	...	England.
Brereton, Florence M.	...	England.
Britton, Clara ...	...	England.
Brooks, Freda ...	...	England.
Bryan, Marion ...	...	England.
Burnside, Grace ...	...	England.
Chisholm, Alice ...	...	England.
Collins, Ellen ...	...	Serbia.
Cornell, Grace S. ...	...	England.
Davidson, Amy E. ...	...	England.
Davies, Enid A. ...	...	Serbia.
Dean, Constance ...	...	England.
Ekins, Alice M. ...	...	England.
Ellis, Sarah ...	...	England.
Elphick, Mabel ...	...	England.
Faull, Mary E. ...	...	England.
Ferdinand, Margaret	...	England.
Fenn, Alice P. ...	...	England.
Finnemore, Kate E.	...	England.
Fletcher, Alice M.	...	Belgium and France.
Fletcher, Gladys H.	...	France.
Flude, Susanna J. H.	...	England.
Ford, Eleanor E. ...	...	England.
Fraser, Maggie ...	...	England.
Gallagher, Agnes ...	...	England.
Gane, Grace	...	England.
Garnett, Mabel ...	...	England.
Gooderham, Edith M. H.	...	England.
Graham, Elizabeth ...	...	England.
Halfacre, Mabel F.	...	England.
Harding, Agnes ...	...	England.

HARMER, Helena M. ... England.
HARRADINE, Beatrice M. ... England.
HART-SYNNOTT, Violet F. ... England.
HAYNES, Edith B. ... ... England.
HAYNES, May B. ... ... England.
HILLS, Jane ... ... England.
HIRST, Nellie M. ... ... England.
HOOPER, Alice M. ... ... England.
HOPKINS, Evelyn ... ... England.
HOPE, Bertha A. ... ... England.
HOPE, Edith ... ... England.
HOPSON, Dorothy F. ... England.
HOWIS, Gladys J. M. ... England.
HUMPHREY, Ellen ... ... England.
HURLBATT, Evelyn ... ... England.
HYLAND, Sarah A. ... ... England.

ILLINGWORTH, Marion ... Dinard.

JENKINS, Gertrude ... ... England.
JOHNS, Josephine ... ... England and Ireland.
JOHNSTONE Evelyn M. ... England.
JONES, Amy M. ... ... Wales.
JONES, Gladys M. ... ... England.
JONES, Mary E. ... ... England.
JONES, Winifred ... ... England.

KEEBLE, Ida ... ... England.
KENNEDY, Annie ... ... England.
KEW, Edith ... ... England.
KILLPACK, Annie ... ... England.
KRAUTH, Catherine ... ... England.

LANE, Ella M. ... ... England.
LANGLEY, Marian ... ... England.
LATHAM, Ethel M. ... ... England.
LAVELAYE, Marie E. de ... Belgium and France.
LAWSON, Ellen de V. ... England.
LEACH, Gertrude ... ... England.
LEE, Florence M. ... ... Belgium.
LEEDHAM, Eunice ... ... England.
LEWIN, Jessie H. ... ... England.
LORRAINE, Ellen ... ... Basrah.
LYNDON, Charlotte ... ... England.

MALKIN, Florence ... ... England.
MARTIN, Bertha ... ... England.
MAYCOCK, Alice H. F. ... England.
MEEHAN, Eleanor A. ... England.
MESSENGER, Lily ... ... England.
MIDDLETON, A. Muriel ... England.
MILLER, Annie M. ... ... England.
MORRALL, Kate L. ... ... England.
MORRISON, Bertha ... ... England.
MULLETT, Alice M. ... ... England.
MUMFORD, Maria A. ... England.
MUTFORD, Ada S. ... ... England.
MURRAY, Jean ... ... England.

NAYLOR, Lily ... ... England.
NEVILLE-COX, Winifred A.... England.
NURSE, Elizabeth A. ... England.

O'DONNELL, Emma ... ... England.
O'REILLY, May M. ... ... England.

PACE, Elizabeth S. ... ... England.
PATERSON, Jentie B. N. ... England.
PATTERSON, Marion G. ... England.
PEAKE, Christina ... ... England.
POLLARD, Sevilla F.... ... England.
PRESS, Ellen ... ... England.
PRYKE, Gertrude M. ... England.

RANDLES, Ethel ... ... England.
RITCHIE, Ruby ... ... England.
ROSS, Mairi E. ... ... England.
ROWE, Alison ... ... England.
RYAN, Florence E. M. ... England.

SALTER, Rose E. ... ... England.
SAUTOY, Adeline du ... England.
SELBY, Sarah A. ... ... England.
SELF, Mary E. ... ... England.
SILVERWOOD, Sarah A. ... England.
SINCLAIR, Margaret J. ... England.
SKEET, Gladys M. ... ... England.
SKINNER, Elizabeth E. ... England.

Speller, Marguerite	...	England.
Spence, Jessie M. ...	...	England.
Stewart, Rebecca ...	...	England.
Stone, Emilie A. ...	...	England.
Stone, Gladys ...	...	England.
Studdert, Emma M.	...	Ireland.
Sutherland, Lilian E.	...	England.
Taylor, Kathleen ...	...	England.
Taylor, Olive M. ...	...	England.
Timbrell, Annie ...	...	England.
Todd, Constance ...	...	England.
Tubbs, Ellen F. ...	...	England.
Vallancy, Luey ...	...	England.
Vanes, Mary E. ...	...	England.
Vivian, Gladys M. ...	...	England.
Vivian, Mabel ...	...	England.
Wallis, Gertrude V.	...	England.
Ward, Catherine F....	...	England.
Ward, Florence M.	...	England.
Watson, Agnes E.	...	England.
Weighill, Emma W.	...	England.
Whittingham, Theresa M.		England.
Widdowson, Annis ...	...	England.
Windemer, Evelyn M.	...	England.
Windemer, Nellie ...	...	England.
Woodhead, Agnes S.	...	England.
Wright, Alice ...	...	England.
Yates, Ethelreda M.	...	England.
Yell, Minnie L. ...	...	England.

American Women's Hospitals.

Birch, Irene M. ...	...	London.
Eccles, Lilian ...	...	Paignton.
Hughes, Margaret H.	...	London.
Illingworth, Marion	...	London.
Kilbride, Hester ...	...	London.
Kilbride, Kathleen ...	...	London.
Lloyd, Alice ...	...	London.
Windley, Dorothy M.	...	London.

Miscellaneous War Work.

Bell, Ellen M.	Eltham Hostels Hospital.
Bower, Florence C. Nott...	Munition Hostels, Greenock.
Brereton, Katherine B. ...	Food Committee and Military Tribunal.
Brown, Emily Seaman ...	Munition Works.
Burrows, Margaret... ...	Munition Workers' Hospital.
Davies, Enid A.	Munition Workers' Hospital.
Ellis, Catherine M. ...	Board of Agriculture.
Gordon, Adeline	Recreation Rooms.
Hawes, Alice M.	Munition Works.
Joseph, Flora C.	Women's Patrol.
Kayes, Elizabeth M. ...	Censor's Officer.
Kerr, Daisy E.	Canteen. America.
Rees, Gladys	Gas Mask Works.
Sadleir, Angela M. ...	Munitions Depot.
Todd, Winifred	Women's Legion.
Oxford, Mary N.	Author of "Nursing in War Time."

Masseuses.

Hancock, Charlotte M.
Hirst, Nellie.
Hyde, Gertrude.
Park, Alice M.
Rawson, Emily M.
Roberts, Marjorie.
Rowan, Anita F.
Spreckley, Mildred.
Walford, Edith O.
Waterman, Bessie M.
Worthington, Jane F.
Yewdall, Louisa.

Part III.

GUY'S HOSPITAL DURING THE WAR.

By

E. P. POULTON, M.D., F.R.C.P.

The history of Guy's Hospital during the war was a slow adaptation to a gradually diminishing number of students, residents and staff.

At the very beginning a certain number of men at the Hospital left to take up posts in the combatant and medical services, and one or two of these men fell in the retreat from Mons. By the time the school year had begun in October, 1914, still more members of the Junior Staff had left. Senior members of the Staff, who had taken up their duties as *a la suite* officers of military hospitals, were naturally obliged to attend to their hospital duties in uniform, and this added a new feature to Guy's, which everyone soon became accustomed to seeing.

Within the first week or two of the beginning of the war, the Governors had to decide whether they would follow the example of all the other large teaching hospitals in putting many of their beds at the disposal of the War Office for wounded soldiers. They felt, however, that the needs of the civilian population were too great to permit them to do this, and instead they offered to erect huts in the Park and to provide the staff for the extra beds if the War Office wished. This offer was not utilised. There can be no doubt that the Governors acted rightly, because as events showed, it was months before all the accommodation that the War Office had at their disposal was utilised. They at once filled up their beds

in the teaching hospitals with soldiers, while their other hospitals remained empty. The lack of civilian accommodation showed itself at once in the general congestion of the beds at Guy's. However, there can be no doubt that the feeling provoked some criticism among Guy's men in general, who felt that their Hospital was not doing work directly connected with the war. Consequently there was general satisfaction when through Sir Alfred Fripp it was arranged that Guy's should receive some wounded officers. Within 48 hours the Works Department had erected cubicles in Stephen Ward, and this became the Officers' Section in 1914. Each full Surgeon was put in charge of one division of the ward, and Dr. Fawcett and Dr. Beddard were called in when a Physician was required. In order to provide more beds for the corresponding medical firms, Miriam and John were handed over to them, and in January, 1915, these wards were used for teaching ward clerks, so that the old established Clinical Wards with their traditions ceased to exist. However, the post of Clinical was continued for the time being. The clinicals were given beds in the medical wards, and were attached to each of the four physicians.

Just at this time there was considerable discussion in the School as to whether students should be advised to finish their medical education and become qualified, or enter the Army immediately as combatants. Fortunately the first of these courses was adopted, and the length of the war with the need for more and more doctors abundantly justified it. Stipulations were made that all men should enter the Officers Training Corps. This was at first under the command of Mr. Layton, but when he left Mr. Ryffel took over the duties. Drilling used to take place in the park, much to the delectation of patients and visitors to the Hospital.

In January, 1915, a scheme was prepared by which the number of residents could be reduced from 21 to 14. There were to be two House Physicians, four House Surgeons, four

Out-patient Officers, and two Obstetric Residents, one Ophthalmic House Surgeon, one Surgical Out-patient Officer to look after Patience and Samaritan and Surgical Out-patients. The night work in the Surgery was to be divided among all the officers except the Out-patient Officers. Owing to a variety of circumstances it was not necessary to make such a drastic reduction in posts for some time.

In October, 1915, the three Laboratories on the Medical Staircase, built specially for research, were ready. It it needless to say that in war time they were not used for this purpose. One of them became the Ward Clerks' Clinical Laboratory when Miss Grundy's office had absorbed the old laboratory, and remains so at present. Another one was used as a sitting room by massage students, and is now the Clinicals' room. The third one was used as a work room for Physicians and Assistant Physicians. In the same month for the first time unqualified Assistant House Surgeons were appointed: Mr. Bates and Mr. Hirsch.

In December, 1915, Dr. Mutch was left sole Medical Registrar till the end of the war.

In March, 1916, Medical Out-patients on Thursdays and Saturdays were suspended, and in April the Physicians agreed when necessary to be responsible for their own night work at the Hospital for five days a week, the two remaining Assistant Physicians being responsible for the week-ends alternately.

At this time the difficulty of staffing the Hospital was becoming considerable. In a letter to the Marylebone Medical War Committee in January, 1916, it had been laid down that it was necessary to retain the services of 22 members of the Staff, all of whom were of military age. This number included physicians, surgeons, specialists, pathologists and anæsthetists. This seems a large number. However, it must be remembered that many of them were also acting as *a la suite* officers at military hospitals, so that they had less time than usual for their Hospital work. Further, any considerable reduction would

have seriously impaired the clinical teaching, since every three months men were entering the wards from the Anatomical and Physiological Departments with the intention of getting qualified in the shortest time possible. What made things particularly difficult was that members of the junior staff who did a great deal of the teaching and emergency work were at times called up for service, and several modifications were made from time to time to meet this state of affairs. The difficulty was felt more on the surgical than on the medical side since surgeons were in much greater demand than physicians at the War Office. It will be of interest to record the actual arrangements made when Mr. Tanner, the Resident Surgical Officer, was called up about the beginning of 1917. Four Surgeons in charge of special departments volunteered to sleep week by week at the Hospital and to do the work of Resident Surgical Officer—Mr. Mollison, Mr. Thompson, Mr. Chapple and Mr. Trethowan. Mr. Todd, Surgical Registrar, acted as deputy Resident Surgical Officer. At this time there was no Resident Medical Officer in Bright Ward, and the House Officers undertook these duties.

In January, 1917, the number of House Officers was reduced to 11, viz., two House Physicians, four House Surgeons, two Obstetric Resident Surgeons, two Out-patient Officers, and a fifth House Surgeon, who also acted as Resident Anæsthetist. At one time there were no qualified Out-patient Officers at all. It was obviously impossible to carry on the Hospital with the reduced number of men—the Out-patient Department in particular. Eight new unqualified posts were therefore created—four Assistant Casualty Officers and four Assistant House Physicians. The Casualty Officers worked in the Front and Back Surgery in the day time. The night work was carried on by the residents, according to a rota. Each House Physician was now responsible to two Physicians, but each Physician had also an Assistant House Physician, who went round with him and personally looked after half the beds, so that the

House Physician had actually no more beds himself than formerly, although he of course supervised the Assistant House Physicians. In addition, the Assistant House Physicians carried out all the Out-patient Officer's usual duties at Medical Out-patients. While filling these unqualified appointments, the men were, of course, working up for their finals.

The plan adopted by the War Office was to allow a man on qualification a three months' resident appointment, after which he was called up automatically to join the Army, or, occasionally, the Navy.

It was soon found necessary to have some rather senior man on the surgical side resident in the Hospital to help the necessarily inexperienced House Officers in special cases. It was possible to arrange this with the authorities on the plea that it was essential to have some experienced resident surgeon to look after the wounded officers in the Officers' Section. Mr. Marston was given a commission in the Navy, and was seconded for this work. He was made Resident Medical Officer in the Officers' Section, and with his other work was probably by far the hardest worked man in the Hospital. In fact, it transpired later on that for about 18 months he had been unable to leave the Hospital even for a week-end. Although the Officers' Section took a good deal of his time, his chief work was in the Obstetric and Gynæcological Departments. As Obstetric Registrar he had to teach and do Out-patients and carry out the emergency surgery, and he also did all Mr. Chapple's work when he joined the Army. He was also called upon to advise the House Officers in case of difficulties in Bright Ward, and he also acted as Warden of the College.

The Children's Department was carried on three days a week by Dr. Cameron, who undertook to see all the children whom the Out-patient Officers had previously treated at "Baby Out-patients." As may be imagined, the department was filled to overflowing, and it was only possible to get through the work owing to the kindness of a number of volunteers, among whom

the late Colonel Roberts, Dr. King Brown, Mrs. Stewart Robertson and Miss Iredell may be mentioned.

When Dr. Hurst left, the Neurological Department was put under the care of Dr. Pitt, then of Dr. Craig, and later on, when he left, of Dr. Fothergill.

At the beginning of 1918 the arrangements for carrying on the emergency surgery were altered again. Mr. Todd was appointed Resident Surgical Officer to act every other week. Mr. Zamora undertook to do one week in four, and Mr. Marston was also called upon to take yet another burden on his shoulders by doing Resident Surgical Officer one week in four. However, in order to enable him to get away for an occasional holiday, Mr. Victory, who was House Surgeon, was asked to act as his deputy. When Mr. Victory had finished his appointment as House Surgeon he was appointed Resident Surgical Officer and also acted as a Registrar.

Some relief was experienced at this time by the policy of the Colonial Governments, who allowed their men to remain at hospital for one year after qualification provided they were engaged in work of national importance. By such means the Hospital succeeded in retaining the services of Mr. Joffe towards the end of the war, and later on he acted as Surgical Registrar and also carried on Surgical Out-patients. Mr. Debenham also did Surgical Out-patients one day a week for a long period, and he also acted as Medical Radiographer when Dr. Lindsay Locke was called up. Help at Surgical Out-patients was also obtained from practitioners outside the Hospital. At one time Mr. Gardiner was called in for this. Mr. Zamora carried on Mr. Layton's work in the wards and at Throat Out-patients, and when he left Mr. Beevor, from University College, did the Out-patient work for a time.

The final "combing out" of the Staff took place in May, 1918, and a few more of its members left. After this, as far as Surgeons were concerned, the Hospital had reached the limit,

and any further depletion would have made it necessary seriously to curtail the activities of the Hospital. It would have been possible to curtail the personnel on the medical side further, but at this stage of the war physicians were not much in request, so that the Staff remained much the same from now till the Armistice.

The Hospital was much helped during the war by certain members of the Staff, who voluntarily remained at their work although they had reached the retiring age of 60. These members were Sir William Hale-White, Sir Cooper Perry and Sir Arbuthnot Lane. The Hospital had to deplore the sad loss of Mr. Dunn, who died in the middle of his work as Senior Surgeon to the Hospital.

Within a week of the Armistice a list had been prepared of men who were urgently required. Most of them were released by the War Office with commendable promptitude, and early in the New Year the tension at Guy's had been to a great extent relieved.

As has already been mentioned, early in the war advice was given to all men doing intermediate subjects to continue their work and become qualified as soon as possible. Later on, when Conscription came in, the War Office adopted the same plan. No one was to be called up who would within a short time be sitting for his intermediate examination. Consequently, the Medical School was by no means empty, and its numbers were increased by wounded and disabled men, by boys from school who began their medical studies before being called up for service, and by combatants who were sent back to finish their clinical work.

Later on in the war a new form of service was started, viz., surgeon probationer in the Navy. Men who had passed their Intermediate were sent away for six months to act as Medical Officers on destroyers. This was counted as part of their medical training. While still doing anatomy and physiology,

the men were given short courses in minor surgery and anæsthetics and venereal diseases, and the Matron gave them some instruction in nursing. It was generally agreed that the men did extremely well in the Navy.

In spite of taking this appointment qualification was not delayed, because the examining bodies shortened the curriculum by allowing men to sit for their finals immediately after completing their compulsory appointments. The examinations were also easier. Not only were the questions asked directly concerned with the work that the candidates would have to do when they were in the Royal Army Medical Corps, but there was a tendency for leniency to be exercised by the examiners, considering the special need of the country for more doctors. Many men took the L.S.A. to get through more quickly, and this examination had a sudden outburst of popularity. In fact, some candidates are at present in course of finishing their M.B. courses begun during the war.

Teachers in the earlier subjects were much diminished in numbers, but they were helped by the appointment of student demonstrators and by the examining bodies dispensing with compulsory lectures for intermediate and advanced subjects. Mr. Evans had Mr. Reed to assist him in the Biological Department. Dr. Fison did his work without a demonstrator. Professor Lowry, who was much engaged in work for the Ministry of Munitions, also carried on the Chemical Department with the help of one part-time demonstrator. Mr. Zamora was head of the Anatomical Department with Mr. Reed to help him. Dr. Pembrey was alone in the Physiological Department, and also acted as "Sub-Dean." Sir Cooper Perry became Honorary Dean when Mr. Bromley left. Dr. Laidlaw carried on the Pharmacology Department as well as his own. Considerable credit is due to the Medical School for succeeding in meeting all its expenses during the war, without help from other sources.

As far as the Nursing Staff were concerned, there was no shortage of nurses in the Hospital during the war. Short courses of training were arranged for V.A.D.s to enable them to do useful work in military hospitals.

This account cannot be closed without mentioning the various Zeppelin and aeroplane raids. The Hospital was in a district rather favoured by the enemy on these occasions, and many casualties were admitted. In the early days Guy's was sought by the neighbourhood as a convenient place of refuge. On one occasion the Out-patient Hall and the underground passage were crowded, and it was rumoured that a gramophone had been produced and dancing had taken place. Subsequently it was announced that the Hospital would be closed during raids so that its proper functions should not be interfered with. When the famous daylight raid of aeroplanes took place a bomb was dropped in Newcomen Street, and £25 worth of glass was broken in the Chemical and Physiological Departments.

Guy's Hospital and Medical School could only have been kept up during the war as a going concern by its members remaining loyal, by their willingness to do extra work, and by the avoidance of slackness. Fortunately these qualities were shown by students and teachers and everyone else connected with the Hospital.

CHEMICAL RESEARCH AND MUNITION WORK AT GUY'S HOSPITAL MEDICAL SCHOOL.

By

T. MARTIN LOWRY, C.B.E., Hon. M.A. (Cantab.), D.Sc. (Lond.), F.R.S., F.C.G.I.

Professor of Physical Chemistry in the University of Cambridge.

Late Professor of Chemistry at Guy's Hospital Medical School.

THE story of munition work at Guy's during the war is so largely a personal one that it is difficult to describe it in any other form than as a personal record for which the indulgence of the readers of the GUY'S HOSPITAL REPORTS must be asked.

The first contribution to national requirements of the Chemical Department at Guy's took the form of work on the production of anæsthetics under a scheme arranged by the Royal Society's War Committee to provide supplies which were urgently needed but which were no longer available from commercial sources. This work was carried out mainly under the direction of Mr. Harold Rogerson, one of the demonstrators in the Chemical Department, and war service badges were issued by the Ministry of Munitions to him as well as to Mr. R. G. Early and to Mr. W. Haines, who also took part in this work. The two products manufactured in the laboratories at Guy's were chlorhydrin (an intermediate product in the preparation of novocaine) and beta-eucaine. The quantities handed over to the Royal Society War Committee were as follows:—

Glycol (for preparation of novocaine) ...	4½lb.
β-Eucaine hydrochloride	6½lb.

Dr. R. W. Merriman, demonstrator of chemistry, left the Department early in 1915 in order to assist in the management of a new plant for the manufacture of oleum or fuming sulphuric acid, of which very large quantities were required for the manufacture of explosives. Mr. Rogerson, who then carried on the work of both demonstrators in addition to his work on the preparation of anæsthetics, also left in the summer of 1916, to take up a technical post connected with the use of indigo dyes, an important appointment although not connected directly with the manufacture of munitions of war. In the summer of 1915 Mr. Victor Steele, my lecture assistant, left to join an Officers Training Corps. He was commissioned as a Lieutenant in the Special Battalion Royal Engineers, and rendered important services in connection with Gas Warfare until he was recalled from France at my request by the Ministry of Munitions for technical work in one of the National Filling Factories.

In September, 1915, when it had become evident that the programme of high explosive shells could not be filled by the use of picric acid and T.N.T. and must be supplemented by very large dilution with ammonium nitrate, I was called in to advise the Department of Explosives Supply in connection with the unexpected qualities which this salt had developed when manufactured and handled on a large scale. In order to secure the fullest possible knowledge of this difficult material, arrangements were made with the anonymous donor of the Dental Research Scholarship whereby the joint holders, Mr. R. G. Early, B.Sc., and Mr. J. N. Vowler, were allowed to devote themselves to experimental work on ammonium nitrate. As a result of this work the technical laboratory at Guy's soon established itself as the recognised centre from which information might be derived as to the properties of this most important salt.

The scheme for the use of ammonium nitrate as the back-bone of the British programme of high explosives was developed at the Research Department, Woolwich, where the earliest experiments were made on the dilution of T.N.T. with am-

monium nitrate. These mixtures, which were described under the general name of "Amatol," were of various compositions, but the most effective was one in which the limited supplies of T.N.T. were diluted with four times their weight of ammonium nitrate and converted into 80/20 amatol, thereby increasing the weight of explosive five-fold and at the same time giving a more powerful explosive than the undiluted T.N.T. Too much credit cannot be given to Lord Moulton, to whom my first reports were presented, for having recognised at a very early stage the fact that this mixture must be the backbone of our programme in a prolonged war calling for the largest possible output of munitions.

Shortly after the Ordnance Board had been reconstituted in an enlarged form as the Ordnance Committee, I was appointed as an Associate Member with special reference to the production and use of amatol as a high explosive, an appointment which I still retain. 80/20 amatol had the property of being extremely insensitive. It was, therefore, very difficult to detonate, and unless very great care and skill were employed a shell filled with amatol was liable to detonate partially, much of the explosive being scattered about unburnt after the detonation of the shell. For this reason, when 80/20 amatol first came into supply its efficiency, as judged by the weekly proof of filled shell at Shoeburyness, was distinctly below that of picric acid, and it was therefore necessary to continue to manufacture the latter on the largest scale that circumstances would permit. Gradually, however, as the result of incessant experiments on methods of manufacture and filling, for which every facility was provided by the responsible officers both of the Design and of the Supply Departments, the conditions required for successful detonation became clearly known, and steps were taken to ensure that these conditions were maintained in supply.

After having been called in, in February, 1916, to assist the Ordnance Committee in connection with the use of amatol in shells, I took part, at Lord Moulton's request, during the

spring and summer of that year, in two series of investigations on the manufacture of ammonium nitrate explosives, one in connection with alternative methods of manufacturing 80/20 amatol and the other in connection with a modification of the well-known blasting explosive "ammonal" in order to reduce if possible the quantity of aluminium used in filling this explosive into trench mortar bombs as well as for R.E. land mines. In connection with this extension of the work I secured the assistance of Dr. E. P. Perman, of University College, Cardiff, and was fortunate in being able to retain him in the Guy's laboratories until the close of the war and the winding-up of munition work at Guy's.

The result of the experiments described in the above paragraph was the adoption of 80/20 amatol for trench warfare purposes as well as for shell filling. On the establishment of a separate Trench Warfare Committee, therefore, I was appointed in April, 1917, as an Advisory Member of the Committee with special reference to the use of amatol in trench warfare and in aerial bombs.

My direct association with the shell-filling factories began in the spring of 1916. At that time the Chilwell factory had already reached a very advanced stage, and was producing a substantial output of filled shells. It had, however, become necessary to provide additional capacity in a series of new National Filling Factories, and at this juncture Lord Moulton, who was extremely anxious that the use of 80/20 amatol should not be prejudiced by incomplete knowledge of its properties, put me into touch with Sir Eric Geddes, to whom I acted as technical adviser until he was transferred to France to reorganise the railway transport. From July, 1916, to September, 1917, I acted as outside adviser not only to the Department of Explosives Supply and to the Ordnance and Trench Warfare Committees, but also to General Milman, the newly-appointed Controller of Gun Ammunition Filling, on whom rested the main responsibility for the efficiency of the ammunition sent out for service in the field. In order to obtain the maximum

efficiency of output by the scientific control of manufacture, General Milman, at my request, secured from the authorities of the Medical School the use of certain of the laboratories in the chemical and physiological departments, and provided me with a staff of chemists to assist me in this work. These chemists were all sent to Guy's to acquire some knowledge of the technique of amatol before taking up appointments in the factories, and in this way something like 20 Amatol-chemists must have passed through the laboratories at Guy's during the period of the war. The facilities thus afforded by the School were fully appreciated by the authorities, and on terminating the agreement the following letter was sent to the Dean by the Controller of Gun Ammunition Filling.

(COPY.)

23*rd January*, 1919.

To the Dean of the Medical School,

Guy's Hospital, London, S.E.

DEAR SIR,

In view of the winding up of the Experimental Work of this Department and the dispersal of the Experimental Staff, it is proposed to vacate after Easter the Laboratories at Guy's which are now occupied on behalf of the Ministry of Munitions. I therefore beg to give notice to terminate the present agreement on April 30th, 1919. In doing so I wish to express my appreciation of the services which you have rendered to this Department by allowing us to make use of the accommodation of the School at a time when the provision of fresh laboratory accommodation has proved extremely difficult. I shall be glad if you will also convey to your colleagues my thanks for their concurrence in the arrangements that have been made for carrying on our work in the School.—Yours faithfully,

L. C. P. MILMAN, Brig. Gen.,
Controller of Gun Ammunition Filling.

At the beginning of this period of advisory work under General Milman, Dr. A. F. Joseph, Professor of Chemistry in the Medical School at Colombo, joined me as a voluntary worker, and remained with me until after the termination of hostilities. The period was one of very active work, including the starting up of five big National Filling Factories and most of the pioneer work whereby the success of their output of 80/20

amatol was fully and finally established. During this period laboratories were erected in the new Filling Factories, and chemists were appointed at my request in order that the knowledge gained by experiment and research might be applied effectively in the day by day routine of the factories.

In September, 1917, General Milman pressed me to undertake an executive post in his department, and appointed me as Director of Shell Filling, a post which I occupied until the conclusion of the war. This appointment involved the technical control of the manufacture and handling of some thousands of tons of explosive per week for use in shells, and it was not long before the filling of naval mines, of trench warfare bombs, and hand grenades was also transferred to the department, which thus became responsible for using practically the whole output of high explosives in the country. On transferring my principal office to the Ministry of Munitions, I arranged for Dr. Perman to act as Director of the Ministry of Munitions laboratories at Guy's.

On the entry of America into the war an urgent demand was received for information as to the methods of shell filling which had proved so successful in England. At General Milman's request, accompanied by Major Armstrong, I visited the United States in October, 1917, in order to communicate to the Officers of the Ordnance Department the methods of manufacture which had rendered British ammunition equal and in some respects even superior to that supplied to any of the other armies in the field. For this purpose I was able to recommend to the United States Ordnance Department methods both of manufacture and of filling 80/20 amatol which had only recently been developed in Great Britain, but in which I had sufficient faith to make them the basis of the whole of the American shell-filling programme. My recommendations on this subject were accepted immediately, and within a week approval had been given to adopt amatol as the standard American explosive, and to erect a series of five very large filling factories to handle this work, in addition to providing factories

for the manufacture of the requisite ammonium nitrate, one of which, erected at a cost of 14 million dollars, had already reached at the conclusion of the war an output of 200 tons per day. At the conclusion of this visit, after filling the first amatol shells produced in the States, and seeing them fired at Sandy Hook, I brought back to England an American mission, composed of eight technical men under an Ordnance Officer, to study English methods, and from this time onwards a very complete liaison was maintained between the two services. It is of interest to note that whereas amatol in England was costing perhaps 8d. per lb., our French allies, who maintained to the end of the war their faith in picric acid or "melinite" as the best military explosive, were purchasing this material in America at a cost of something like a dollar per pound. The saving to the United States Government resulting from the adoption of amatol in place of the explosives recommended by the French experts must therefore have been very substantial.

At a very late stage in the war a complete liaison was finally established between the English and French shell-filling departments. During 1918 I had the pleasure of receiving two French missions to England, and of leading two English missions to the French shell-filling factories. As a result of these visits amatol was adopted in France as an alternative to picric acid, after trials which proved it to be completely satisfactory, although manufacture had not yet been undertaken on a very large scale at the time when hostilities ceased.

In connection with my technical work on shell-filling, I also paid a visit to Italy in the spring of 1918 as a member of General Savile's mission. During this visit again a complete liaison was established with the technical officers of the Italian Ministry, and during the course of the year I was able to welcome two Italian missions to England, one to study the English methods of filling shells with high explosives and the other in connection with the manufacture and use of mustard gas. As a sequel to these visits I was appointed an Officer of the Italian Order of St. Maurice and St. Lazarus.

A very important development during the last months of the war was the transfer to the shell-filling department of the very urgent work of supplying to the armies in the field shells charged with mustard gas, a weapon which had become almost a decisive factor in the final stages of the struggle. The manufacture and handling of this material were attended with very grave danger, in addition to the imminent risk of serious illness arising from exposure to the vapour. In France, indeed, where the charging of shells with mustard gas had led to over a thousand casualties in one factory alone, this was regarded as a military operation calling for qualities of endurance and courage comparable with those required in service in the field. Profiting to some extent by French experience the conditions in England were perhaps less painful, although in the early stages of manufacture one worker was obliged to report sick for every nine rounds that were supplied to the Army. In connection with this new work I arranged a technical mission to France in June, 1918, which had the effect of changing completely the methods used here in charging this gas into shells, and revolutionised in the most favourable way the conditions prevailing in the English gas-charging factories. In the autumn of the same year I accompanied General Milman on a visit to all the factories in France which were engaged in this work, and heard from the Director of one of these factories the choicest compliment I have ever received when he remarked at the conclusion of the visit "il y avait un de ces Anglais qui connait rudement ses affaires." Shortly after my return to England my work on mustard gas was recognised by an appointment as an Additional Member of the Chemical Warfare Committee.

In connection with the educational work that was required in order to secure and maintain the highest possible quality in ammunition filled with amatol, a series of four conferences on amatol was held in the Medical School at Guy's in April and September, 1917 and 1918. These conferences were very largely attended, and indeed assumed an international character

owing to the presence at them of technical officers from France, Italy and the United States. For the purpose of these conferences the Committee Room of the Medical School was placed at my disposal, whilst the residents in the College very generously allowed me to entertain our guests at lunch in their library.

The laboratory at Guy's also became an active centre of publication, a long series of technical reports on ammonium nitrate and on amatol being issued from Guy's and circulated in the British filling factories and technical departments, and also in the Colonies and amongst the Allies. In this way research work carried out at Guy's during the war has secured a permanent place in the confidential literature dealing with the manufacture of munitions. Scientific results obtained in the course of these investigations will, it is hoped, be issued in due course in the form of communications to the scientific societies most directly concerned.

In conclusion, I cannot omit to express my appreciation of the generosity of my colleagues, which allowed me to carry on so much work of national importance whilst still retaining my lectureship at Guy's. In this matter I am specially indebted to Dr. J. H. Ryffel for undertaking the lectures in Chemistry during my absences in America and Italy, and to Mr. A. Greeves for his efficient control of the laboratory work when most of my time and attention had to be given to urgent matters connected directly with the war.

OFFICERS' SECTION, GUY'S HOSPITAL.

NOVEMBER 2ND, 1914—DECEMBER 31ST, 1918.

BY

J. FAWCETT.

THE Officers' Section in Stephen Ward took shape as a sequence of the magnificent defence of our old "Contemptibles" at the first battle of Ypres, whereby the Empire was saved yet again at one of the most critical periods in the early stages of the Great War.

The onrush of the Hun had just been held, but at such a cost that our accommodation for wounded officers was sadly insufficient. One Monday morning, November 2nd, 1914, Sir Alfred Fripp visited the Superintendent to inform him of the state of affairs. The Treasurer and Sir Cooper Perry at once decided, as a matter of urgency, that Stephen Ward should be converted into a ward for sick and wounded officers. This ward had been renovated recently and a "tile" india-rubber floor laid down, the gift of the Rubber Growers' Association. Between 11 a.m. on November 2nd, 1914, and 4 p.m. on the following day partitions were erected dividing the floor space into separate cubicles. The Works' Department, in addition, completed the necessary adjustments for proper electric lighting of the cubicles and for lavatory accommodation. Nurses were provided straightway, and the patients originally in the ward housed elsewhere. That very night two dozen patients were admitted.

It was a triumph of willing hands, hard work, and good planning, and everyone, from the Superintendent downwards, who

had given a hand could not but feel thoroughly satisfied with the result. The cost of conversion of the ward was £28 19s., of which £13 15s. was for labour, and £15 4s. for material. The wooden partitions were those originally used in the ward maids' dormitories before these maids moved to Tabard House. The ward remained open in full working order from November 2nd, 1914, to December 31st, 1918.

The four divisions of the ward were allocated to the four surgeons to the hospital: Sir Arbuthnot Lane, Mr. L. A. Dunn, Sir Alfred Fripp, and Mr. F. J. Steward, and after Mr. Dunn's death Mr. R. P. Rowlands filled his place for a time, and later Mr. C. H. Fagge.

Dr. J. Fawcett and Dr. A. P. Beddard acted as physicians, each to the half of the ward under their control in peace time.

In addition, there were many others who did sterling work there, including those of the Assistant Physicians and Assistant Surgeons who were kept at the hospital; also Mr. Mollison and Mr. Ormond, Dr. Shipway, Dr. Eyre, and Dr. Iredell, among others; Mr. Marston, who acted for a time as Medical Officer of the ward, and all the house officers who, in their turn, loyally did their best in carrying on the continuous work of the section.

Sister Stephen, Miss Sheild, was placed in charge, and remained so throughout, and to her and to the Nursing Staff who worked so admirably under what were at times trying conditions the success of the "section" was largely due. Miss Sheild was awarded the R.R.C.

The facilities afforded by the resources of a general hospital led to many severe cases being sent to us; 1,199 officers were admitted and treated, with 12 deaths only. The amount of work carried out was great and often arduous, and it was some compensation to have so many old Guy's men, when attacked by ill fortune in the way of sickness or wounds applying for admission.

There being no hospital accommodation in London for Naval casualties, and the numbers of officers and men detained in the

London area in connection with the Admiralty and the Air Defence of the Metropolis being largely increased, the Naval Authorities were glad to avail themselves of the offer made to keep a certain number of beds always ready for emergencies.

The Hospital bore the whole cost of maintenance of the ward.

This short history of the ward may fittingly be ended by the following letter from the D.D.M.S. of the London District conveying the thanks of the G.O.C. in command to the President of the Hospital when it had been decided to close the Officers' Section :—

Headquarters, London District,
Horse Guards Annexe,
12, Carlton House Terrace,
London, S.W.1.
17th December, 1918.

To the Chairman, Guy's Hospital.

Dear Sir,

It has been intimated that you are desirous of closing the Officers' Section, Guy's Hospital, on 31st December, 1918.

The Officer i/c Queen Alexandra's Military Hospital has been instructed to evacuate the patients before that time (i.e. 30/12/18).

On behalf of Major-General G. P. T. Feilding, C.B., C.M.G., D.S.O., General Officer Commanding, London District, I wish to offer my sincere thanks and appreciation for the excellent work that has been carried out there during the past four years, and I should be greatly obliged if you would be so good as to convey to the Medical and Surgical Staff, and the Nursing and Subordinate Staff, our sincere thanks and admiration for their devoted and excellent work in connection with the treatment, comfort, and general welfare of the sick and wounded patients that have been accommodated during this long period.

Yours very faithfully,
(Signed) S. MACDONALD,
Major-General,
D.D.M.S., London District.

H.M. QUEEN MARY'S ROYAL NAVAL HOSPITAL, SOUTHEND-ON-SEA, 1914-1919.

By

SIR WILLIAM HALE-WHITE, K.B.E.

DIRECTLY after the declaration of war on August 4th, 1914, Mr. R. A. Corbet brought to the notice of one or two people the Palace Hotel, Southend-on-Sea, as a suitable building for a hospital. Fleet-Surgeon Mundy inspected it on August 8th and expressed the opinion that it was suitable for a naval war hospital. Twelve people were got together to form a Committee, and Her Majesty the Queen consented to become President of the Hospital. The Committee met for the first time on August 10th, 1914. Dr. W. Hale-White was elected Chairman, and occupied this position until the closure of the Hospital five years later. Mr. R .A. Corbet was elected secretary, a post he held until January 2nd, 1915, after which date he was not associated with the Hospital, Mr. E. R. P. Homfray being secretary from January, 1915, until the end of 1919. The Committee at once proceeded to collect subscriptions, and raised £34,822. The total cost for administration and maintenance of the Hospital was £111,000, of which the War Office and Admiralty provided £82,544, and there were other receipts from interest and sale of equipment, bringing up the total receipts to £119,000. Messrs. Tolhurst, the owners, lent the building rent free, but the Committee paid all rates, taxes and insurance, and at the end of their tenancy in July, 1919, paid Messrs. Tolhurst £6,000 for reparation.

The Committee after their first meeting began the preparation of the Hospital, and on October 16th, 1914, received 167 wounded Belgian soldiers. As in the early part of the war the Hospital was not required for sailors, soldiers were received and on October 30th, 1914, 101 British wounded soldiers were admitted. The Hospital then contained 270 beds. On April 10th, 1915, the beds were increased to 300, and in December, 1916, to 350, at which number it remained until the last patients left in May, 1919. For the first two years soldiers were received; after then only sailors. The Hospital was almost always full, and the total number of patients treated was close upon 10,000. The number of operations performed was 2,500, and the deaths were 55.

In the first week of October, 1914, Miss Kate Finnemore, formerly of Guy's, was appointed Matron, a post which she held until July, 1919. Nearly all the sisters and nurses also came from Guy's. On October 12th, 1914, R. A. Chisolm, of Guy's, was appointed Resident Medical Officer, and on May 8th, 1915, Evelyn Scott was appointed junior Resident Medical Officer. He became senior when Chisolm left in October, 1915, and Roland Sells became junior to Evelyn Scott. These two remained in office till the last patients left in May, 1919. All these three were Guy's men.

The following members of the Guy's Staff acted as Honorary Consultants, and paid hundreds of visits to the Hospital:—E. C. Hughes, H. L. Eason, A. W. Ormond, C. E. Iredell, J. W. Eyre, W. Hale-White. The following old Guy's men also at one time or another acted as Consultants:—R. Jocelyn Swan, R. A. Greeves, H. Tod Reeve, C. M. Ryley, R. W. P. Jackson. Dr. A. F. Hurst generously lent the X-ray apparatus, and Mr. Schofield, who was trained at Guy's, was the Resident Masseuse. The Guy's Hospital Minstrels came down at Christmas to give entertainments. The following doctors resident in Southend acted as visiting physicians and surgeons:—S. Bridger, H. Cleveland Smith, C. Forsyth, A. G. Hinks, V. J. Hodgson, Maxwell W. H. Morgan, J. C. Smellie.

SOME OBSERVATIONS ON THE SICK AND WOUNDED FROM THE GALLIPOLI CAMPAIGN.

By

CHARTERS J. SYMONDS, K.B.E., C.B.,

Late Consulting Surgeon to the Mediterranean Expeditionary Force.

In responding to the request of the Editors of these Reports for some account of the sick and wounded from the campaign in Gallipoli, it is only possible for me to give a general review. This I admit is not the type of communication suitable for a volume which should contain matter for reference only. Though figures cannot be given, nor any account of the many investigations that went on, the sketch may be of interest as giving a general impression of the conditions prevailing in Malta.

I arrived early in July, 1915. The weather was hot, the hospitals filled with sick and wounded. Colonel Ballance—now Sir Charles—had gone out in May, and had borne the brunt of the rush from the early battles. The glare and heat were very trying, and the hotel noisy. It became a question of shutting the windows to get some sleep, or being constantly disturbed by gossiping people, goats, children, and a horse stabled on the other side of the very narrow street at the side of the hotel on to which my window opened. Colonel Ballance had succeeded by an appeal to the Bishop in stopping the bell-ringing in the early hours, a concession denied to Napoleon. The church bells began about 3 a.m., and in Valletta, crowded as it is with churches, sleep to those unaccustomed to this

form of "slumber song," became impossible. The hospitals were not so very far apart in a direct line, but as the roads ran by the sea many miles were added owing to the irregularity of the coast line. As the transport was unable to supply me with a car at once, I had to get to and fro by steam launch and carozzi. This added enormously to the fatigue and exposure to the sun, and on one occasion caused an attack of momentary giddiness while walking in the open by a sun-beaten wall. One dodged into every bit of shade. A car removed all these troubles, and enabled one to get through double the amount of necessary work.

When in August the Suvla Bay attack began, the wounded arrived in large numbers. As they gathered under the few trees in the sun-baked Floriana barrack yard, eager were the questions asked as to how far we had got. Hopes rose and fell. Acha baba was ours one day, on another we had made no progress. Stories of awful hardship, of long periods without water, of the plague of flies, piled up the miseries of this mistaken campaign.

Among the wounded were many Australians, and one got to appreciate their sturdy manhood, hopeful outlook, and readiness to return to the line. It was well to see these fine fellows "rejoicing in their strength," swinging along the front at Slima with the glorious vitality of youth and splendid physique. Officers and men were alike in the determination to get back to the front. "I must be there with the boys" was the refrain of these men. If these Australians were wanting in discipline when quartered in Egypt, it must be remembered that the ready access to Cairo exposed men unaccustomed to the life of a city to great temptation. And of all places in the whole world it would be difficult to find more depraved surroundings. Months of inactivity made them restless, and the troops were allowed to frequent districts in the city which ought to have been out of bounds. Appeals from those working for the moral welfare of the men were too often disregarded. Once in the battle line with an outlet for their energy, they proved them-

selves in many a field splendid men, brave soldiers and good comrades. Impetuous and carried away with the lust of fighting, they at times, as in the first landing, broke away from command. Still, it has been said by some observers, who saw the effect of their onslaught, that could the attack have been backed up by the support of another division, Gallipoli would have been won.

The contingent operating in the peninsular was composed of the pick of the manhood of Australia—all volunteers. In the ranks men of education and wealth were mingled with all sorts. A solicitor from Sydney, who came in with a wound of the thorax, related the following incident. On patrol at night, he lost his bearings amidst the gullies, and stumbled upon the enemy trenches. Escaping, he found a friendly outpost, composed of the son of a leading barrister, a theological student, the son of a physician, and the last an expert burglar, also from Sydney. Association raised this last man's outlook, and coming later on to my patient, the solicitor, asked to be taught to read. He had, he said, been brought up to steal, and to look upon anything he could take from others as fair game. But here he had seen men share everything, not only helping but dying for one another and bear without murmur unheard of sufferings, and he had determined to strive to emulate their example. Let us forget in their splendid sacrifice the few and at times pardonable lapses of some of the unruly spirits.

The Maoris were fine, broad shouldered men, and bore the pain of their wounds with great fortitude. The Indian soldiers, especially the Gourkas, many of whom were badly wounded, proved excellent patients. One's inability to talk to them made association difficult, for the native interpreter failed to convey any sympathy. Unfortunately, many of these Indian soldiers had been wounded by the fire from our ships. They had taken the summit of the hill so quickly that they were mistaken for the enemy, and our guns continued to fire. It was a very sad pair of their English officers, both slightly wounded, who accompanied a particular batch of these Indians, for the losses

had been terrible in both officers and men. The devotion of these officers to their men touched one deeply; they accompanied them to a hospital most inconveniently situated, declining other much more pleasant quarters.

The sick and wounded from Gallipoli were carried to Alexandria and Malta, the fastest hospital ship completing the journey to Malta in 36 hours, others in 48, usually the men had been wounded four to seven days before arrival. The urgent operations were conducted on the voyage, the majority of cases, however, requiring operative treatment on arrival. The accommodation was provided first in the one Military Hospital at Cottenara, which was expanded to receive treble its usual complement. The barracks, housing in peace time a garrison of five thousand, were next requisitioned, as all troops had been sent to the war areas. The small rooms, holding about 10 patients each, were inconvenient for nursing, and rendered supervision difficult. They were well situated on high ground, and proved most valuable for the sick and for prolonged septic cases. St. George's, St. Andrew's and Tigne were close to the sea, while Imtarfa was inland on high ground close to the old city, and seven miles from Valletta. Floriana, just outside Valletta, though less well situated was airy and convenient. The old hospital of the Knights of Malta was in constant use from the first. This medieval building is close to the harbour, the main ward is 130 feet long, 30 feet wide, and of the same height. The windows are small and do not reach to within 10 feet of the floor, and are on one side of the building only. Thus efficient ventilation is impossible, owing to the dead air below the windows and the absence of cross ventilation. As soon as possible severely wounded cases were removed from this unsuitable building.

Further accommodation was provided in huts, tents, modern school buildings, and colleges. One Auberge made a satisfactory hospital, and later the isolation hospital on Manoel Island was handed over. Officers were accommodated in the roomy buildings of the officers' quarters attached to the barracks, also

in a technical school building and in the Hospital of the Blue Sisters. Altogether some 20,000 beds were provided. The organisation of this great undertaking was due to the foresight and energy of the Governor, Field Marshal Lord Methuen, assisted by Colonel Sleeman, of the 1st London Field Ambulance, as Principal Medical Officer. To these two men belongs the credit of an organisation that met every demand. When the beds were full on one occasion a cable arrived asking if a shipload of wounded could be received. The Governor replied in the affirmative, for, as he told me, better lay these men on the floor than leave them in a ship. Never did he refuse a call. Several officers of the Field Ambulance were appointed as Officers Commanding Hospitals, and thoroughly well they ruled. Most conspicuous was the hospital at Imtarfa, of 1,000, for enteric, dysentery, and all infectious diseases. Major Andrew Elliot made this a model hospital, and so well were the arrangements for the disinfection of dysenteric and typhoid stools laid down and carried out that during his time no member of the nursing staff became infected. The accommodation was improved and extended on the arrival of Surgeon-General H. R. Whitehead (now Sir H. R.).

There were special conditions which rendered the Gallipoli campaign injurious to the health of the troops. Few men remained throughout the occupation. The majority lasted on an average four months.

At Hellas there was a fair amount of space. At Anzac, as one man said, if you stepped back from your trench you were over the cliff. Exercise, therefore, was almost impossible, not only from this cause but also from the shell fire. Next, the heat in July and August was intense, and the flies beggared description. These two causes operated chiefly in determining rapid septic changes in the wounds. Water was another difficulty. Every drop had to be brought from Lemnos, and often—as at Suvla Bay—when an advance was made the men were without water for two or even three days. The physique of the troops naturally deteriorated under these conditions, and

they became more susceptible to dysentery and para-typhoid. These two maladies were always present, and, as will be appreciated, added immensely to the evil effects of wounds.

Some observations made by Colonel (now Sir) Purves Stewart upon men in the trenches showed a large percentage to be suffering from rapidity of the heart and anæmia. Again this explains the more severe effects of wounds than in those fighting in France. Men have told me that at first they could carry a bucket of water up the cliff with ease, but later had to rest more than once. And yet these were the men who took their turn with the rifle in the trenches.

In consequence of these adverse conditions the death rate was high, and the number of life-saving amputations required much larger than in other battle areas. A man suffering from dysentery with a smashed femur stood a poor chance. Efforts to save such limbs frequently failed on account of the exhausting effects of this complication. I remember such a combination in an Irish lad. The blood flowed from the rectum on the table, and it was a question of immediate amputation. As the fracture could be easily controlled we took the risk, and for a time this was justified, but the recurrence of the dysentery, together with infection of the knee, compelled us to amputate later.

Gas gangrene was not frequently seen among these wounded, but there occurred a fairly large number of cases presenting all the symptoms of poisoning from the bacillus coli. There was no obvious gas in these wounds. The patient became cold, the hands blue, the pulse rapid and weak, while consciousness was retained up to the last. Terminal vomiting was common, just as one used to see in unrelieved strangulated hernia. Probably some of these men might have been saved had the routine excision of wounds been carried out as was later adopted in France. Infection was, however, widespread by the time Malta was reached, and the best period for carrying out this method had passed. Every stump without exception was covered with grey slough, those that had been sutured were full of pus.

We pointed out the evil of closing amputation to the surgeons of the hospital ships, and advocated the simple circular or light gauze packing when flaps were made.

Compound fractures of the femur, of which there was a large number, were treated by Hodgen's suspension splint. Coming from Guy's, where the first Hodgen was put up in this country, and having always employed the method and found it satisfactory, I had a large number constructed.

In July, 1915, I remember going to the Ordnance Department and asking for one hundred Balkan supports to be made for these cases. It could not be believed that more than five and twenty could be required. We, however, got all we wanted the moment the chief of the department understood the position. That was where the consultants facilitated the distribution and manufacture of apparatus. Colonel Clark of the Ordnance had 400 men in constant employ making hospital furniture, splints, etc. One had only to explain the position and in the shortest time one had the splints. Again, where instruments were needed, one went to the stores, obtained and carried them in the car to the hospital

. The Thomas splint was also used for thigh cases. I think we were fairly early (July, 1915), in establishing for the treatment of fractured thighs extension by weight on a Hodgen or Thomas's splint with slinging from a Balkan frame. The continuous irrigation of saline was then in vogue. One of our most scientific and accurate surgeons, and, I am glad to say, a Guy's man, then Capt. Camps, now of Teddington, observed under this method that the wounds did not do so well as might be expected. He therefore adopted intermittent irrigation and was, I believe, one of the first to practise the method. Again, he found it advisable to change the re-agent, using permanganate chiefly.

To Capt. Percy Camps we were indebted for many improvements in apparatus and methods. These were the outcome of close personal attention, and nothing of importance was left to others. At all times of the day the seriously wounded need

attention, and the apparatus frequent adjusting. One has only to mark the difference in the comfort of the patient and the rate of recovery, where this constant supervision is given with progressive outlook, and the perfunctory morning and evening visits, everything nearly being left to the nurses. Camps introduced an efficient method of draining deep pockets and sinuses. A piece of silver wire was passed through the tube which was now doubled on itself at its mid point, where an opening was cut. Irrigation could thus be carried to the deepest part without removing the tube.

Wounds of the knee-joint arriving profoundly infected did badly. One soon noticed that whenever a large opening existed in a joint allowing a free escape of secretion there was a fair prospect of recovery. When the olecranon was blown away the elbow did well; when the knee-joint was exposed from the loss of covering skin and capsule we could generally do something; even in the hip a large posterior wound through which the head of the femur could be seen rotating was capable of recovery. I have seen such a case recover with some movement. We therefore impressed upon the ship surgeons to be content in all knee cases with free lateral incisions placed well back. Where this was adopted early sepsis did not spread up the thigh during the voyage. I had the opportunity—long waited for—of excising an acutely septic knee-joint. Private H., a Welshman, was very ill, he had wasted, was in great pain, ran a high temperature, and had suppuration of the knee-joint with œdema of the leg. He did not want to lose his leg, and, taking the risk, I excised, removing the minimum amount of femur. The limb was put up in a malleable iron and plaster of Paris splint, sufficient extension was applied to separate the surfaces, and he was slung in a Balkan. I had the satisfaction of seeing him go home with a good useful limb. Another excision, made after some weeks of suppuration, did so well that the patient—a big Australian—was taking weight on the foot in four months. Col. Ballance (now Sir Charles) went further and pegged the bones with steel pins. I have done a dozen such cases now, using steel pins, and with most gratifying success.

Head cases were numerous, for the steel helmet had not been introduced into our army, though employed by the French, and they did badly except when the dura mater was intact. It was pitiable to watch these cases, some of them remaining sensible, and taking interest in things, while the hemisphere was slowly melting away. I came to the conclusion that it was better in these badly-infected cases to expose fully by the crucial method and dress as an open wound.

A soldier takes his chance of a wound and of death from enemy fire, but to be maimed and suffer or to die from other causes seems a greater tragedy. Such was the effect of the awful blizzard that swept the peninsula and produced 4,000 casualties. Cold rain fell in torrents, swept down ravines which sheltered our men, and carried away everything, men and animals were drowned, food, equipment, transport, everything went. Then came a freezing drizzle, followed by snow. It was night, the enemy trenches were near, our men had in some units lost rifle and ammunition. It was impossible to ascertain how much the enemy had suffered, and so we had to keep on the alert. Men stood out that night covered with snow, and it was this alone that saved them from the fire of the enemy—they were invisible. Men froze to death during that terrible night, and hundreds lost their feet from frostbite. Where the flood had not descended and the cold alone had to be encountered, the evil effects could be mitigated. The officers and men of Lovat's Scouts sent coffee to those in advance, and the gillies, accustomed to the cold of the Highlands, took off their boots and rubbed their feet. I saw no cases from this regiment. I asked a young captain how he got through the night, and he replied that he kept his men hard at work digging trenches he did not want. Now comes the result of this disaster into Malta, and words fail utterly to describe the sufferings of these poor fellows, or to give any adequate idea of the destruction of life and limb. Many died soon after arrival from general septicæmia; immediate amputation through the thigh was necessary when the gangrene or the tense bluish red area had

reached the upper third of the leg. In the hope that free incisions into this tense area might check destruction, we adopted this method in the case of a man, both of whose feet were black, and so high had the redness and swelling extended that removal through the thigh would alone carry one above the area. We took the risk. Captain Camps amputated through one thigh, and at my suggestion made vertical incisions into the other leg in the hope that a below-knee amputation would suffice later. The plan succeeded. This man had septicæmia at the time, and we did not like to take the risk of leaving both limbs. The result, however, raises the question whether it would not be a sound plan to make an early guillotine amputation, as low down as possible, in severe frostbite, or to relieve tension by early incisions. I cannot give the number of amputations for frostbite. Some idea may be obtained when I say that one morning in a single hospital I saw six cases requiring double amputation. I operated on one leg, demonstrating the method carefully, assisted the surgeon with the other, and left him to deal with the remaining cases. In one ward in another hospital there was only one sound foot amongst eight men. The problem how best to deal with cases of partial gangrene of the foot has given as much trouble in those arising from so-called "trench foot" in France as it did with our cases directly due to exposure to intense cold. The trench foot is, so far as I can judge, due to a slower but similar process with a like result if sufficiently prolonged. The loss has been generally limited to the toes, though the circulatory effects have reached higher. I have not seen a whole foot become gangrenous in any of the French cases.

The desire to save part of a foot has led to prolonged invalidism and much suffering, and in a fair number amputation has had to be performed after a year's treatment. It is not alone the loss of the part of the foot, but the condition of the skin and muscles, which have only just escaped destruction, that causes the disability. The skin is thin, dry and shiny, and very tender; the muscles of the sole of the foot are hard

from fibrous myositis, the scar is constantly breaking down. One has seen a good many such cases after months of treatment still crippled. Amputation at this stage gave the only chance of a useful limb. Better had the foot been removed early. I mean that where in addition to the obvious gangrene of part of the foot there is evidence of permanent injury to the vessels, nerves and other tissues, early amputation is the soundest practice.

The only surgical complication arising from dysentery was effusion into the joints. This would occur in men well enough to be about. The knee was mostly affected, and there were not many cases. The joint filled up quickly, was fairly tense, and only slightly painful. In one case I directed the fluid to be removed by aspiration, and if found opaque the joint was to be injected with ether. The fluid, I afterwards learned, was clear, nevertheless the surgeon injected ether without any evil result. The patient, indeed, felt little or no pain during the next few days, and recovered completely. Ether has proved valuable in mild septic synovitis, and can be injected without an anæsthetic. My usual plan after drawing off the fluid by a Record's syringe is to inject 10 c.c. and prevent the escape through the needle until the ether vapourising distends the joint, when the vapour is allowed to escape. Then another like quantity is injected, and retained. In a case of recurrent synovitis of septic origin due to secondary infection from a wound of the lung the fluid was opaque, and the deposit contained pus cells. Considerable improvement followed the injection of ether, and some months after this officer was using his joint freely while on light duty.

Paratyphoid of both varieties was fairly common, and gave rise to many consultations at Imtarfa as to whether a perforation had or had not occurred. In some cases where there had been sudden pain and distension even with collapse, we were able to distinguish between ulceration of the colon without extravasation and complete perforation with escape of contents. "Amongst 1,200 cases we have had about 50 deaths and there

were nine cases of perforation with eight deaths. Paratyphoid B. accounted for five, B. Typhosus for three, and Para A. for the one that recovered. This gives a mortality of 4 per cent. with an average of less than 10 per cent. of perforation occurring in the whole series. Of the nine cases, two were admitted with perforation, three perforated the next day and one on the second day after admission. So that there is not much doubt but that a considerable number had perforated before reaching Malta. A journey that necessitated transport from the trenches to the field ambulance, from there to the clearing station, embarkation, a sea voyage of about four days with often a rough passage, and finally a motor drive of seven miles in the case of Imtarfa, must be conducive to a typhoid ulcer perforating." I quote the above from a paper contributed to the Medical Society in Malta by Captain Rose Clarke.

The case that recovered was operated upon by myself, and a few particulars may be interesting. Albert W., 29, a stoker, went sick on December 4th, 1915, with headache and abdominal pain. Records begin on the 7th with a temperature of 103·4°, pulse 84. The temperature varied from 101·2° to 104·4° for the next nine days; pulse 80-86. On December 17th he had a rigor at 3 p.m., the temperature rising to 106° and pulse 140. At 10 p.m. the temperature had fallen to 99° and pulse to 68. This was the fourteenth day of recorded illness and probably later in the disease.

On the 18th, having had a comfortable morning, he was seized with abdominal pain at 12 noon and vomited twice; the temperature rose to 103°, pulse to 108, and there was sweating. At 2 p.m., temperature 102°, pulse 70, pain in spasms, no vomiting, comfortable generally. At 6 p.m., temperature 103°, pulse 104, pain more severe, spasmodic, abdomen more rigid. At 8.30 abdomen opened in median line below umbilicus, and a large quantity of thin sticky greenish fluid poured out, the colour growing darker as the fluid came away from the deeper portion of the pelvis, and was finally an olive green. No gas and no odour. The presenting loop of

intestine showed lymph, and below this the great omentum was adherent to the bowel. On raising the omentum a perforation about a quarter of an inch in diameter was exposed. It appeared to have been closed by the omental adhesion. The aperture was closed by a fine silk suture and the omentum attached to and folded round the bowel. A rubber drain was inserted into the pelvis. Twelve hours after operation, temperature 98°, pulse 78. By the 27th the temperature was normal, the pulse on the 20th was 70 and varied between 64 and 78.

That success followed this operation is due to the early recognition of the perforation by Captain (later Lieut.-Col.) Price, and the Commanding Officer of Imtarfa, Major Elliot. Lieut. Garrow, who gave the anæsthetic, stated the time occupied from the commencement of the administration as twenty minutes.

Other cases were operated upon, but too late or the patient was too ill from toxæmia for recovery. Early operation is more important in these cases than even in perforating duodenal ulcer, for the blow falls on a man already weakened by disease, and the extravasated material is highly infective. The risks are small if everything be prepared; the perforation will usually be found in the loop of the bowel first exposed through a median incision below the umbilicus. In the case recorded here the perforation was within a foot of the cæcum, in others 9 inches and 6 inches. In one it was 2 feet and another 4 feet from the ilio-cæcal valve. In two cases the cæcum was perforated.

One man died in another hospital through the Medical Officer mistaking the "period of repose" which follows perforation for improvement. He had all the signs of perforation during the night of December 11-12th, 1915. When seen next morning by the Medical Officer—a Maltese and a careful man—the pulse was 88-90, and there was no complaint of pain. Unfortunately, no further visit was made till 6 p.m., and the rise in pulse rate at noon to 112, two hours later to 120, and temperature 103·2° were not

reported. At 6 p.m. the pulse was 140 and temperature 103°, and there was frequent vomiting of green fluid. At 8 p.m. the perforation was quickly found and closed, and the pelvis drained. He died on the 13th at 2 p.m. At the autopsy the peritonitis was limited to the pelvis, the perforation securely closed was nine inches from the cæcum. The lower lobe of one lung was solid from broncho-pneumonia. The missed opportunity was due in the first place to the report of the night being taken from the patient, and secondly to the misinterpretation of the "period of repose." Also and most important in the rise in pulse not having been reported.

In a brief sketch like the present it would be out of place to pursue this subject. I would only emphasise the importance of the following points:—

1. That the occurrence of any sudden change in the course of the illness should raise the alarm. In the first case here referred to there was a rigor twenty-one hours before the perforation, in the second a sudden fall in temperature to 97° about twenty-four hours before the onset of abdominal pain.

2. That a period of repose almost invariably follows. In the first case this was manifest in two hours, in the second completely deceived the observer some eight hours after perforation. Close observation in this period will often detect slight signs of progressive peritoneal irritation. There is usually some pain, if careful enquiry be made, though so slight when compared with that of the onset that the patient makes light of it. The pain will be spasmodic and slight, will occur after taking anything by the mouth, and sickness will be induced by food. When in doubt my practice has always been to give food in this period in all cases of suspected perforation from whatever cause. If vomiting follows in one or two hours the existence of spreading infection is demonstrated. Over and over again in acute appendicitis I have employed this test, and never without finding abundant proof of the necessity for operation.

3. Seeing that the perforation is in the majority of cases within two feet of the ilio-cæcal valve, and can be reached

through a median incision below the umbilicus, with a minimum of disturbance, the added danger of an operation is slight, provided always it be brief and the anæsthetic so selected and given as to be followed by quick recovery. I like my patient to respond to a question before leaving the table or within 15 minutes.

4. Time being in these septic conditions of the greatest moment, the anæsthetic should not be started until the operator stands ready with the scalpel in his hand. In these cases also the frequently associated pulmonary lesions have an important bearing upon the choice or duration of the anæsthetic (see the second case). Gas and oxygen given with the modern apparatus is no doubt the best anæsthetic, as it is followed by a quick recovery. I have on several occasions been obliged to be content with chloroform in operating for perforative appendicitis. Ready to incise the moment the conjunctival reflex was abolished, even though there was movement of the limbs, I have been able to complete removal and drainage in fifteen minutes, and I believe in this way determined recovery. There must be no prolonged post-operative depression; if there is to be success. I once successfully resected two feet of small intestine in a lady over 80 without any anæsthetic beyond ethyl chloride locally.

Tetanus, though it occurred, cannot be said to have been a frequent complication. Several cases arose amongst the Indian troops; all were fatal. One English soldier recovered from a long and severe attack only to die of general caseous tuberculosis.

Though there occurred many cases of acute hepatitis, abscess of the liver was uncommon. Hepatitis called for not infrequent consultations at Imtarfa and other hospitals. The liver became enlarged and tender; there was some pyrexia, and the question of abscess or cholecystitis arose. Emetine solved the difficulty in many cases. It was extraordinary how rapidly the liver subsided in a few days. It is unnecessary to dwell upon the value of this remedy even when an abscess has

occurred. A very notable instance was that of a young soldier in whom an abscess was suspected, and which it was thought had burst into the pericardium. He was too ill at the moment for any operation, though I was prepared to open the pericardium as the lesser of the two risks and the more likely to give immediate relief. Colonel Archibald Garrod (now Sir Archibald) did not press for immediate interference though the heart was rapid in action and there was a friction rub, and the temperature was up. In a few hours this delay was justified, the cardiac condition improving to one of safety. The diagnosis of hepatic abscess remained, though the exact position could not be defined. Emetine had been administered, and it was decided to rest content with aspiration as a first measure. One of the medical officers had some successful cases in China. Over a dozen punctures into the right lobe yielding negative results, and not inclined to explore the left in this way, I opened the abdomen in the middle line and at once exposed a large abscess in the left lobe adherent to the diaphragm. The pus was evacuated by an aspirator, and a large drain inserted down to the site in case further drainage should be necessary. The patient recovered without any recurrence of pus, under the continued use of emetine. The pericarditis had been due to extension, not perforation. I was asked to see an abscess in the Royal Naval Hospital, Netley, so large that the skin was bulging and fluctuation easily obtained. Though he had been prepared for operation, I suggested emetine and aspiration, drainage later with injection of emetine into the cavity should the pus re-collect. Even this man recovered without further interference. It is truly remarkable to watch the subsidence of the enlarged livers under the use of emetine, and still more satisfactory that its use enables us to dispense with drainage in hepatic abscess, except, of course, where a secondary infection has occurred.

THE WAR WORK OF THE B.R.C.S. NURSING SERVICE.

By

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The story of the work of the trained nurses of the British Red Cross Society, of which I have personally seen much on my tours of inspection, is one of arduous labour, unselfish devotion and indomitable courage in many theatres of war.

In August, 1914, not a moment was lost by the British Red Cross Society and the Order of St. John in organising the trained nursing service that was at once recognised to be a need. At St. John's Gate several well-known matrons and others worked with me in forming a band of trained nurses, and shortly afterwards the nursing department was co-ordinated under the Joint War Committee of both Societies at 83, Pall Mall, where I have had the honour of working as Matron-in-Chief for five years.

The first step taken was to form a register of nurses with full hospital training, and send them where the need was most urgent. Later, other registers were compiled of staff nurses with two years' general training and of others holding Fever Hospital Certificates. Only three years' general trained nurses were sent to work abroad, with the exception of those to do infectious work. At this time the staff numbered 2,500.

The whole story of the nurses' work will never be told, but the following short sketch will give some idea of the extent of their labours, and of the conditions under which they nursed

on the various fronts, as well as in Great Britain, France, Belgium, Italy, Egypt, Salonika, Serbia, Russia, Roumania, and Bulgaria, and later on in Holland, their work being done in hospitals, casualty clearing stations, surgeries, rest stations, trains, ships, barges, factories, and in hostels attached to the various camps employing personnel.

At first it was very difficult to cope with the work, but in August, 1914, the first units were sent to Brussels and Antwerp and were at once busy nursing Belgians, French, British and German soldiers. The bombardment was severe, and the nurses had not only to do their duty calmly, but to reassure their patients. When the Germans entered, some nurses had to disguise themselves as refugees and make their escape by Charleroi and Denmark. The stories of the nurses' bravery were thrilling; to give but one example, a slightly-built woman was seen to lift three disabled men on to a cart when the shed they were in was being bombed.

The conditions under which our nurses have worked were both varied and unprecedented; for nurses have had to perform duties which hitherto have been considered outside their province; thus, at casualty clearing stations many of the nurses gave the anæsthetics and thus gained valuable experience.

In France and Belgium old barns, engine sheds and empty buildings were utilised as hospitals; they had, of course only the most primitive sanitary arrangements or none at all, no water supply, no lighting, except lamps and candles, and very poor heating and cooking arrangements, if any. Not only comforts, but even medical necessaries, were absent, and thousands of wounded were pouring in continually. The hospitals had no anti-tetanus serum, little chloroform, and owing to the difficulty of transport scarcely any dressings, clothing or bed linen. Moreover, in these conditions the nurses had to tackle not only fearful surgical cases, but entirely new illnesses, such as gas poisoning, gas gangrene, tetanus, trench feet, facial injuries, the varied diseases of the eye, as well as epidemics of enteric and paratyphoid, and later, in the East, typhus, smallpox, diphtheria, trench fever, and Bilharzia.

Belgium.

The first British Red Cross Society unit to go abroad consisted of a party of 14, organised by the Order of St. John, which left London on August 19th and got into Brussels by the last train to enter, just as the Germans took the city. Within three days they were quietly doing the work in hand, nursing Germans, British, French, and Belgians for about a month, until they were told that they might leave. Their journey home through Belgium, Aix la Chapelle, Cologne, Hamburg, Denmark and Norway was a memorable one. They slept on a cargo of potatoes crossing to Aberdeen.

As much help as possible was given to Belgium, which was overwhelmed by the sudden catastrophe, and had no proper hospital accommodation or nursing service. At La Panne, a little coast town which was swept constantly by enemy shells, a unit of 10 sisters worked from November, 1914, at the Hospital de l'Ocean for several years, until, after some of the staff had been wounded and killed, they were ordered out of that too dangerous zone. The appreciation of their work is shown by the fact that at a time when it was feared they might be recalled for service with British troops, the Queen of the Belgians specially requested that they might remain, and the unit was increased to 30. This unit was the last one to work in an Allied hospital. It was under the Belgian Red Cross, and its 1,600 beds were used entirely for Belgians up to July, 1916, when it was partly taken over for the British. In September, 1917, it was found necessary to evacuate, owing to the heavy shelling from the German lines only five miles off, and it was then used as a dressing station, and the Red Cross Sisters were recalled.

It was to help the Belgian refugees, too, that 82 Red Cross sisters worked at Malasisse, St. Omer, during an epidemic of enteric, giving the incessant care necessary from February to June, 1915, so that a serious danger was reduced to a minimum.

What made the work in the early days so remarkable was, as I have stated, the way in which the nurses met the situation, treating a huge number of most serious cases in the most primitive conditions with a lack of all appliances considered necessary in hospital work. The wounded were waiting—there was no time to organise anything, but just to set to work. Here is one picture: "One recalls a building, a former school, with no lighting or heating arrangements, except in one room where there was a gas jet and a miserable stove, the only means of obtaining hot water. Here urgent operations had to be performed under anything but aseptic conditions, and case after case would be brought in and placed on the floor, watching and waiting to take their turn on the improvised operating table. The other rooms were full of wounded lying close together on straw, and it was anxious work by the light of a feeble candle, going from one to the other watching for hæmorrhage or collapse. The food question was also a difficulty, even milk being hard to get. The sanitary arrangements were practically nil, the only pretence being an open gutter in front of the building."

"Another school taken over had been so long unused that it needed weeks of cleaning. Meantime the wounded were pouring in night and day, to be washed, fed, and have their wounds dressed before being sent to England. The wounds were appalling, the odour from gas gangrene cases unbearable, and the mental condition of the patients added to the strain of nursing. Sometimes the whole building would be plunged into darkness or the water supply cut off. There was no gas and very little methylated spirit or alcohol, but the will to do work overcame all difficulties and in an incredibly short time many well-organised hospitals were ready."

Another centre of wonderful work was a railway engine shed in Calais fitted with 200 beds where Red Cross Sisters worked during the winter of 1914, while in the same town another party tended numerous Belgian typhoid cases in a small house with narrow staircases and no proper drainage. Yet

another hospital for Belgians in Calais was the Baltic and Corn Exchange Hospital with an enteric annexe. Another hospital was the British Farmers, in huts, on a plot of ground given by the French; the Matron and 27 sisters composed the nursing staff. It is interesting to note that although many different infections were nursed in only two wards, there were only two cases of cross infection. The work was carried on during severe air raids, one of which lasted over five hours. The Hôpital Jeanne d'Arc, Calais, was also staffed by the British Red Cross Society sisters and did excellent work for many months. The Isle of Wight Field Barge Hospital was another. Four of the sisters also worked on the Belgian Hospital Ships to and from England.

France.

France was, of course, the field of most of the workers, and France in the early days of the war meant difficulty and discomfort, bitter winter weather, no fires, no facilities for cooking or bathing.

At Dunkirk three St. John sisters were sent to help in the station sheds, which had been converted into a sort of clearing hospital. Dunkirk, being only five minutes by aeroplane from Ostend where the German stores were, was subject to bombardments from the air, and unless there was a British warship in the harbour it was also bombarded from the sea. The enemy went back two or three times in the night to Ostend to replenish their bombs. The last time I was in Dunkirk there was scarcely a window left in any building.

One can imagine the scene, the long gaunt shed, the floor packed with stretchers on which lay French, Turcos, Senegalese in their picturesque turbans, some on the straw down on the rails, the long French or Belgian trains drawing up to the sidings with the sad freights, the patient and almost terrifying composure of the piou-pious, the picturesque mixture of races. One sees, too, the kind, busy French Medical Officer, with his "Mon Brave" and "Mon Petit," always cheery and hopeful,

and courteous to the group of English doctors and nurses waiting the order to start dressings before the reloading of the trains. One of the nurses writes: "Nowhere on earth could one have been more privileged to work, or been more closely brought into touch with all the stern realities of war. To realise oneself in direct contact with the men straight out of the trenches, and to see their wonderful stoicism under such appalling conditions covered with mud, bruised, bleeding, maimed, and dying, and yet expiring joyfully 'pour la patrie' was to know that in the end the barbarians were doomed to loosen their hold on the fair land of France no matter what it cost their children in blood and tears. To leave the shores of this island and to work and talk among men and women who had seen the deadly peril at their doors and the 'sales bosches' at their house-wrecking work would determine the least courageous of us never to turn back an inch until the Hun had been absolutely crushed and rendered too weak to attempt to destroy the world's peace by such horrible and dastardly crimes against mankind. Better still, to feel the welcome given to the Infirmieres Anglaises, and the appreciation of the help given by our doctors and nurses to the wounded of our Allies, is to have had a real share in trying to do something, however small, for our brave Allies."

Sisters from the early units worked in French Hospitals for the first ten months of war, until, owing to the shortage, they were recalled to our own hospitals in France. They had hard work and by no means an easy time. They were to be found in hospitals at Tournai, Aix-les-Bains, St. Malo, Dieppe (nursing German prisoners), Compiegne, St. Lunaire, Dinard, Treguier, Nevers, Malo-les-Bains, Fort Mahon, La Conte par Hudain (only ten miles behind the front), Gretz, Caen, Cherbourg, Paris. In fact, up to the end of 1914, 582 sisters had reported for duty in France and Belgium.

At St. Malo, at the Friends' Hospital, our nurses at first nursed enteric cases for the French, later the hospital took general cases. Here occurred one of the many instances of

bravery. A report by the Principal Matron says: "Nothing could have been finer than the calm way the patients were dealt with during an air raid. It gave me great insight into what the staff went through night after night, yet cheerily doing their work during the day as usual. I consider that it was the influence of the matron and some of the staff that this calmness was maintained throughout."

Help was given to the French even as late as December, 1918, when a unit was sent to Mauberge to nurse French civilians from the recaptured districts. Four small hospitals were established and served 366 patients from about twenty-five villages.

Work for the British in France.

The British Red Cross nurses, though they gave so generously to our Allies, had also the privilege of caring for our own men.

As early as September 29th, 1914, No. 1 Red Cross Hospital opened in the Hotel Astoria, Paris. Excellent work was done for five months, until the hospital was taken over for the French.

At Rouen No. 2 Hospital was transferred to the Red Cross in September, and shortly afterwards it was reorganised as an officers' hospital, and was greatly appreciated by the 26,000 officers who passed through it.

Other sisters worked in the Red Cross Hospital at Abbeville and four at an Aid Post at Rouen; later, also, at Bon Secours where there was a 1,600 bed Belgian Hospital.

The bulk of the work done was at Boulogne. The wounded were pouring in; chaos reigned, and six "pioneer" Red Cross sisters were gladly welcomed by the army authorities and set to work at the famous "Sugar Shed Hospital" on the wharf —No. 13 Stationary; and for some months fifty Red Cross sisters were hard at work there. The Principal Matron writes: "I can remember the sisters sending over to me for food for their patients. I was only able to get bread, butter, and milk

in the town, but that at least tided them over a little. The spirit in which this unit worked cannot be forgotten by any one who was associated with the work at the time." The army authorities were more than glad to use the nursing help provided by the British Red Cross Society. Eleven were commandeered by the Matron-in-Chief, B.E.F., for army hospitals in Boulogne. Another worker served in the X-ray and Electrical Department of No. 7 Stationary all through the war.

In November, No. 4 Red Cross Hospital, with 100 beds, was opened at Wimereux with a matron and 19 sisters, many of whom won well-deserved honours. This hospital admitted the severely wounded from the Aisne and the Marne and worked to the end of 1915.

In December there was opened at Wimereux No. 5 Red Cross Hospital staffed by 22 of our sisters; its record is over 14,000 patients.

Meantime our sisters had been staffing the fine hospital at Le Touquet, which treated at first all ranks, but later was reserved for officers and did splendid work for nearly four years.

The year 1915 saw the establishment of many new Red Cross Hospitals. That at St. Malo already mentioned, was then used for British patients and had two wards for naval men; its record is 2,325 French and other nationalities and 9,261 British, besides 202 civilians.

In April the Liverpool Merchants' Hospital (No. 6 Red Cross Hospital) was opened at Paris Plage, and moved later to its own huts at Etaples, and in 1918 to Trouville. It had a matron and a staff of 42 nurses.

In July, No. 7 Red Cross Hospital was opened at Etaples. In August, at the same place, the largest of all the voluntary hospitals, the St. John Brigade, was opened. This hospital was bombed in May, 1918, with considerable loss of life; the matron and five of her staff being awarded the Military Medal for bravery. Several hut wards were completely destroyed and all the glass of the operating and surgical theatres was smashed.

One sister was killed instantaneously, and six sisters were either injured or suffered from shell-shock, or both.

In September the Baltic and Corn Exchange Hospital, which had been working for the Belgians, opened for British soldiers at Paris Plage (No. 8 Red Cross), and worked for two years, treating over 12,000. It continued its work later at Boulogne.

The end of the year saw the establishment at Calais of No. 9 Red Cross Hospital. It did excellent work, lived through many air raids, and had an adventurous career, having three moves and being forced to trek during the German advance of 1918. Two of the staff received the Albert Medal. This hospital had a fine dug-out, sixty feet deep, in case of need for patients and staff.

In 1916, No. 10 Red Cross Hospital was opened for British officers at Le Treport, and did good work for over two years.

In 1917, the hospital at La Panne, already referred to, was transferred to the British on the taking over of that part of the line. Three of the British Red Cross staff were asked to go to a Field Ambulance and Main Dressing Station, the Director-General giving his permission, although it was out of order for women to be at such an advanced post. The matron with three sisters remained there for six weeks doing most excellent work. They were highly recommended by the Officer Commanding for the valuable services rendered to gas cases. There was an arrangement in this Clearing Station where fifty gassed cases could be placed in an enclosure at a time and treated by inhalation. One thousand cases could be taken in, and in case of bombardment the building could be cleared in less than three-quarters of an hour. Owing to these gas cases having immediate nursing treatment many lives were saved. The Dressing Station was prettily situated in the grounds of a farmhouse near Coxyde, Belgium, and was shelled in September and quickly evacuated.

In April, 1918, the Anglo-French Committee of the British Red Cross Society transferred its personnel to the French Red Cross, and those working for the Belgians came under the con-

trol of the Joint War Committee. The year was trying as well as heavy; work was disorganised by the retreat. In June the hospitals were bombed, and there were evacuations; our advance followed quickly, and the hospitals still intact had a very heavy time. October was the heaviest time of all, as in addition to heavy convoys, there were epidemics of influenza and pneumonia. With the armistice the hospitals were closed down, and in April, 1919, the Joint War Committee staff were demobilised.

Trains.

Another sphere of activity was in the Ambulance Trains. One of the first began its career in April, 1915, and took its first load of wounded from Hazebrouck to a base. Here is the sister's description: "Poor things! Some of them were in an awful condition, some dying, some hæmorrhaging, and others soaked in blood and stuck tightly to the stretcher by their clothes. We turned to and did as much as ever we could for the men on our downward journey, cutting off clothing, re-clothing, and doing dressings, feeding the men, and, if possible, washing their faces and hands. I had ninety under my care in three wards of thirty beds each. In three weeks the train carried 8,000 wounded." No wonder the sister says: "It was this train that carried some of the first awful load of gassed men." Here is an account of a day's work: "During the loading of the train the sisters make a note of each patient, diet them, and fix them up comfortably. This enables them, directly the loading is finished, to give a list of the diets to the head orderly of each ward, and he takes the diet sheets to the stores sergeant, who issues the food accordingly for each meal. The sisters receive a list of treatment from the medical officers, and if the load is a heavy one they are kept busy all the journey with dressings, irrigating Carrel tubes, taking off wet and dirty clothing, re-clothing and nursing serious cases. The sister in charge of the sitting cases has a busy time, as her patients come up in relays to the treatment room to be re-dressed, and this may mean as many as two or three hundred

dressings when there is a push on. Journeys take any time from six hours to thirty hours, according to which part of the line the train is running from and to which base it is evacuating. Also the time varies very much according to whether there is much pressure of traffic on the line. We have brought down patients from most of the big battles—Ypres, Hill 60, Loos, the Somme—in July, 1916, and all the autumn of 1916; Arras, 1917; and from Ypres and the northern section in July, August and October, 1917. We did not get much rest either, as there was the train to be cleaned, blankets to be shaken, beds to be made and dressings to be prepared. If we helped, it encouraged the orderlies, who were not used to day and night work and were most of them raw recruits."

Another train was equipped with four Red Cross sisters in December, 1914. It had an excellent record and came out second for merit of the B.E.F. Ambulance Trains.

Another was the train presented by the United Millers of Great Britain in 1915, which had the honour of being first for merit of the B.E.F. trains; and still another was No. 16, built by the G.W.R. Company in the same year. This train was bombed in March, 1918, on its way down from Amiens, with 700 severely wounded patients and 30 sisters as passengers. Two orderlies were injured and the train was damaged. For five hours the sisters worked with electric torches, and the fitful light of a blazing shed, cheery and to all appearances unconcerned, while 'plane after 'plane unloaded its bombs amid the crack of "Archies" and the maniac clatter of machine guns. The officer in charge submitted the names of the sisters for the Military Medal. From that time gas masks and helmets were kept in readiness for the almost nightly excursions to the nearest dug-out. On May 31st, 1918, the train was again bombed at Etaples and set on fire; at the order of the officer in charge the sisters sheltered in a ditch. During Marshal Foch's great offensive on the Marne this train was at Criel; later it carried repatriated prisoners from Germany. After the German retreat of 1917 the nursing staff were the first women to

enter Miraumont and Beaumont Hamel, where they had an enthusiastic welcome from the troops.

No. 11 train was bombed. A sister wrote: "A bomb got us fair; it was terrific, and we all thought we were done for, windows smashing all round. At once the train was in flames. The O.C. said we must get out. This we did, and among the falling shrapnel and bombs we saw a bank which we scaled and lay flat on the ground. This was surely a merciful Providence watching over us."

Embarkation.

The British Red Cross Society was, it is believed, the first of the women's corps in France to have an embarkation and transport representative. It was a position entailing much work and worry.

Other Work.

In addition to all the work already described, our nurses staffed various Convalescent Homes for Officers and men as well as the Convalescent Home for Army and Red Cross Sisters at Hardelot; later this was transferred to Cannes and later still to Boulogne.

The Principal Matron visited all the hospitals under the Joint War Committee and looked after the housing and general welfare of the sisters. At first those who fell sick were treated in their billets, a very difficult arrangement; afterwards a Sick Bay was attached to the headquarters at the Hotel Christol and later at the Chateau Maurician, Wimereux.

Italy.

The activities of the Red Cross nurses were not confined to England and France. Among the mountains of Italy, where warfare was carried on at incredible heights, they were to be found at their work of "mending the men."

In May, 1915, a unit was sent out and a hospital was opened at Villa Trento, on the Trentino Valley, about 12 miles from

the firing lines. It contained 100 beds and was a First Line hospital for the Italian wounded. There was a motor unit attached to this hospital and it carried all the wounded from the firing lines to dressing stations or hospitals. There were hostels at Cosmons and along the Corse. The work was medical and surgical, and the methods of the English nurses were much appreciated by the patients, who even in sickness are forced to lead hard lives, and are unaccustomed to luxuries or even the necessaries.

The Italian hospitals had no women, except in a few where there were V.A.D.'s or where English nurses had been sent to help from Rome, and there were no nurses on the trains.

The patients were given bread and coffee as they came down wounded from the battlefields, and the British Red Cross Society had kitchens and personnel at different stations for the purpose of distributing this bread, coffee, cigarettes, chocolates, etc., to the men. The hospital was evacuated in 1918 at the great retreat.

The British Red Cross Society had a convoy of ambulances fitted with the newest X-ray apparatus, and there were expert operators and nurses who went along the Front for the purpose of examining the wounded and localising the bullets. These operators were so hard pressed that they had not time to take any photographs. The Italian surgeons simply operated immediately on the diagnosis. This method of localising saved many thousands of lives, and was much appreciated by the Italian surgeons. There were also installations placed at various receiving hospitals, and here the operators attended for the sake of localisation.

Egypt and the Soudan.

At the time of the Gallipoli Campaign units were sent out to Alexandria and Cairo. A Red Cross Hospital was opened—the Sai'dia Schools, Giza, being commandeered for the purpose. There were also hospitals for officers, recreation hostels for the nurses and other personnel, and after a time the Sultan lent

the beautiful Montaza Palace at Alexandria to the British Red Cross to be used as a Convalescent Home. There were 2,000 beds.

During the fighting the cases were chiefly surgical with complications of every description, aggravated by fever and other medical ailments. A good number of the native cases suffering from Bilharzia were treated successfully with tartaremetic. With this treatment, careful nursing and observation were required.

The Giza Red Cross Hospital closed in 1918, and the Montaza Convalescent Home in 1919.

Serbia.

In May, 1915, at the request of the Serbian Government, a large unit was sent out and a building in Vrorjatch Ka, Barja, was commandeered for the purpose of a hospital. This unit was completely British, and the patients treated were Serbs.

The staff had to work very hard, as dysentery and fever was very prevalent amongst the surgical patients. The unit continued to work for the Serbs, who were most grateful and thankful, until the entry of the enemy in February, 1916. The mayor of the place and most of the residents made their escape, but the unit stood by the hospital and the patients. The matron, who could speak German, French, and Serbian fluently, went out to meet the enemy and informed them that they were British people and that the Orderlies—who were Austrians—intended to stand by them. This had its result, as the Germans allowed them to escape, minus their belongings and hospital equipment, and they arrived in England in March, 1916.

Other units were also sent out to Serbia.

Russia.

In Russia a very large proportion of the work done under the auspices of the Russian Red Cross Society was organised by the County Associations. The Union of Zemstvos was re-

sponsible for providing enormous funds for the upkeep of the Red Cross Hospitals at the Front and in the Interior, dressing stations, flying ambulance columns, bath trains, hospital trains, canteens and feeding stations, refugee collecting stations, military fever hospitals, isolation points and vaccination stations, depots for clothing, dressing, instruments and medical comforts of all kinds. The medical and nursing staff for these various activities were chosen by the Red Cross Society.

The Russian Red Cross sisters are trained at various "obschenas," or communities, each community having its special dress, customs and rules. The term of training varies from $2\frac{1}{2}$ to 4 years, and this always includes a course in the dispensary. Most of their time is taken up in learning surgical work; indeed, some of the training schools in Petrograd take no medical cases at all. The result is, of course, that the bandaging and dressing is most exquisitely done, while the art of nursing, as we have it in England, is—apart from the wound—almost unknown. At the end of her hospital training there is an examination and the sister receives a certificate.

It was in 1915 that we were first allowed to assist the work of the Russian Red Cross. Several of our sisters worked in a hospital in Warsaw before it fell. One of the sisters says: "The orderlies slept on stretchers in the hall, putting their beds down every night and heaping them up in a great pile every morning. At first the hospital was small, but it was eventually built to accommodate over 1,000 patients. Some large beds were lent to the hospital, and these were put in rows down the corridors, and two patients were put into each bed. Two severely wounded patients in one bed are not very easy to nurse well, as may be imagined, but the men helped by being charming to each other, and they always lay face to face, never back to back. Dying cases were put alone as far as possible, but one of the men woke up one night and found his comrade cold. He had died more than an hour before without a sound or a groan.

The rapid increase of patients was not accompanied by an increase of staff, and the sisters had to work very hard. The hospital was fortunate in having for a matron a sister who had been through the Russo-Japanese war and who was quite accustomed to coping with any emergency. Even the arrival of a convoy of three or four hundred badly wounded men in the middle of the night did not perturb her in the least. Everyone was called and was in their appointed place and everything went like clock-work.

The nurses' had to get up each morning at 6.30, breakfast was at 7.15, and consisted of coffee and bread and butter, and they went on duty immediately after. Nominally the work was supposed to be finished by 3 o'clock, when the bell rang for dinner, but actually the dinner was often postponed till 4, or even 5 p.m. when they were busy. The long interval between breakfast and dinner was very trying at first until the nurses got accustomed to it. Dinner consisted of soup, followed by meat, except on Friday when fish or vegetables took its place, and cheese or an apple, followed by several glasses of delicious tea. There was a break until 5 p.m., and then the dressings began again, and after supper at 8 p.m. preparations were made for the next day.

From 1916 to 1918 we had for a hospital one of the Royal Palaces at Petrograd. It was evacuated at the time of the Revolution in Petrograd, and the hardships at this time were great. Any of the staff coming down country could have a bed, but there was no bread available; if they brought their bread they were welcome guests.

The patients were extremely well looked after and were very grateful for all that was done for them.

Roumania.

To be sent to Roumania meant a long journey by sea to Archangel, then across Russia to Odessa and thence to Halatz. Here a hospital was established in a school and was named after the little Prince Mercia of Roumania who was poisoned

through eating sweets dropped by an aeroplane into the Palace grounds where he was playing. The work was very heavy as the wounded arrived by slow transport and had not been attended to for days. A sister wrote: "Many of our patients reached us from distances by means of very slow trains or by boats and barges into which they had been hastily loaded from places near the firing line, and often they had been days without attention before coming to our care, arriving in a condition of filth that is indescribable. As we had cases of gas gangrene among them it will be readily understood that the atmosphere of the wards from the evil-smelling cesspools outside became very foul and almost unendurable; and it was not altogether a matter for surprise that many members of the staff suffered from diarrhœa and bowel troubles during our ten weeks' stay. The benefit of our paratyphoid inoculation manifested itself thus early on our journey."

After ten weeks, retreat was necessary, and the party joined the poor starving refugees on the quay, waiting for hours in rain and cold wind. Thence by barge to Reni and by train back to Odessa, weary, travel-stained, and more than half frozen. In February, 1917, half the unit was detailed to Ismail (Bessarabia) and half to a field hospital just behind the Front in Moldavia. There was accommodation for 220 patients in tents and three officers in the house. The tents were full, and the staff worked at high pressure for four months. In the summer, work was rendered more difficult owing to the plague of flies. A nurse wrote: "With such swarms of carriers we were anxious always about the spread of infection, for did we but loosen a bandage a batch would be all round the wound in a moment, and we lived in fear of the spread of erysipelas by the pests. However, it is a matter for congratulation that no epidemic attacked us or our patients." The following graphic description is from the same pen: "In an English newspaper I read the words 'On the Sereth there has been artillery action.' A plain simple statement, but what tragedies are hidden behind that small curtain of words! A

great Reaper busy at his fell task, gathering his harvest of poor broken bodies, cut down in the full vigour of young and lusty manhood, and a full quantum of ghastly wounds, eyes blinded, limbs blown off or rendered useless, heads smashed like eggshells, abdomens ripped and torn by shell splinters, horrible mutilations, bodies drilled through by bullets from rifle and machine gun. The brave silent work of the stretcher bearers, risking life and limb in their efforts to recover and succour the wounded soldiers; the hurried work at the dressing stations; the quick scrutiny of the seriously wounded and maimed; the prompt inoculation for preventive purposes with tetanus serum; the labelling of the patients; the loading of ambulances; and then the speedy rush of the convoy across the country to the first field hospital situated a few kilometres behind the fighting line where members of the unit were ready at all hours of the day and night to receive them and give of their very best in skill and attention in their endeavour to alleviate the sufferings of these poor maimed creatures. Such is the portion of the picture conjured up in the minds of those whose duty and privilege it was for four months to serve in the British Red Cross Society Field Hospital established at Tecuci, Roumania, and attached to the Russian 4th Army."

In August the hospital had to be evacuated and eight sisters returned to England.

The members of the units going to the East were provided with one-piece overalls from head to feet, to protect them from lice, which were the chief means of carrying the infection of typhus.

Holland.

In 1917 it was decided that a Trained Nurse should accompany each boat sailing between the Hague and London bringing convoys of released prisoners of every nationality, taken over from the German lines. The nurse who filled this post had to be able to speak French and German fluently, undertake 46 hours' duty at a stretch, and manage lunatics. This work was

successfully carried on till the Armistice was signed, when the nurse became head of a Receiving Hospital in London.

After the Armistice it was found that the convoys were much larger and that the prisoners handed over were in such a desperate condition, mentally and physically, that a hospital was opened at Clingendaal for Officers. Later when our own trains were able to go into Germany for the men, there was a 1,000-bed hospital opened at Rotterdam for those who were unable to embark direct for England. Here they were fed, re-clothed, and made in a fit condition to return to their own country.

Great Britain.

In this country the conditions were, of course, better, but owing to the scarcity of medical men the nurses had great responsibilities. Many of their achievements have been brilliant, and all have given devoted, patient and helpful work. Shell-shock patients, for instance, require special care, and the nurses have had to help their patients mentally and physically by taking part in their recreations and their re-education. Moreover, owing to the continued demands of the authorities for probationers, nurses have had the additional burden of training V.A.D. members during the whole war. One example of the value of their work is the fact that owing to the success of the beautiful hospital at Brockenhurst for Indians, the India Office has given permission for the first time for native hospitals to be staffed with trained women nurses.

A general in France said the other day that the war could not have been won without the help and moral influence of the women; the knowledge of this fact will, I know, be sufficient praise or reward for the women of Great Britain—laity, trained nurses and V.A.D. members.

In this country no fewer than 2,050 hospitals were established under the Joint War Committee, employing one trained nurse to every twenty patients. Their record is to be found in our reports, and certain it is that without them it would have been impossible to care for the wounded in this country. They

ranged from a large hospital like the King George V. in Stamford Street, with its 2,000 beds, to large and small houses generously given up by their owners all over the four kingdoms, schools, public buildings supplemented by huts and tents, where space, water supply and drainage would allow.

I have space only to speak of one or two doing special work. At St. Dunstan's Hostel for the Blind, nurses are in charge of the Surgery, doing dressings and irrigations, giving electric treatment in certain cases, syringing noses and ears, and dressing wounds. Then there are fits to treat as well as influenza and minor troubles. There are three trained nurses at each house.

Another special class of hospitals is the Maxillo-facial for jaw cases—these are slow cases requiring continual dressing and syringing. "No one who has not nursed these cases," says a sister employed there, "can realise how much has to be done. Many patients arrived with terrible wounds and septic mouths, and the nurse quickly got satisfactory results from frequent irrigation, often every two hours day and night. All food had to be specially prepared, solids being finely minced and served very liquid. Many wonderful plastic operations were performed: the jaw restored by bone-grafting, or lip or chin replaced by a skin graft. Massage and electric treatment also did much to loosen scars and restore function."

Finally let me mention one other special work—that of the factory nurse. Taking Chilwell as an example, the little hospital was situated right in the danger zone of the factory. A matron and three or four sisters had to be prepared to deal with accidents at all hours of the day and night. There were about 10,000 workers, and the cases included toxic jaundice, dermatitis, burns, accidents, etc. In July, 1918, a tremendous explosion took place: many were killed and several hundreds wounded. The staff of nurses had to render first aid in the open before the injured were removed. They are justly proud of their share of war work in a factory which turned out more than 50 per cent. of the output of heavy shell in this country during the war.

OPHTHALMIC PRACTICE IN THE MEDITERRANEAN AND EGYPTIAN EXPEDITIONARY FORCES, 1915-1918. *

By

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"*The thing that hath been, it is that which shall be; and that which is done, is that which shall be done; and there is no new thing under the sun. Is there anything whereof it may be said, 'See, this is new.'*"

Egypt, Palestine and Syria have been the cradles of many civilizations, the battle grounds of some of the world's great conquerors and the graves of many armies. The palimpsest of history is there for everyone to read. This recent war has given added point to the wisdom of the old and weary Jewish King, for the world's battles in 1914 to 1918 have been fought in places which have been battlefields since the beginning of history. And as with battlefields, so with disease. Although knowledge may advance and methods of treatment alter, disease in various countries remains little changed from century to

*Portions of this paper have already been published in the British Journal of Ophthalmology, August, 1917, and in the Transactions of the Ophthalmological Society of Great Britain, Vol. XXXVIII., 1918.

century; and the campaigns of nearly all the conquerors in the East have been greatly influenced by disease, as is evident from all historical records.

The fate of Sennacherib's army, when besieging Jerusalem, is graphically described in the Book of Kings: "*And it came to pass that night, that the Angel of the Lord went out, and smote in the camp of the Assyrians an hundred and fourscore and five thousand: and when they arose early in the morning, behold they were all dead corpses. So Sennacherib, King of Assyria, departed and went and returned, and dwelt at Nineveh.*"

Richard Cœur-de-Lion got as far as a distant view of Jerusalem, but failed to reach the city as his army was stricken with fever; Louis XI. landed in Egypt but lost a great portion of his host from dysentery and scurvy; and in recent times Napoleon, in one of the swiftest campaigns, marched across Sinai and besieged Acre; but plague, fever and ophthalmia beset him, and he returned defeated, as did Sennacherib.

In September, 1918, the British Army left the areas in which it had remained in front of Jerusalem for months, protected by every modern method of sanitation. In the conquering rush that ended in the capture of Damascus and Aleppo it passed through the plains of Sharon and Esdraelon, down the deadly valley of Jezreel to the plague-stricken depths of the Jordan. Within a month hundreds were dead of malignant malaria and thousands were sick. If the advance had not been so swift and so crushing, Allenby would have met the fate of Richard Cœur-de-Lion.

All this is by way of preamble, and is not really in my province as an ophthalmic surgeon; but history is fascinating, especially in the East, only in so many cases the records are so tantalizingly incomplete. One would give anything to know definitely what plague defeated Sennacherib, or the details of the fever that crippled Richard Cœur-de-Lion. Luckily for us we do know more of Napoleon, for of all the armies that have

entered Egypt, none has left a more complete record of its work than his, and the memoirs of his famous Surgeon-in-Chief, Larrey, are a model to all medical historians.

But to come to my own subject. Egypt is the home of the blind, the squinting and the one-eyed. Little children lie in their mother's arms with their discharging eyelids ringed with flies, and hardly a grown man or woman has two clear sightly eyes. Ophthalmia has been the curse of the country since history began to be written, and it remains so to this day; and as it was in the time of Napoleon, so it is now. My object in writing this article is to put on record some account of the injuries and diseases of the eye among the British Army in Egypt in the recent campaign, and, in the matter of ophthalmia, to contrast my experience with Larrey's just over a hundred years ago.

I propose, therefore, to give a short general account of ophthalmic surgery in Egypt for the four years 1915-1918, dealing almost exclusively with our own experiences and without reference to eye work in the other theatres of war, giving the most attention to the affections which were the most important from the military point of view.

Organisation.

I arrived in Egypt in September, 1915, and after a short preliminary tour of inspection among the hospitals in Egypt discussed with the Director of Medical Services, Force in Egypt, and the Principal Director of Medical Services, Forces in the Mediterranean, the general lines of policy upon which I should act.

There were two main alternatives: (a) that a special ophthalmic hospital should be established in Cairo, which should be under my general control, and to which all cases of gun shot injury should be sent, and (b) that I should act strictly as a consultant and, not being attached to any one hospital, should be available for advice or assistance in any area or institution as occasion arose.

After consideration of the various arguments I advised in favour of the latter alternative on the following grounds: (a) that under existing conditions it was almost impossible to collect all the operative eye work at one hospital without much delay and trouble, (b) that as far as my experience of twelve months' war work at home showed, ophthalmic injuries were but a small percentage of the total cases, and that the main duty of a military ophthalmic surgeon was the comparatively dull, though very essential, work of testing defects of vision and errors of refraction, (c) that to collect all the cream of the work for myself at one institution and to leave all the routine work to others seemed to me hardly fair, and at the same time not conducive to the establishment of an efficient or keen ophthalmic medical service.

It seemed to me that every effort should be made to ensure that all ophthalmic specialists were competent and that they should then be encouraged to take the responsibility for all the work that chance brought their way, my services being available for advice or assistance if necessary.

It soon also became quite apparent to me that the great problem of the campaign would be the standardisation, as far as possible, of all opinion and treatment, so that invaliding and classification should be uniform in every area. This end could not be achieved by regulations or instructions, as it was a matter of varying professional opinion, but only by a general interchange of views and personal influence. This would necessitate my travelling continually, seeing the ophthalmic specialists at their work, and talking over matters with them informally.

The Director of Medical Services, Force in Egypt, and the Principal Director of Medical Services, Forces in the Mediterranean, agreed with these views, and it was arranged that I should act purely as a consultant, visiting hospitals at regular intervals to see cases on which my opinion might be asked, and advising the Directors of Medical Services on matters of general principle. It was also arranged that, as far as possible,

no officer or man should be invalided home from Egypt for any affection of the eye without my having seen the case and written a report for the Invaliding Medical Boards, which heretofore had often come to widely different decisions on identical or similar cases.

This principle of unity of standard was later on extended much more widely by the general Standing Medical Boards in Cairo, Alexandria and Palestine, but any account of these is outside the scope of this article.

During the Gallipoli campaign considerable anxiety was felt by the medical authorities in Egypt and in Mudros as to the treatment of ophthalmic injuries, both as to whether cases of gunshot wounds of the eye were being treated sufficiently early after the injury, and also whether any risk of sympathetic ophthalmia was being incurred owing to undue delay in the removal of damaged eyes. For this reason I was, shortly after my arrival in Egypt, instructed to proceed to Mudros and report on ophthalmic arrangements there. On arrival at Mudros I found that owing to the prevailing naval and military difficulties it was purely a matter of chance where a soldier wounded on the Peninsula eventually arrived at a hospital. He was put on a hospital ship and might be put off at Mudros or be carried on, without disembarking, either to Alexandria or Malta, in which case he might not arrive at a hospital where he could see an eye specialist until a week or ten days had elapsed after the injury. As success in the treatment of injuries of the eye depends almost entirely on the rapidity with which the treatment is commenced after the injury, it seemed to me essential that all cases of ocular injury should be put ashore at Mudros, and not brought down to Egypt or Malta. There was at Mudros, in the 3rd Australian General Hospital, a most efficient ophthalmic department, under the care of Major Lockhart Gibson, a well-known ophthalmic surgeon of Brisbane. The department was equipped with a Haab's magnet, and an extensive outfit of instruments, and there was a

skiagraphic department adjacent. It was apparent, therefore, that the ideal arrangement would be for all eye injuries from the Peninsula to be put ashore at Mudros and sent to the 3rd Australian General Hospital, where they would quickly receive skilled treatment under the best auspices. On my making representations to this effect to the Principal Director of Medical Services, Mediterranean Expeditionary Force, instructions were at once issued that this should be done, and, until the evacuation of the Peninsula, every case of injury to the eye was, as far as military and naval exigencies permitted, disembarked at Mudros.

Ophthalmic Work at Mudros.

The following extracts from Major Lockhart Gibson's report, written just after the evacuation of the Peninsula, give some idea of the work done at Mudros in the last three months of the Gallipoli campaign:—

The records of 126 eye cases (in-patients) have been preserved. I am of opinion that a good many have gone astray.

These cases may be classified into two large groups, viz., (1) Cases neither directly nor indirectly attributable to explosive weapons, and (2) those attributable to shrapnel, bombs, and bullets, or to the indirect injuries (excoriations of the conjunctiva and cornea) from parapet sand and gravel, and the impaction of fragments of such sand and gravel in the cornea. Both groups are approximately equal, about 60 cases occurring in each.

Classified more particularly into anatomical groups (with an additional group for foreign bodies in the eye and another for enucleations), it is found that no case of much importance falls outside one or other of these heads. As many eyes were injured in more than one part, such grouping brings the number of cases up to 200 or more. They were as follows:—Conjunctiva 44, cornea 51, iris 11, lens 13, vitreous and fundus 13, sclerotic 7, lids 8, orbit 5, anterior chamber 4, foreign bodies 30, enucleations 14.

There were 16 intra-ocular foreign bodies, if we include two which were within the sclerotic coat, but perhaps not within the choroid. Of these, six (6) were removed. Three from the anterior chamber, one through the sclerotic wound and from the vitreous chamber close to it; this one, a piece of steel, was not from an explosive weapon. Two removed were within the sclerotic, but probably not within the choroid. Six foreign bodies were left *in situ*.

Of the six cases from which intra-ocular foreign bodies were removed, four saw as well as before, one saw 6/18 only, because other small erosions on the cornea had interfered with its transparency. One had a traumatic cataract and required further discission.

Of the six eyes retaining their foreign bodies, two had useful sight, viz., 6/12 and 6/18. One might regain sight after the lens had finished being absorbed, subsequent to further discission. One had no sight. One had no sight and would probably have to come out. One, a Greek, refused to have the eye removed, although warned of the possible danger to the other eye. The eye contained two foreign bodies, had a partial traumatic cataract, and showed ciliary irritation at times. He could count figures only. The Haab magnet failed to attract the foreign bodies.

The remainder of the 30 cases of eyes containing foreign bodies, included foreign bodies in the cornea and under the sclerotic and conjunctiva. Several of the eyes had several foreign bodies. Many ocular foreign bodies were removed from out-patients who continued to be treated, if necessary, as out-patients. A peculiarity of the foreign bodies in the cornea was their depth. Many had practically reached Descemet's membrane, and it was with the greatest difficulty that they were removed. A spud in many cases was not sufficient, the point of a Graefe's knife being necessary. Another peculiarity was their minute size. Their size and depth demonstrated the great force with which they had been projected, in contrast to the experience of civil practice, where small fragments do not come with sufficient force to be embedded deeply in the cornea. They were composed of steel, lead, nickel, and sand or gravel. The eyes all did well, but the deep foreign bodies left permanent opaque scars.

Two fair sized foreign bodies were found in the orbit. One, a piece of steel, had entered at the inner end of the eyebrow and was detected by X rays under the roof of the orbit and fairly far back. The giant magnet pulled it forward under the conjunctiva of the upper fornix and then, the lid being everted, pulled it, without an incision being necessary, across an inch of space. The other foreign body had grooved the edge of conjunctival surface of the lower lid. The scar had healed, but there was discomfort in turning the eye up. An X ray detected the foreign body above the floor of the orbit and fairly far back. The giant magnet failed to cause any feelings of discomfort and failed to attract the foreign body. The discomfort gradually subsided, and the man rejoined his unit retaining the foreign body, his sight unaffected.

The fourteen enucleations were all cases of eyes injured by projectiles. They all did well, although several had other injuries in addition to the eye injury.

In no case had I to remove both eyes, but in one case the remaining eye was badly injured, and its retina became detached. It was blind, but might be kept and was not disfigured.

In another, the second eye, like the one removed, also contained pieces of wood, and certainly required to be excised, although the pieces of wood were removed.

All the Pterygia (8) were large ones, and all in members of the A.I.F. Except in one case, where the growth was entirely removed, the lower half only was removed and the upper half detached, turned downwards and fixed in the wound so left. This method was introduced, I believe, by Thos. Evans, of Sydney, and has been followed by me for many years when the pterygium is a large one. It ensures against return, and should be the operation of choice.

A severe case of symblepharon had been operated on in England by transplantation of skin. The result was bad. A graft of lip mucous membrane, transplanted after removing the scar and the bunched up skin, held and the result was good.

The cases of corneal ulceration were due to injury, to phlyctaenular inflammation, and to the results of acute conjunctivitis of a catarrhal nature. No cases of Gonorrhœal Ophthalmia were seen.

Three due to injury proved to be severe infective ulcers, spreading and accompanied by hypopyon and chemosis. One I failed to arrest even with the electro-cautery. The eye had to be removed. One, a Greek's, where the ulcer occupied fully 2/3rds of the cornea, with hypopyon and chemosis, was arrested by the electro-cautery, and a subsequent optical iridectomy gave the eye useful sight.

The third case, in which the ulcer was smaller but the chemosis extreme, and the hypopyon very marked, responded very quickly to the electro-cautery, and regained excellent sight.

Injuries to the lens were accompanied by other injuries to the eyes. Amongst out-patients there were some peculiar lens opacities which may not have been congenital but due to shell concussion. There were also a good many cases of ordinary congenital lamellar cataract amongst the English troops.

Under the head of Iris were several cases with other injuries also. The five most interesting were two operative and three iritis cases. Of the two operative cases, one was the Greek's eye above mentioned, the other an eye in a young officer suffering from intermittent attacks of glaucoma. It was due to a penetrating injury to the upper cornea-scleral margin "during child birth." The pupil was occluded and drawn up. A very fine pin point slit at the edge of the occluded pupil allowed imperfect intraocular circulation, but at times became blocked, resulting in an attack of glaucoma with a shallow anterior chamber and bulging iris. These attacks had been very frequent latterly, and were becoming more severe. When comfortable the eye had minus tension. During the attack the tension was plus 1.

An iridectomy not only relieved him from attacks and gave the eye a normal tension, but also gave some sight to an eye which had never

seen more than bare light. It counted fingers at several yards, and might improve further. The patient was able to re-join his regiment without fear of other attacks.

One lad who had been invalided back from Gallipoli had a central scotoma due to a subhyaloid hæmorrhage at the macula. He was admitted, and after a few days mild attacks of tertian malaria developed and were confirmed by Major C. J. Martin's examination of a blood specimen. He responded at once to quinine. The subhyaloid hæmorrhage may have been nothing more than a coincidence. The prognosis, judging from other cases of subhyaloid hæmorrhage in my experience, is hopeful regarding sight. Another case of hæmorrhage in the fundus occurred in an O.C., aged 51 years, of another unit. He had several hæmorrhages into each retina and into one disc. No cause could be discovered. His urine was normal in every respect. It was surmised that the antiscorbutic or anti-*beri-beri* constituents of his diet may have been insufficient. He was treated accordingly, and, of course, invalided home.

The conjunctival cases were catarrhal, phlyctaenular, traumatic and pterygial. Only one specimen of catarrhal secretion was sent to the pathologist, and was negative. The cases were often severe, and were frequent amongst the Greek population of the island, both adults and children. Some corneal ulceration was present in some of the Greeks and also in some of the troops when they were under observation. A lotion containing sulphate of zinc grains iii and boracic acid grains xii to the ounce of water acted practically as a specific. It caused improvement at once, and when the cases were not of long standing rapid cure resulted. Many catarrhal cases suffered, also, from phlyctaenular conjunctivitis, and required yellow oxide of mercury in addition.

I met with no case of Trachoma occurring in Lemnos. The few cases seen had come from Egypt, or were cases of recrudescence in Australians who had previously suffered.

Although I can only say that two foreign bodies were removed by the giant magnet (one from the interior of the eye, and one from the orbit), which would have been difficult or impossible to remove without so strong a magnet as Haab's, the knowledge and help given by it in other cases were so great that I should have been imperfectly equipped without it. Until it arrived I had only a Hirchberg's hand electric magnet (8 volt dry cells), and that enabled me to rescue one piece of steel from an anterior chamber. But at least two cases might have been benefited had the giant magnet arrived sooner. That X rays also were not available during the first few weeks was a considerable handicap.

The failure of hospital ships while in harbour to get transport to land casualties diminished the numbjer of cases of injured eyes which should according to orders have come to me from Gallipoli.

Two things militated against the greater usefulness of the giant magnet, viz., the time which always elapsed before the cases arrived at Lemnos, and the minute size of the foreign bodies. In the case of small bodies the force with which the magnet attracted them was slight, and consequently any plastic lymph anchoring them in the eye was able to hold them. This was clearly demonstrated in the cases of a minute piece of steel lying between the lens and iris and attached to each by lymph. The magnet failed to bring it into the pupil's area. The lymph stretched, but did not relinquish its hold on the foreign body. It was picked out of the anterior chamber by forceps after a small iridictory.

The only two eyes removed after failing to attract the contained foreign body by the giant magnet contained respectively a piece of lead and a piece of copper.

The out-patients who came from other units and hospitals on the island and from the ships in the bay averaged about 20 per day from 10th September to the first week in January. Notes of 1,004 new ophthalmic out-patients were taken during that time. A large number of these were cases of refraction, many of whom I found to be so benefited by glasses as to be made efficient, whereas before they could not have been so. Most of them stated that no attempt had been made in England to test their vision. I find that 254 prescriptions for glasses were given. I found after a time that many of these were not made use of, and refrained from giving prescriptions unless the C.O.s said those given would be sent to an optician. Latterly the prescribing of spectacles was put on a very satisfactory basis; partly, I think, as a result of my representations to General Babtie. He ultimately prevailed on the War Office to supply the men with cylindrical as well as spherical glasses.

The routine proposed by General Babtie after consultation with Lieut.-Colonel Eason, who had also discussed the question with me, and adopted during my last few weeks in Lemnos, met all objections, and was as follows:—Prescriptions were sent to the Base Medical Depot at Alexandria, and were also entered in the last page of the man's pay book together with a statement of the amount of his vision without and with correction. Two pairs of spectacles were sent to the man's O.C. Breakages or loss were replaced by the man himself and without his return to the base.

Major Herschell Harris gave me most valuable help by taking X ray pictures of eyes and foreign bodies or possible foreign bodies.

Owing to the generosity of the Queensland Red Cross Society, who cabled me £200 to London for the purpose of equipping my department, I was able to get all the instruments I required, including a Haab's magnet.

Egypt and Palestine.

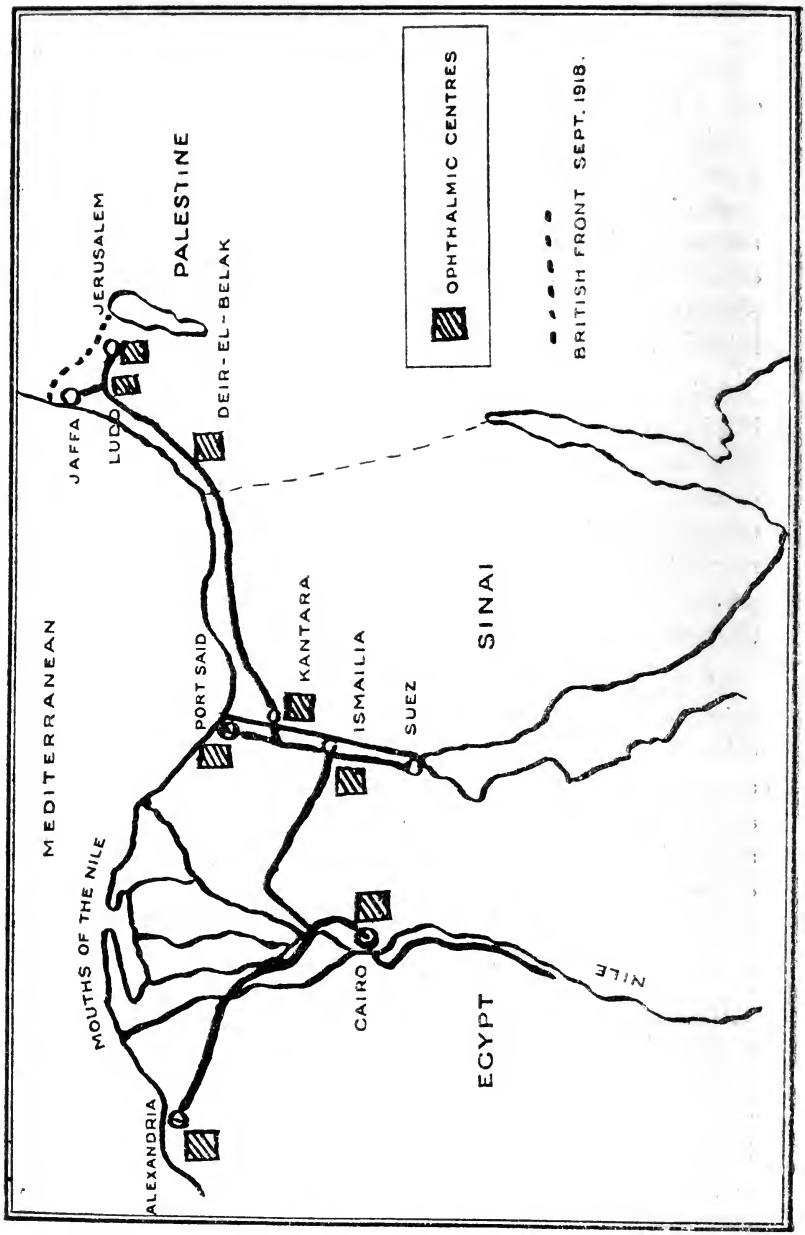
In Egypt the problem was, as I have mentioned above, more one of man power, standardisation and invaliding than of active surgical treatment, and during the three and a-half years that I was attached to the Egyptian Expeditionary Force my efforts were directed to passing forward to the front line as many men as possible who, by the provision of suitable glasses for errors of refraction, might be made fit, and to preventing the passage down to the base of those complaining only of trivial injuries or defects.

Owing to the location in Egypt of the big base general hospitals and of the base depôts, the greater part of the eye work was done in Cairo and Alexandria; but as the campaign developed, and the Egyptian Expeditionary Force advanced through Sinai into Palestine, an ophthalmic surgeon was kept as near railhead as possible both to prevent cases of trivial or exaggerated defects from getting down the line and to afford speedy treatment to ophthalmic casualties.

At the time of the pause before the last advance from the neighbourhood of Jerusalem to Damascus the position of the ophthalmic specialists was so marked in the map (p. 74). The advance on Aleppo was followed so rapidly by the armistice and the cessation of hostilities that the map may be taken as showing the final stages in the organisation for dealing with ocular casualties and for the treatment of diseases of the eye.

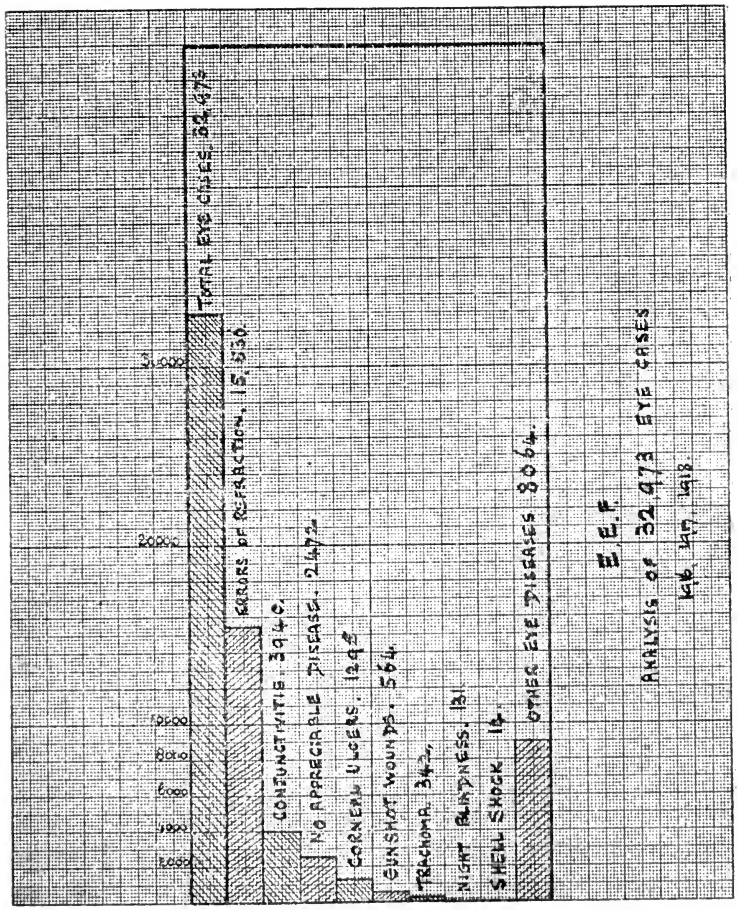
Statistics.

Chart (1) shows condensed statistics of nearly 33,000 eye cases seen during part of 1916 and the whole of 1917 and 1918. They are by no means exhaustive, as owing to the movement of units and changes in personnel any complete record was impossible to obtain. Such as they are, however, they illustrate very well the nature of the ophthalmic practice in Egypt and Palestine, and the proportion of the various classes of case


MEDITERRANEAN
MOUTHS OF THE NILE
ALEXANDRIA
CAIRO
PORT SAID
KANTARA
ISMAILIA
SUEZ
SINAI
EGYPT
NILE
JAFFA
LUDD
JERUSALEM
PALESTINE
DEIR-EL-BELAK
OPHTHALMIC CENTRES
BRITISH FRONT SEPT. 1918.

seen was so strikingly constant at the various hospitals that the statistics may be fairly taken as accurately representative of the whole number of cases.

CHART 1.



My observations on these statistics will be general only and individual cases will not be quoted; for it is to be borne in mind that I personally only acted as a consultant. While I

had a general and extensive survey, the actual work was done by others, and I leave to them the publication of any detailed clinical information with reference to the cases under their care.

Errors of Refraction.

It will be seen at once that cases of error of refraction and cases in which visual defects were complained of, but found on examination to be trivial or negligible ("no appreciable disease" or "N.A.D.") number 18,008 or 54·6 per cent. As in civil life, the foundation of the military ophthalmic surgeon's work is the estimation and correction of errors of refraction; but it is particularly with reference to refraction work that the medical officer accustomed solely to civilian practice finds it difficult at first to look at the situation from a military point of view, for the following reasons:—When a patient presents himself for examination in civil life, it is usually because he has some visual defect which he wishes corrected, either to gain an appointment or to pass an examination, or because he suffers from some secondary affection, such as headache, which he wishes relieved. Under the circumstances he tries to see as well as possible with his glasses, he is anxious to be improved, and his frame of mind is one of active assistance to the surgeon. The converse is usually the case with the soldier. The visual defect from which he is suffering is often used by him as a possible means of avoiding active service, or if not actually of avoiding all service, of getting some lighter duty at the base or on the lines of communication. He therefore makes the most of his defect, instead of the least, and is not actively concerned with getting it improved with glasses.

It was a source of great concern to some ophthalmic medical officers, on first taking up military work, to find such a surprisingly low average of visual acuity amongst the soldiers, especially when it was associated with a striking absence of high errors of refraction or of organic disease. Experience soon showed that this low visual acuity was not to be con-

sidered seriously, and that if one found no great error of refraction, or organic disease, the strong presumption was that a man's vision was normal or thereabouts, whatever he might say to the contrary.

In this connection it may be remarked that the great difficulty of military ophthalmic practice is that in the majority of cases one is dealing with symptoms and statements only; defective vision, headache, night blindness, intolerance of light, shell blindness, all the common military ocular complaints, are diseases in which one finds symptoms only with practically no physical signs.

In cases of defective vision, not total blindness, there is no means of telling how much a man sees, except from his own statements, and if he does not mean to see test types on a wall nothing will make him do so, and a proof that he does see with any definite degree of visual acuity is almost impossible. On general considerations, and by various dodges, one can form a very fair opinion of a man's *bona fides*, but there is seldom any proof which could be demonstrated to a third person. The decision is always one between what the ophthalmic surgeon thinks the soldier ought to see and what the soldier will confess to seeing, and between these two conflicting opinions there may be no demonstrable judgment. Fortunately, in the estimation of errors of refraction, retinoscopy affords a rapid and purely objective means of estimating the approximate extent of the soldier's visual defect, and if his statements as to his vision do not bear some relation to the nature and amount of his error he may in most cases be classified as a malingerer.

The same considerations apply to nearly all the other conditions mentioned above. There is in every case the assertion of the patient as to what he can or cannot see, and a total absence of physical signs. Any decision as to the real facts of the case merely depends upon the credibility of the witness and the credulity of the observer.

For my own part, my experience during my Service four years (certainly an experience limited to a special class of cases) has been to convince me of the profound truth, in another sense, of the old legal aphorism that "what the soldier said is not evidence"; the ophthalmic surgeon who believes all that he is told by soldiers and writes papers on war diseases which consist solely of symptoms is merely writing romance.

Spectacles.

Our experience in Egypt was in general that obtained by the ophthalmic surgeons in France.

Unless a soldier gets an obvious improvement in vision by the use of spectacles he will probably not trouble to wear them. Myopes of moderate degree are most benefited by spectacles, and are the most grateful for them. Hypermetropia and astigmatism up to about two dioptres make very little difference to the visual acuity, and even with high degrees of mixed astigmatism vision without glasses may be as good as 6/12, as anyone may ascertain from actual experiment with the appropriate lenses.

Men with low degrees of myopia and myopic astigmatism saw well in the brilliant light of Egypt and did not complain of glare, but soldiers with hypermetropia and hypermetropic astigmatism did suffer to a considerable extent from the sun and from reflection from the sand.

In my opinion the standards of vision for A class men as laid down in the pre-war regulations and in subsequent Army Council Instructions were much too stringent in view of the demand for men, and on my advice the Director of Medical Services, Egyptian Expeditionary Force, in 1916 agreed that for serving soldiers the standard of vision in Egypt for A class men should be as follows:—

If a man, in the opinion of the medical officer, can see 6/24 *with or without glasses in the right eye and can count*

figures at 3 feet or more with the left eye and there is no organic disease of the eye, he shall be considered fit for Class A.

This was issued, with other information, in a pamphlet entitled "Regulations with reference to the Prescription of Spectacles in the Egyptian Expeditionary Force," and was in force for over two years, with the result that many men hitherto classified B were re-classified A, and served satisfactorily in front line units.

In December, 1917, in response to an enquiry from the War Office as to why so many spectacles were being supplied to soldiers in Egypt, I drafted a memorandum, in which I informed the Director of Medical Services that there were three factors which affected or controlled the demand for spectacles in the Army in Egypt:—

1. The necessity for man-power, or for making every possible man fit for Class A.

2. The quality of the drafts from England and the thoroughness with which their visual defects had been corrected in England.

3. The necessity for as much economy as possible in the prescription of spectacles, both in view of the difficulty of obtaining supplies from England, and of the cost to the public.

The first factor was, in my opinion, of paramount importance. The great demand for the supply of spectacles was due, in the experience of both Colonel Barrett and myself, acting as Presidents of Classification Boards, to the widespread and thorough overhauling of all units in Egypt as the result of the Man Power Report.

At the Classification Boards there came before both of us large numbers of men who had hitherto been classified, nearly always in England, B Class for defective vision, with no entry in their paybooks as to the amount of the defect. These were all referred at once to the ophthalmic surgeons, and if any

serious defects of vision were found, spectacles were ordered, either to make them fit, with spectacles, for Class A, or in Class B for guard duties either day or night. If this were not done, many men drifted automatically into Class B(3), where they were practically useless as soldiers.

The drafts from England arriving in the later years of the war were not up to the former physical standard in any respect, and the percentage of visual defects among them was higher. This entailed an increased supply of spectacles for the purpose of remedying the visual defects which should have been corrected in England before the men were sent overseas. If recruits had been examined in England and their visual defects corrected there, the demand for spectacles in Egypt would have been very greatly diminished. I also made the following criticisms on the visual standards then in force for A class men:—

The latest standard of vision for A Class men is that laid down in Army Council Instruction No. 211 dated 4th February, 1917, viz: that if a man's vision is 6/24 in one eye, without glasses, and his right eye can be brought up to 6/12 with glasses, he will be considered fit for Category A.

The standard of vision mentioned above is, in my opinion, much too stringent, and is still in the nature of a timid compromise between the old pre-war standard of 6/24 in each eye without glasses, and modern conditions where glasses are permitted and are supplied at Government expense.

If spectacles are permitted, the vision of a soldier without glasses is immaterial, for his vision with glasses is the only thing which matters. Probably some standard of vision without glasses is still clung to, owing to the fear that if a soldier loses his glasses he will lose himself or become utterly helpless. This fear is entirely groundless, for there is practically no error of refraction, excluding ocular disease, which will be sufficient to stop a soldier finding his way about until a new pair can be obtained for him, and even supposing he were incapacitated

for the time being, he is no worse off than a soldier with a sprained ankle, or other trivial injury which prevents him getting about. My contention is that the degree of error of refraction and the vision without glasses are immaterial, and that so long as a soldier has good vision with glasses, and has no organic ocular disease, he is fit for A Class duty. Moreover, the standard of vision 6/24 in one eye without glasses is inconsistent with the regulations as to the limits of spectacles permissible. For example, to quote my own individual case, which illustrates the difficulty very well. I have ·75 Dsph with ·75 Dcyl of myopic astigmatism, and with this my unaided vision is just about 6/24. According to the War Office regulations, I could not be ordered the necessary spectacles to bring my vision up to 6/6, as spectacles of this strength are not allowed by para c (1), Army Council Instruction No. 1371 of 6th September, 1917.* With any higher amount of myopia, or myopic astigmatism, I should be permitted to have spectacles at Government expense, but owing to the fact that my visual acuity would in that case not reach 6/24 in either eye without glasses, I should not be considered fit for duty, Class A.

Hence it is evident that no myopes for whom glasses can be ordered under War Office regulations can be Class A,

*Limits of spectacles to be supplied to soldiers at the public expense.

(a) No simple spherical lens will be supplied of a less strength than 1·00 dioptre, or of a greater strength than 18·00 dioptres.

(b) No simple cylindrical lens will be supplied of a less strength than 1·00 dioptre, or of a greater strength than 6·00 dioptres.

(c) No sphero-cylindrical lens will be supplied having before or after transposition:—

(1) One of its component parts less than 0·50 dioptre, and the other component part less than 1·00 dioptre;

(2) A combined strength greater than 18·00 dioptres; or

(3) A cylindrical strength greater than 6·00 dioptres.

(d) No sphero-cylindrical lens will be supplied with a concave spherical surface and a convex cylindrical surface.

(e) No quarter-dioptre lenses will be supplied above 3·00 dioptres, and no half-dioptre lenses above 6·00 dioptres.

(A.C.I. No. 1371 dated 6/9/17).

though they, of all classes of men suffering from visual defects, are the most benefited by spectacles, and are the most useful. A myope can, at any rate, read easily without glasses, while a man with a mixed astigmatism or hypermetropia not only does not see well at a distance, but cannot read well.

Hence, in view of the urgency of obtaining all the available men for Class A under the Man Power Report, the medical authorities in Egypt have agreed, on my advice, to modify the stringent Class A standard laid down in Army Council Instruction No. 211 dated 4th February, 1917, and have ignored the soldier's vision without glasses, paying attention solely to his vision when properly corrected. If the Army Council Instruction in question had been rigidly observed in Egypt, hundreds of soldiers who are serving quite efficiently in Class A would have been automatically graded as Class B.

As 6/24 was sufficient vision in the old days before the war, when the Army could pick and choose its men, why limit Class A to men whose vision is not less than 6/12 with glasses? I entirely agree with the remarks of the Director General of Army Medical Services* with reference to glasses and consider that in modern warfare a man with vision of 6/24 with glasses has quite sufficient sight for Class A.

*Extract from War Office Letter No. 24/Gen. No./4906/(A.M.D.3.) dated 15/5/1916.

"1. With reference to the Scheme for the issue of spectacles to troops, I am directed to inform you that in many cases it would appear that soldiers are ordered glasses quite unnecessarily. I am accordingly to submit the following remarks for the guidance of all concerned, and to point out that the conclusions arrived at are the result of the experience gained by ophthalmic surgeons at the front in France, after the examination of many thousands of men sent down from the firing line complaining of defective vision.

2. As far as infantry are concerned, this is at present chiefly a war of 'bombs' and hand and rifle 'grenades,' and a high standard of marksmanship in every individual infantryman is not essential; some good marksmen are required as snipers, but the company officer has always a sufficient number of men under his command for that purpose. It should also be borne in mind that battalions are, as a rule, only 9 or 10 days in the trenches, and are then 5 or 6 days back behind the firing line 'resting.' As regards artillery, and the requirements of vision of gunners, shooting is done by map and telephone."

Finally, and by no means the least important question, it must be remembered that a man's vision as determined by test types is no more and no less than what a man chooses to admit; and too much stress should not be laid on apparently poor visual acuity, especially when a man is being tested for classification purposes. Much more importance should be attached to the Medical Officer's opinion as to the presence or absence of any great error of refraction, or of organic disease as determined by objective examination; the presumption being that in the absence of disease a man with a properly corrected error of refraction should see enough for Army purposes.

In August, 1917, another Director of Medical Services, notwithstanding the fact that hundreds of officers were at that time serving satisfactorily as "A" Class wearing spectacles and with vision below that of the old pre-war standard, directed me that "The standard of vision for candidates for Commissions is as laid down in the regulations for the Royal Army Medical Service, and must not be departed from," (i.e., the old pre-war standard).

In May, 1918, a subsequent Director of Medical Services instructed me that the regulations with regard to vision for "A" Class men which had hitherto been in force in Egypt must be abandoned, and that the Army Council Instructions must be strictly adhered to. In reply to this letter I wrote that I deeply regretted this decision, for, by a stroke of the pen, the policy of the last two and a-half years in Egypt would be abandoned.

England had been at war for nearly four years, and was fighting, to a certain extent, with its back to the wall, and depending above all things on man-power, or the necessity of obtaining for the fighting line every man who was fit for that purpose. It was from this point of view, and this point of view alone, that I had ever since I arrived in Egypt looked at the problem of soldiers' vision, and it was for this reason that I deplored a decision that would have the result not only of removing thousands of men from front line units in Egypt to

Garrison Battalions and rearward formations, but also of preventing hundreds of men in Egypt and thousands of men in England from being justly raised from a lower category to Class A.

I informed him that in 1917 over 6,000 soldiers were tested in Egypt for defective vision, and were in the great majority of cases ordered spectacles either at their own or at the Government expense. For reasons which I have mentioned above practically all soldiers suffering from myopia or myopic astigmatism would be affected by the decision. Over 2,200 myopes were examined during 1917, and in the great majority of cases raised to Class A by the provision of glasses. A fair proportion of the remainder, who would now be B, were also made into "A" Class men, so that it was probable that the number of men in the Egyptian Expeditionary Force then "A" Class, and, as far as my experience went, serving in that capacity satisfactorily and well, was over 3,000, and all these would, if his instructions were carried out, be turned into "B" Class men forthwith. These figures, relating to a comparatively small theatre of war, were to me sufficiently serious to justify my asking him to request the War Office seriously to re-consider the question of revising the standards of vision for "A" Class men, to make them accord at any rate to some extent, with existing needs and conditions, and with reasonable views of how defective vision due to errors of refraction really affect a soldier's efficiency.

I also said that I viewed with dismay the attitude of the War Office in persisting in a standard of vision which, in these days of necessity, was far too stringent and entirely out of date; a standard which, as far as I knew, was not adhered to in any other Continental Army. My experience with German prisoners was that the Germans, wise in their generation, had accepted the logical position which I had always urged, that provided a soldier saw sufficiently with glasses and had eyes that were free from disease, his vision without

glasses did not matter in the least. In view of the existing necessity for man-power, urgent in England and at least as urgent in Egypt, I did not wish as Consulting Ophthalmic Surgeon to the Egyptian Expeditionary Force, to have any responsibility in, or let pass without emphatic protest, a regulation which, in my professional opinion, was depriving the fighting forces of the Army in Egypt and Palestine of thousands of entirely efficient soldiers.

Fortunately for the Army in Egypt, a new Army Council Instruction (No. 421 dated April 21st, 1918) arrived almost immediately, and went a long way towards meeting my objections.

In particular the last paragraph entirely justified my attitude. It was as follows:—

"In re-testing the vision of serving soldiers the standard will be the same as for recruits, *but men who have been found capable of carrying out their duties efficiently need not necessarily be placed in a lower category on account of their eyesight not being equal to the standard laid down for the category in which they are serving.*"

Thus in one short sentence it was admitted that soldiers with vision below the standards laid down *could* be efficient soldiers, and the result of the paragraph was virtually to negative the standards to which it referred.

Thus matters stood at the time of the Armistice, and in my opinion it is a matter of the utmost importance that, in view of the information gained in this war some new regulations should be drafted with reference to soldiers' vision which should be in accord with modern conditions of warfare.

Ophthalmia.

Ophthalmia in Egypt.—Trachoma is endemic in Egypt and is practically universal. According to the reports of the Public Health Department of Egypt approximately 80 per cent. of

population suffer, or have suffered, from trachoma, and 20 per cent. are considered to be infectious. In the fourth annual report of the Ophthalmic Section of the Department of Public Health (1916), by Dr. A. F. MacCallan, Director of Ophthalmic Hospitals, it is stated that the percentage incidence of trachoma in primary schools inspected by him varied from 80 per cent. at Assiut to 100 per cent. at Shebin-el-Kom. Of 68,304 patients treated at the Public Health Department Ophthalmic Hospitals during 1916, 63,051 were found to be suffering from trachoma.

Acute non-trachomatous ophthalmia in Egypt is due to the Koch-Weeks bacillus, the diplococcus of Morax Axenfeld, or to the gonococcus. Of 7,804 bacteriological examinations of cases of ophthalmia in the Public Health Department Ophthalmia Hospitals in 1916, 3,648 or 46 per cent. were found to be due to the gonococcus, and 1,842 or 23 per cent. to the Koch-Weeks bacillus. The Morax-Axenfeld diplobacillus was found in 801 cases, or 12 per cent.

The gonococcus is rarely met with in the winter months, January, February, March and April; its activity becomes awakened in May, and this increases in June, July and August, reaching a maximum in September. Afterwards a fall occurs, which persists until the end of the year. A comparison of the curves of temperature and of gonococcal incidence shows that the change in temperature precedes by two months the changes in gonococcal activity (Chart 2).

No relation can be made out between gonococcal activity and the relative humidity or the level of the Nile, though the rise of the Nile is approximately coincident with seasonal increase in ophthalmia.

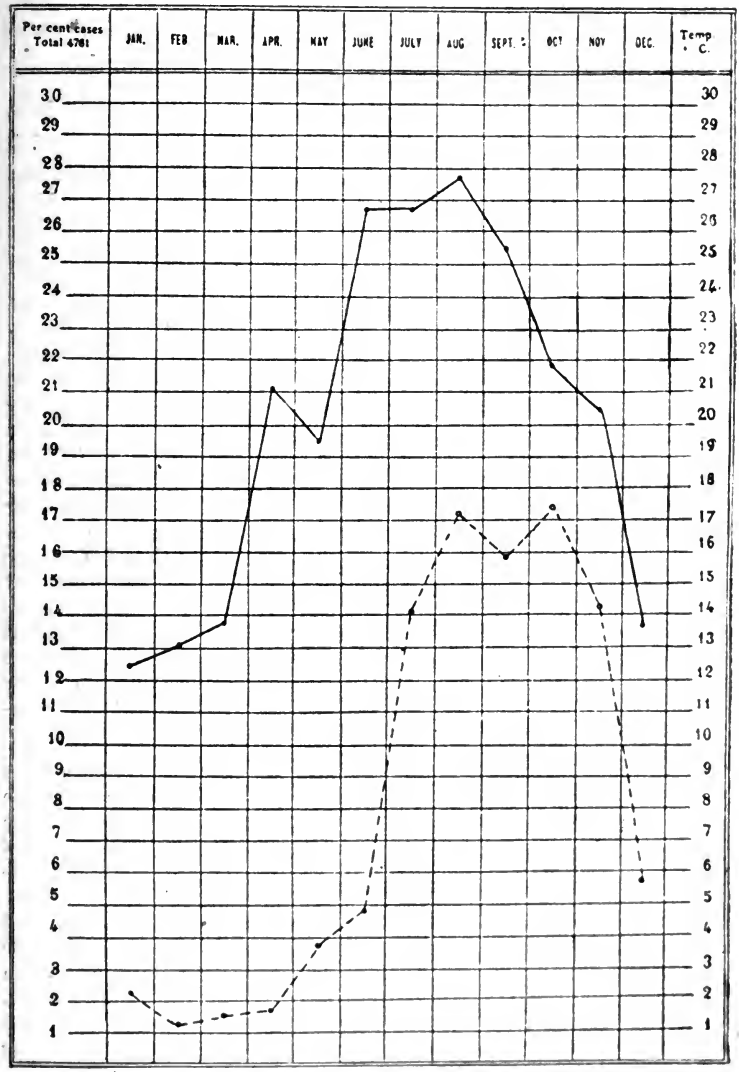
The activities of the Koch-Weeks bacillus and the Morax-Axenfeld bacillus, while showing seasonal variations, do not show coincidence with the variations in temperature.

The acute non-trachomatous ophthalmia of Egypt is very destructive, and leads to a high percentage of blindness, owing to corneal ulcer and perforation, leucoma adherens and subsequent glaucoma.

Chart 2.

OPHTHALMIA IN EGYPT

Curves showing Variations of Temperature and Gonococcal Conjunctivitis
(Mac Callan)



———— Temperature in degrees centigrade, 1917.

– – – – – – Per cent of cases in each month of total 4761, 1917.

According to Dr. MacCallan's figures for 1916, of his 68,304 ophthalmic cases there were 3,699 cases of simple ulcer of the cornea, 303 of hypopyon ulcer, 1,330 of perforation of the cornea, 28,568 with simple leucoma, 4,982 with adherent leucoma, 2,462 with total opacity of the cornea, and 1,257 cases of staphyloma. There were 129 cases of panophthalmitis.

Ophthalmia among Napoleon's Troops, 1799-1801.—It is a matter of common belief that the epidemic of ophthalmia, which affected so disastrously Napoleon's troops in his Egyptian campaign, was trachomatous in character.

In his well-known text book on ophthalmology, Fuchs says:

It was at the commencement of the last century that Trachoma began to attract the attention of physicians to any great degree. It was then that the disease first showed itself as an epidemic among the European Armies (Ophthalmia Militaris). People were of the opinion that it had been introduced into Europe from Egypt (hence Ophthalmia Aegyptiaca) by Napoleon I. For when the latter, in July, 1798, landed in Egypt with an army of thirty-two thousand men, most of the soldiers were very soon attacked by a very violent Ophthalmia, and these were supposed to have brought with them in their return to Europe the disease which was formerly confined to Egypt. Subsequent historical researches, however, have shown that the disease had already been endemic in Europe since antiquity. It is mentioned in the Ebers papyrus and in a pseudo-Hippocratic manuscript. Celsus gives a good description of the roughness of the lids and the purulent discharge that it occasions. For treatment, the ancients employed scarification of the conjunctiva, which is still to-day made use of by some, and which was accomplished both by means of various instruments and also by friction with fig leaves.

From time immemorial, then, trachoma has existed in Europe as an endemic disease. But when by reason of the Napoleonic wars the armies came so repeatedly in contact with each other and with the civil population, the disease became more widely disseminated and occurred in epidemics. In some countries it became frightfully prevalent. In the English Army, during the year 1818, there were more than 5,000 on the invalid list, who had been rendered blind as a consequence of trachoma. In the Prussian Army from 1813 to 1817, 20,000 to 30,000 men were attacked with it; in the Russian Army, from 1816 to 1839, 76,811 men were subjects of the disease. In Belgium in 1840, one out of every five soldiers was affected with trachoma. The French Army, which was supposed to form the starting point of the disease, was just one that relatively speaking was least attacked. The armies disseminated trachoma among the civil popula-

tion through the discharge of soldiers affected with eye diseases, through the quartering of troops, etc. When they had so many trachomatous soldiers in the Belgian Army that they did not know what to do, the Government applied to Jungken, who was at that time a celebrated ophthalmologist in Berlin. He recommended them to dismiss the trachomatous soldiers to their homes. By means of this fatal measure, trachoma soon became diffused in Belgium to an extent that has been observed in no other European state.

With reference to the epidemic of Ophthalmia which affected Napoleon's troops in Egypt a little over 100 years ago, I have consulted the original accounts. These are given in great detail, and in picturesque language by his famous Surgeon-in-Chief, D. J. Larrey, afterwards made a Baron of the First Empire and Senior Surgeon to the Old Guard.

A copy of Larrey's work, "Memoires de Chirurgie Militaire et Campagnes" (Paris 1812), is in the Library of the Kasr-el-Aini Medical School at Cairo, with a dedication in his own handwriting, "Offert au premier medicin de S.A. le pacha d'Egypte, hommage de l'auteur D. J. Larrey."

Larrey was appointed Surgeon-in-Chief to Napoleon's Egyptian Expeditionary Force in 1798. He says that, realising the importance of being made Surgeon-in-Chief to an expeditionary force of 30,000 soldiers, his first step was to collect a medical staff, which he did by writing to the schools of medicine of Montpellier and Toulouse. By this means he collected 108 medical officers.

Before leaving Marseilles he gave them a preliminary course of instruction, and collected, as far as he was able, a full equipment of medical stores and instruments. The expedition left Marseilles on the 13th May, 1798, and arrived at Toulon on the 19th May. From Toulon it took 21 days to reach Malta, where the army disembarked on the 10th June. They left Malta on the 18th June, and arrived 12 days later before Alexandria, which was stormed and taken next day. In this action General Kleber was wounded, and he was subsequently left behind in command of the garrison which remained at

Alexandria. On the 6th July Napoleon, and with him Larrey, started out for Cairo. To use Larrey's own words:—

> The army set out without provisions and without water, into the arid deserts which border Lybia and only arrived with greatest difficulty, on the fifth day of the march to the first place in the interior of Egypt offering any resources, Damanhour. Never has an army had to endure such privations or undergo such dangers. Stricken by the rays of a burning sun, marching on foot on sands still more burning, crossing immense and dusty plains, where there were to be found only a few ditches of muddy water, almost solid, the hardiest soldiers, consumed by thirst and heat, succumbed under the weight of their equipment.

Napoleon reached the Nile at Rahmaneah, and proceeding by the left bank of the Nile reached Chebreissa on the 13th July. A further march, then the battle of the Pyramids near Embabeh, a suburb of Cairo, and on the 25th July Napoleon took possession of Cairo and of the Citadel. Larrey went off to the Sharkieh Province with Napoleon in pursuit of Ibrahim Bey, and on his return to Cairo, a few weeks later, heard the news of the Battle of the Nile at Aboukir, and of its disastrous results to the French Fleet. On his return to Cairo he organised the Surgical Service, and formed in the principal hospital a school of practical surgery for the young surgeons in the Army. In his own words, writing in 1812:—

> I supervised with care the treatment of the wounded and of those affected by diseases of the eye, for ophthalmia had already appeared and commenced to spread (it was the time of the overflow of the Nile). Desaix's Division, which remained a long while embarked on this river in Upper Egypt, furnished the greater number of cases of ophthalmia. The physicians and surgeons who had to treat this disease were not in agreement as to the causes which produced it or the means it was necessary to employ to deal with it. The quacks, who practised in the country, pretending that they alone understood an affection due to their climate, imposed on the credulity of many soldiers who were attacked, and this caused many of them to lose their sight. These considerations led me to publish, on the subject of this malady, a memoir which I addressed to my colleagues, the Senior Surgeons, to define the treatment by which it was necessary to deal with the disease, and this I communicated to the Institute of Cairo. I am now offering the contents of the memoir with some additions I have had occasion to add subsequently. The principles which it embodies were put into practice after publication, with so much success that these diseases became in consequence, even in the hands of junior medical officers, most simple and easy to treat.

After some prolonged stay in Cairo, Napoleon started for Syria on the 9th February, 1799, and marched first into the Sharkieh Province. After the battle of Salhieh, on the eastern edge of the Delta, Larrey went with a company of Camel Corps to El Arish to join the advance guard and to look after some casualties which had occurred in the attack on El Arish itself. On the 28th February, Napoleon arrived at El Arish and started for Syria, passing through places whose names are familiar to all who have fought their way across Sinai into Palestine in the present campaign. He passed through Rafa, Khan Yunus and Gaza, and, by way of Esdud and Ramleh, arrived at Jaffa on the 5th March. On the 15th March he left for Acre, Larrey having accompanied him the whole way from El Arish. There is no room in this short article to give any account of the siege of Acre, which ended so disastrously for Napoleon's Syrian campaign, of the harassing warfare to which he was subjected by the Arabs, or of the outbreak of plague which so seriously affected his troops. It is only interesting to note that Larrey relates that all the wounded were evacuated during this period, as they have been in this campaign, to Egypt, and that by the time the Army eventually evacuated Syria 800 had been sent across the desert of Sinai by camel convoy, and 1,200 had been sent by sea, the majority being embarked at Jaffa. On the 21st and 22nd May, Napoleon's army finally left Syria for Egypt, passing on its way through Caesarea, Jaffa, Gaza, El Arish, Katia, Salhieh, and Bilbeis. Napoleon returned to Cairo, and then, on hearing that an army of 20,000 Turks had descended on Aboukir, left for Alexandria. The land battle of Aboukir was fought, and subsequently on the 22nd August Napoleon, on the pretext of making an inspection of the northern coast of Egypt, embarked and left surreptitiously for France. Larrey remained in Egypt with Kleber, and he relates that in the month of June, 1801, the troops outside Alexandria were once more severely attacked by ophthalmia. As he says:—

> The occurrence of a north-north-west wind, and the overflow of Lake Ma'dyeh, whose waters inundated our camp, caused a pronounced

outbreak of ophthalmia, and more than 3,000 individuals passed successively through the hospital. This outbreak was treated promptly and with great success, but was followed by an outbreak of scurvy.

He notes that this particular outbreak of ophthalmia was followed in many cases by the formation of pterygia.

In August, 1801, the English and Turks attacked Alexandria and on the 31st August Alexandria capitulated and an armistice was signed. Larrey took this opportunity of visiting the English Camp, and obtained from Dr. McGregor an interesting report as to the losses of the European and Indian troops during their stay at Rosetta and Alexandria. It appears that of 7,886 men who composed the English Expeditionary Force, 158 had been sent home to England either blind or crippled. On October 17th Larrey left Egypt with the Army for France, and Napoleon's Egyptian campaign was over.

Throughout his description of the expedition, Larrey emphasises the fact that ophthalmia was one of the most serious affections to which the Army was subject, and, in his subsequent memoir, he discusses the symptoms in great detail.

To quote his actual words:—

The eyes, having been struck suddenly by the blazing light of the sun, either direct or reflected from the glaring white soil of Egypt, have immediately felt the effects of the stoppage of the cutaneous perspiration during the cold nights, and the result has been an obstinate ophthalmia, and, with a fair number of persons, complete blindness. I will enumerate the symptoms which arose. Swelling of the lids and of the conjunctiva, and sometimes of the coats of the eye; extreme local pain, attributed by the patient to the presence of grains of sand (these are dilated vessels); diminution of vision and inability to stand a bright light. To these first symptoms soon succeeded violent headaches, giddiness and insomnia. The few tears which are secreted are bitter and irritate the lids and puncta lachrymalia. All these symptoms are aggraved and are frequently followed by fever, sometimes even by delirium. The disease reaches its crisis on the third or fourth day, sooner with some individuals, later with others. The termination varies. When it is inflammatory and is left solely to the resources of nature, there form ordinarily towards the sixth or seventh day points of suppuration on the edges of the lids, on the external surface and at the angles. The ulcers spread by degrees on to the conjunctiva, attack the cornea and often perforate it. Sometimes the

cornea gives way suddenly, without ulceration; I have seen several such cases. The rupture occurred within the first 24 hours, when the conjunctiva was hardly red, and it is difficult to understand the cause of this rapid and spontaneous rupture. We content ourselves with observing the phenomena which have occurred in Egypt, and the effects which have been produced. The opening which resulted is round and of a diameter almost the same in all the patients who have been attacked. It allows the passage of a portion of Descemet's membrane or of the iris, and forms a hernia, known by the name of staphyloma. The swelling formed by Descemet's membrane is a dull grey (*gris terne*), that of the iris of a darker colour. This swelling is painful to the lightest touch of outside objects, and to the rubbing of the lids. The vision during the early days is more or less diminished, according as the pupil is partly or entirely obscured; but generally the staphyloma shrinks by degrees, goes back into the anterior chamber, and the membranes resume their previous positions. Sometimes there remains a small portion outside, which is strangled by the closing of the aperture, loses its sensitiveness, and acquires a certain toughness, or else it swells and divides into several globules and takes on a carcinomatous character, especially if there is any complication of venereal disease.

Larrey proceeds to recount that the perforation was often followed by the loss of the lens and the vitreous, and that the eye subsequently shrinks.

Hyopyon was rarely present. Leucomata were frequent, often complete, and followed by total blindness. *The tarsal cartilages were rarely affected.** In general, the ophthalmia weakened the sight, and predisposed to cataract, lachrymal fistula and glaucoma, and was often followed by night-blindness and "gutta serena." (In the cases of night-blindness and glaucoma, they employed with success a moxa on the principal branches of the lesser sympathetic nerve (nerf fascial)).

Larrey attributes the ophthalmia to the burning heat of the day, the reflection of the rays of the sun from the earth, immoderate consumption of alcohol and venereal excess, the dust in the air, and the checking of the cutaneous perspiration by the cold night air. He notes that blonde men were more frequently attacked than brunettes, and that the right eye was affected more than the left. Nearly all who lost the sight of

*The italics are mine.—H.L.E.

one eye lost the sight of the right. He attributes this in part to the fact that, as most people sleep on the right side, that part is most affected by the humidity of the earth.

Ophthalmia was also most prevalent during the overflow of the Nile. It was also remarked that suppression of gonorrhœa frequently produced ophthalmia, and that the best way to establish a cure was to re-establish the urethral discharge. The treatment advocated included bleeding, leeches on the temples, hot footbaths, a lotion of a strong decoction of linseed, poppy-heads and saffron, also compresses of tow soaked in white of egg and rosewater and some grains of sulphate of alum and camphor, applied every evening. In the later stages, lotions of acetate of lead, mercuric chloride, sulphate of copper, or sulphate of zinc were used.

Ulcers of the lids were treated with an ointment for which he gives the following prescription:—

Cerate of wax and almond oil, oz.i.
Red oxide of mercury, gr.iv.
Oxide of zinc, gr.xvi.
Camphor dissolved in the yolk of an egg, gr.iv.
Cochineal paste, gr.viii.
Oriental saffron, gr.vi.

Larrey says that ophthalmia hardly spared anyone in 1798, and nearly all cases were inflammatory. In 1800 a few soldiers were affected, and the cases were less severe and more easily treated. The severe outbreak which occurred again in 1801 near Alexandria has already been mentioned. It was noted that the malady presented various characteristics, but in general it was inflammatory, with symptoms less intense than those of the outbreak of 1798.

The English on their arrival in Egypt were not exempt from the disease. After some time they followed the French practice as laid down by Larrey, which they found in a memorandum left at Rosetta, and from that moment they saved the sight of the greater number of their patients.

Larrey also notes that many French soldiers who escaped ophthalmia were struck almost immediately on returning to France with a more or less complete blindness, which "appeared to be due to paralysis of the visual organ, consequent on the sudden passage from the tropical climate of Egypt to that of France in the winter season."

Ophthalmia in the British Army, 1915-1918.—Ophthalmia or conjunctivitis caused about 12 per cent. of the total eye cases, and this proportion was practically constant at every hospital and in every year. Trachoma caused 342 cases, or about 1 per cent. The incidence of ophthalmia compared with the total number of troops was very low. The maximum number of troops in Egypt and Palestine at any one time (excluding labour corps, native orderlies and substitutes, etc.) was approximately 250,000. Taking the yearly average at 200,000 and the yearly average of cases of conjunctivitis and trachoma as 1,300 and 114, the percentage incidence of these diseases works out at approximately ·5 and ·05 respectively.

In the British Army the conjunctivitis was seldom severe, and there was never anything approaching a general or even local epidemic. During the period under review only five eyes were lost from perforation, staphyloma or panophthalmitis.

Owing to the pressure of work on the bacteriological laboratories for more urgent military needs, not many bacteriological examinations were made, but of 178 cases which were examined 76 were due to the Koch-Weeks bacillus, 87 to the Morax-Axenfeld diplococcus, 7 to staphylococci and streptococci, 5 to the pneumococcus, and 3 to the gonococcus.

Clinically, gonorrhœal ophthalmia was very rare, only eight cases being reported.

The ophthalmia generally was of the simple catarrhal type, in the more serious cases resembling the acute mucopurulent conjunctivitis of the Koch-Weeks type, clearing up rapidly under treatment. No special remedy calls for any comment, all having been used with about equal success; but the ex-

perience of both Egyptian oculists and of the R.A.M.C. officers working in Egypt was that zinc sulphate, except for the very acute cases, was of all ophthalmic antiseptics by far the most efficacious for the conditions prevailing in Egypt. This was the independent experience of Major Lockhart Gibson in Mudros.

In view of the commonly accepted account of the cause of the spread of trachoma in Europe, and of the prevalence of trachoma among the civil population in Egypt, every precaution was taken to prevent an epidemic among the British troops.

Shortly after my arrival in Egypt the following regulations were issued:—

1. Trachoma is an acute infectious disease, and must invariably be treated as such.

2. All cases must be isolated in a separate room, or tent, or on board ship in a separate cabin or ward. Infectious patients must not associate with their comrades, even during recreation or exercise.

3. Special attendants must be detailed to look after cases of trachoma, and must be warned to pay particular attention to personal cleanliness, always washing their hands after dressing a case. For this purpose a basin of disinfectant must always be kept in the ward.

4. The instructions given to attendants on cases of typhoid or any other infectious complaint are generally applicable in the case of trachoma.

5. Separate specially marked feeding utensils must be supplied.

6. A separate latrine and urinal must be set apart for trachoma cases. If these are few in number a night stool for their use will suffice.

7. All dressings used must be placed in disinfectant and burnt at the earliest possible opportunity. If eyeshades are used they must be burnt when discarded.

8. Dark glasses must be sterilised by boiling.

9. Pieces of linen and cotton rag should be issued instead of handkerchiefs, and when discarded treated in the same way as dressings.

10. Hospital clothing and bedding must be disinfected before being sent to the wash.

11. Officers commanding Hospital Ships carrying cases of trachoma must notify the same to the disembarking Medical Officer.

Fortunately the experience of the first year showed that trachoma was not infectious in an Army with British standards of personal cleanliness and with the protection of modern military sanitation. Of the 342 cases of trachoma reported only 68 were reported as recent; 203 were cases of old trachoma acquired before coming to Egypt, and 72 were unspecified as to whether they were recent or old. Of the recent cases a high proportion was found among Australian soldiers, for trachoma is commoner in Australia than in England.

On consideration of these figures and of the fact that for three years the British army had been living in a country where trachoma is almost universal, that it had been working side by side with the Egyptian Labour Corps, almost all infected with trachoma, that native servants had been employed in messes and as personal servants, and that hospitals had been largely staffed by native orderlies, one is forced to the conclusion that with modern standards of sanitation and cleanliness trachoma is no longer to be dreaded as a military epidemic.

In May, 1917, when the Egyptian Labour Corps was being sent to France, the War Office expressed some alarm at the prevalence of trachoma in it, and cabled that, of the Egyptian Labour Corps personnel sent to France, 5 per cent. had been found to be suffering from acute trachoma and 15 per cent. from subacute trachoma.

The War Office instructed that more stringent examination was necessary at the time of recruitment, and that men with definite granulations or with any acute conjunctivitis should not be enlisted or embarked, and that inspection at the port of embarkation should be carried out by an ophthalmic specialist who had experience of the disease.

As a result of this cable the Director of Medical Services instructed me to take the necessary steps for the examination of all Egyptian Labour Corps drafts leaving Egypt for France. This I did, both at Alexandria and at Kantara. After one inspection at Kantara I informed the Director of Medical Services that I had examined there 3,704 Egyptian Labourers, who were under orders to embark. I reminded him that trachoma was endemic and nearly universal in Egypt, and that, as noted above, according to information supplied by the Public Health Department approximately 80 per cent. of the population suffered or had suffered from trachoma, and 20 per cent. were considered to be infectious.

In view of these facts I assumed that it was not desired to reject every Egyptian labourer who showed evidence of trachoma, as this would have resulted in such a high percentage of rejections that it would have been impossible to raise Egyptian Labour Corps drafts for France. In examining these labourers I had acted, therefore, on the definite instructions of the War Office as contained in the telegram, and had only rejected those suffering from obvious trachoma granulations or conjunctival discharge.

On these grounds I rejected 814 men or approximately 22 per cent., a figure which agreed very closely with the percentage given by the Public Health Department as infectious, and with the percentage of Egyptian labourers found to be unsuitable on examination in France. I passed as fit those men who, though affording evidence of old trachoma in the shape of scar tissue or thickened lids, showed no conjunctival discharge or definite granulations. In my opinion, in the

absence of such granulations or discharge, there was little risk of infection.

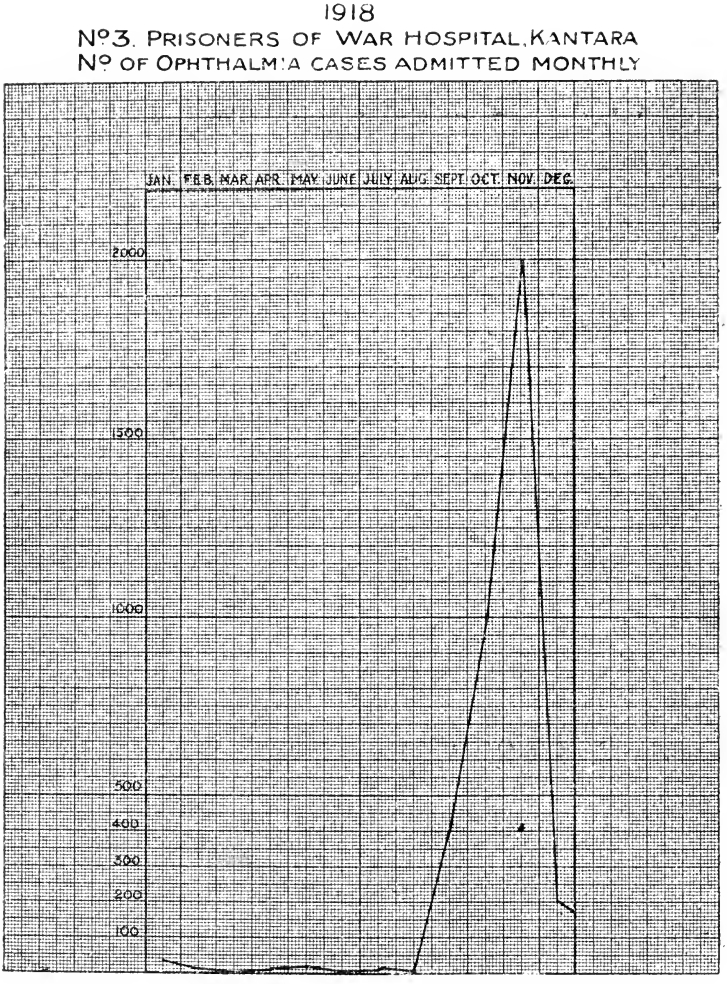
I understand that the Chinese Labour Corps in France was also seriously affected with trachoma, but whether the presence of these trachomatous drafts of labourers infected either the armies in France or the civil population is at present unknown to me.

Ophthalmia among Turkish Prisoners.—Though, as has been seen, the British Army suffered practically not at all, either from trachoma or from severe ophthalmia, the case was unfortunately far different with the Turkish prisoners captured during the conquest of Palestine and Syria. Before the war ophthalmia was, next to malaria, the most prevalent disease in Palestine. From conversations I have had with Turkish and Syrian doctors who were attached to the Turkish army, it appears that ophthalmia did not occur until the troops reached the neighbourhood of Jerusalem and Gaza, where the climatic conditions and the habits and customs of the natives more nearly approach those of Egypt than do those of the population of the more mountainous country further north. I am told that there were numerous outbreaks of purulent ophthalmia among the Turkish troops in these districts, and they were severe in character. We had evidence of these conditions when Jerusalem was occupied, for of the 78 Turkish prisoners suffering from eye disease who were received into a Prisoners' of War Hospital in Cairo from a Turkish Hospital in Jerusalem where they had been left behind, there were 29 cases of corneal ulcer. Of these 15 had perforated the cornea and 14 had not. In addition 30 cases were blind in one or both eyes.

The Turkish oculists also found that gonococci occurred in a large percentage of cases, though the ophthalmia was not quite of the same clinical type we are accustomed to see in association with urethral discharge in England and other European countries. The swelling of the lids was not so pronounced, though the tendency to perforation of the cornea was quite

as marked. This is also the experience in Egypt, as may be seen from Dr. MacCallan's reports.

CHART 3.



Among the Turkish prisoners in Egypt there was no serious outbreak of ophthalmia until August, 1918, when an epidemic of purulent ophthalmia started at Kantara. Chart (3) in its

upward curve is almost exactly a replica of that showing the seasonal incidence of gonorrhœal ophthalmia in Egypt (published in Dr. MacCallan's report for 1916), but it is exaggerated for the later months of the year owing to the fact that during the five weeks from September 19th to the end of October the British advance from the neighbourhood of Jerusalem to Damascus, Homs and Aleppo resulted in the capture of about 87,000 additional prisoners, many suffering from acute ophthalmia. In 1918 the number of prisoners with ophthalmia admitted monthly to hospital at Kantara rose from practically none in the early months of the year to 400 in September, 1,000 in October, and 2,000 in November. By December the epidemic had begun to abate, only 200 cases being admitted.

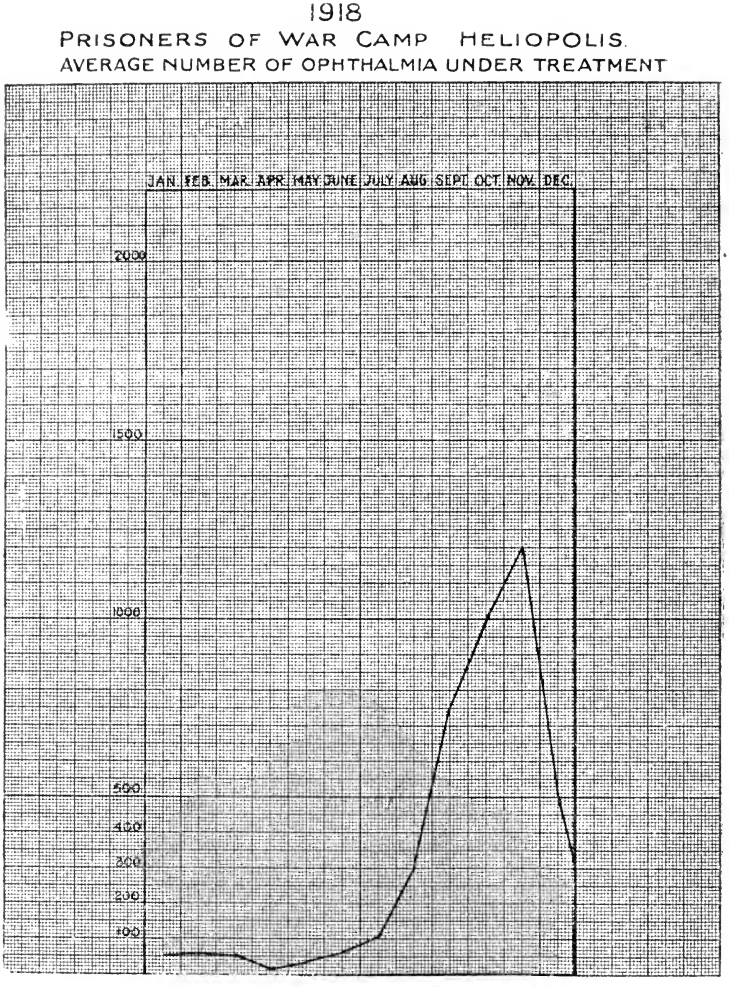
At the Prisoners of War Hospital, Heliopolis, the epidemic followed much the same course, the average numbers under daily treatment rising from about 100 in July to 400 in August, 500 in September, 1,000 in October, and 1,200 in November. By December the average number had dropped to 500, and by the end of the year the cases were comparatively few (Chart 4).

The prisoners on arrival were underfed, exhausted, in a pitiable condition, dying from pellagra, enteritis, dysentery, broncho-pneumonia, influenza and tubercle, and they had very little resistance to the ophthalmia.

The type of ophthalmia, clinically, was that of the acute Koch-Weeks type, there being little of the brawny swelling of the lids so characteristic of gonococcal ophthalmia, but, as in Egypt and in the Turkish Army, bacteriological examination showed a high percentage of cases in which gonococci was found. The characteristic of the epidemic was the rapidity with which the cornea was affected, and the high proportion of corneal ulcers, perforation and panophthalmitis. In general Larrey's description of the results of the condition remains accurate to this day, and panophthalmitis and staphyloma caused

the total destruction of a great many eyes. For example, at the Prisoners of War Hospital, Heliopolis, where most of the

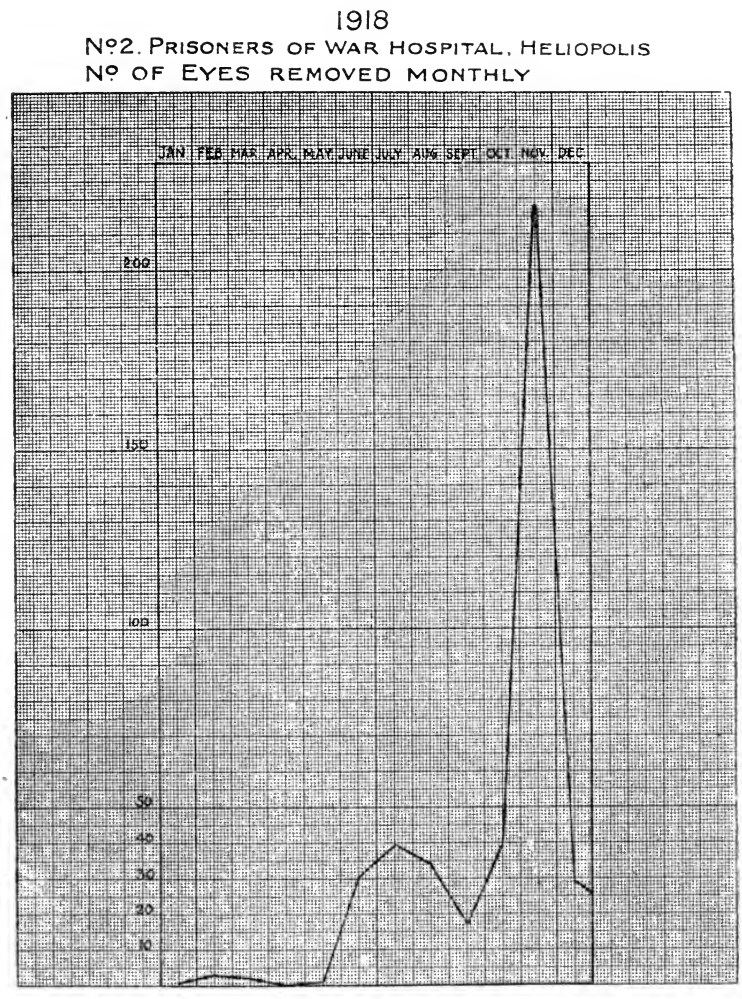
CHART 4.



patients eventually arrived, the number of eyes removed monthly in 1918 was as follows:—

January, 1; February, 3; March, 2; April, nil; May, 1; June, 30; July, 39; August, 34; September, 17; October, 39; November, 218; December, 29 (Chart 5).

CHART 5.



It is impossible to arrive at the exact number of prisoners affected, as owing to the progressive transfer of batches of

prisoners down the line the same cases were undoubtedly counted twice or three times over in any statistical figures that I have, so that I have contented myself with giving representative figures from two important Prisoners of War Hospitals.

There appears little doubt that in Egypt and among the Turks the gonococcus can live in the conjunctiva and be transmitted from eye to eye over and over again, without the co-existence of venereal disease, and that in these altered conditions it loses some of its characteristics and is not identical in its action with the gonococcal infections directly transmitted from the urethra. There were two small outbreaks of typical gonorrhœal ophthalmia in two Prisoners of War Camps in Egypt early in December, but these were directly traced to prisoners with urethral discharge, and with segregation and treatment of the venereal disease the epidemics were rapidly got under.

As to treatment, there is little to write. Experiments were tried with all the well-known antiseptics, but there was no evidence that any one was more efficacious than another. The whole value of any treatment of purulent ophthalmia depends more upon efficient and frequent irrigation than upon the actual nature of the antiseptic.

Bandages were entirely forbidden, as there was a tendency among many Turkish, Syrian and Egyptian doctors to tie their cases up, with or without fomentations, with disastrous results. Silver nitrate, especially in the early stages, or in patients with little recuperative power, seemed rather to destroy the conjunctiva and lead to further infection and sloughing of tissues, and was only used in selected cases, and not allowed as a routine treatment; cauterisation with pure carbolic acid for corneal ulcers was equally useless in many cases.

In camps where outbreaks of ophthalmia occurred, regular prophylactic daily treatment of every prisoner, whether suffering from conjunctivitis or not, with zinc sulphate and boracic acid drops was carried out with great success, and the epidemics had almost entirely died down by the end of 1918.

As evidence of the bad state of nutrition of the Turkish prisoners, it may be mentioned that in the ophthalmic compound of one Prisoners of War Camp there were at one time 172 cases of xerosis of the conjunctiva with night-blindness, associated with pellagra and all forms of intestinal malnutrition. These cases were put on a more generous anti-pellagra diet, and the xerosis rapidly cleared up.

In evidence that the ophthalmia was almost entirely due to the personal habits of the prisoners, it may be mentioned that there was no epidemic of ophthalmia at all in contiguous camps among German or Austrian prisoners, or among interned civilians, though unfortunately a German orderly lost the sight of one eye from gonorrhœal ophthalmia contracted during the performance of his duty among Turkish prisoners.

I can hardly leave the subject of ophthalmia in Egypt without making a few remarks upon the controversy which has raged for over a hundred years as to the identity of the ophthalmia which ravaged Napoleon's troops in Egypt and as to the source of the great epidemic of trachoma which spread among the armies and peoples of Europe in the early years of the Nineteenth Century.

I have quoted from Larrey at some length, for I feel that justice has not quite been done to his description of the epidemic in Egypt. Boldt* says of Larrey's account, "These accounts, derived from French Physicians, were received by contemporaries in other countries with some suspicion. Many like Eble and Jäger, inclined to the opinion that the principal reason why the French army surgeons had not diagnosed the disease correctly was due to the decline of ophthalmology in France at that time. On the other hand, we must accept it as a fact, quite authenticated, though as yet inadequately explained, that the French army which returned from Egypt suffered relatively little from trachoma in the following years

*Boldt. *Trachoma*, translated by J. Herbert Parsons and Thomas Snowball, London, 1914.

during which the war lasted. If the disease had been even approximately as contagious as it was subsequently in the armies of England, Italy, Prussia, and other nations, it must necessarily have been noticed." Boldt also says, "From the description of the disease given by the authors during the first decade of the last century, there can be no doubt that Egyptian ophthalmia included not only the trachoma of the present time, but several quite different diseases, such as simple catarrh, follicular swelling and follicular catarrh, blennorrhœa." It is freely acknowledged that the French army, which should have been the most seriously affected remained comparatively immune. That Larrey was not unmindful of trachoma is shown by the statement that I have italicized on page 93 that the tarsal cartilages were not affected. Trachoma also did not break out in the European armies till several years after the return of the armies from Egypt. It appeared in the British Army in 1804, in the Prussian army in 1813, in the Austrian army in 1813-1820, in the Russian army in 1818, in the Dutch and Belgian armies in 1815, in the Swedish army in 1813-1815, and in the Danish army not until 1848. There is no doubt that the British Army was severely attacked by trachoma and purulent ophthalmia in 1803-1806, and Vetch's account leaves no uncertainty that a large proportion of the cases were trachomatous; but it also appears from a letter from Dr. Fergusson at Portsmouth to the Inspector General in 1809,* that there was a great deal of factitious ophthalmia in the army, principally among new Irish recruits who had never been in Egypt, but who were under orders for embarkation for foreign service. Boldt sums the matter up very fairly in the following passage: "Although, therefore, trachoma was well known in Europe before Napoleon's time, yet its extraordinary dissemination in the French, English and Italian armies must undoubtedly be attributed in great measure to their infection in Egypt. On the other hand, there is no doubt that the armies of other

*Kindly brought to my notice by my colleague, Mr. A. W. Ormond.

European nations remained almost entirely free from Egyptian opthhalmia, in spite of their frequent intercourse with the French troops. Good examples were found in the Austrian army, which was often engaged with the French from 1799 to 1890, and in the Prussian army up to 1813, which fought with a Russian against the French in 1806-7. These incontestable facts refute the view which finds wide acceptance even at the present day, that the transmission of trachoma into every army and country in Europe was entirely the result of infection from the French army in Egypt. The latter, on the contrary, as has been remarked, did not suffer to any appreciable extent after its return from Egypt, and within the next ten years it marched through almost the whole of Europe without producing demonstrable epidemics of trachoma anywhere." My own conclusions are, that whether trachoma was or was not introduced into Europe by Napoleon's army on its return from Egypt, there is no doubt whatever that the epidemic of ophthalmia which so disastrously affected the army of Egypt in 1799-1801 was a mixed gonococcal and Koch-Weeks infection. The French army arrived in Egypt in the middle of the season in which, according to McCallan's reports, gonococcal ophthalmia is most prevalent, and Larrey's account of the epidemic describes quite accurately the symptoms of the ophthalmia which ran through the Turkish prisoners in Egypt in 1918. That the epidemic in 1799 was not trachomatous but gonococcal is the view, not only of Dr. McCallan but of all the ophthalmic surgeons who have served in Egypt in the recent campaign.

Finally, I think it may be accepted that trachoma will not be re-introduced into England by the troops returning from Egypt in this war. With modern standards of cleanliness and sanitation trachoma has lost its terrors. A large European population lives permanently in Egypt and does not contract a disease which is practically universal among the native population, and the British Army, which has for four years been intimately associated with Egyptian Labour Corps personnel,

hospital orderlies, native servants and drivers, has been affected only to an infinitesimal extent. But that ophthalmia is still a source of real danger among a population with eastern habits, the severe epidemic among the Turkish prisoners very forcibly reminded us.

Corneal Ulcers.

Corneal ulcers were common, especially among troops camped on the desert. They were probably caused in the first instance by abrasion of the cornea with particles of sand, the abraded surface subsequently becoming infected by some of the conjunctival organisms. The ordinary corneal ulcers reacted quite well to treatment, and were very seldom complicated by hyopyon.

There were, however, an unusually large number of dendritic ulcers of the cornea, associated with corneal anæsthesia. These were very intractable and prone to relapse, lasting sometimes for months and reacting to no treatment. All the ordinary remedies, such as the usual antiseptic ointments, pure carbolic acid, tincture of iodine or absolute alcohol, were tried, but in the majority of cases the progress was extremely slow. The corneal epithelium grew over a shallow superficial mass of partially necrotic tissue forming a very weak scar, and even when the ulcer did heal, it often broke down almost immediately if the patient was discharged to duty.

Generally it was found that the cornea did not heal satisfactorily in the sandy atmosphere of Egypt, and men were invalided home in the hope that the sea voyage and treatment in England might result in a more rapid cure.

The causation of these dendritic ulcers was obscure. By some observers it was held that they were associated in some way with malaria, by others it was supposed that they were due to the large doses of quinine given to cure the malaria. No evidence produced ever seemed to me sufficient to justify these statements, and I personally attributed them to the climatic conditions of heat, sand and wind.

Lt.-Col. Sir J. W. Barrett, R.A.M.C., a well-known oculist of Melbourne, told me that dendritic ulcers were, in his own experience, common in those parts of Australia where the occurrence of sand, wind and heat produced a climate resembling that of Egypt. He also told me that malaria does not occur in Australia. In view of these facts I remain sceptical as to any association of dendritic ulcers with malaria and I am also inclined to doubt the truth of the assumption that these ulcers are due to some affection of the fifth nerve: apart from the anæsthesia of the cornea there is never any evidence of involvement of other branches of the fifth nerve, such as is found in true ocular herpes, and my own opinion tends to the view that dendritic ulcers are due to a local external infection.

Gunshot Wounds.

Gunshot wounds of the eye and its neighbourhood numbered 564, or approximately 1 in every 600 eye cases.

These cases may be classified as follows :—

Gunshot wounds of the globe, excised	129
Gunshot wounds of the globe, not excised ...	163
Other injuries, principally traumatic cataract ...	148
Injuries to the lids and orbit	124

I have very little to say about these cases which has not been better said by those who have had a much larger experience in France. In Palestine and Syria fighting was never so continuous or intense as on the Western Front, and injuries due to small fragments of metal, stone or sand in the eye due to high explosive or bombs were certainly not so common. The majority of the cases were injuries due to rifle bullets, in which the whole eye was hopelessly destroyed, or in which the eye, though not actually hit by the bullet was so injured by the concussion of the impact in the neighbourhood that all sight was destroyed. We became familiar in Egypt with the clinical picture, practically unknown before the war, of the results of the impact of a rifle bullet in the neighbourhood of the eye. The ruptures of

choroid and retina, the numerous large retinal hæmorrhages scattered all over the fundus, the greyish œdema of the retina and the subsequent absorption of the blood and the development of pigmentary degeneration were the same as on the Western Front, as were also the cases of profuse intra-ocular hæmorrhage followed by the formation of fibrous tissue and "retinitis proliferans."

Injuries of the eye due to the impact of particles of sand upon the cornea were numerous; and in some cases the number of grains of dust embedded in the cornea was extraordinary, and they penetrated to a great depth. A large number of cases of traumatic cataract were due to this cause.

During the first two years a Haab's magnet was available either in Mudros or in Cairo, but the number of cases for which it was required was very small. When the 3rd Australian General Hospital left Egypt they took the Haab's magnet with them. After their departure it was practically not required, as hardly a single eye with a metallic foreign body in it was seen in a condition in which it could have been saved.

In the period under review there was, as far as I am aware, only one case of sympathetic ophthalmia.

Certainly, as far as the campaign in Egypt was concerned, our experience of gunshot and bomb wounds of the eye was negligible compared with that of ophthalmic surgeons on the Western Front.

Plastic surgery of the face was also very uncommon, as most cases were invalided home to England as soon as possible owing to the urgent demand for beds.

Night Blindness.

There is no doubt that night blindness occurs in all armies after prolonged fatigue, especially if the soldiers have been on restricted rations. That it is a common symptom of malnutrition is shown by its occurrence in Russia after prolonged fasts. But it is also one of the many complaints of the malingerer.

In the early months of the war in Egypt many soldiers, both British and Indian, complained of night blindness. Careful examination was always made, but very little actual disease has been found. A few cases of genuine retinitis pigmentosa were seen, but no cases of conjunctival xerosis among the British troops, and in the great majority of cases no ocular disease was found, and the men appeared to be in good condition and well fed.

In two very interesting cases, both officers, the night blindness was only transitory, the failure of vision coming on at twilight and lasting for about two hours. At the end of that time the retina had adapted itself to the diminished illumination and vision was as good under the circumstances as that of normal persons.

In both cases the condition was congenital, the fundus showed a widespread pigmentary change, not the typical spider cells of retinitis pigmentosa, but more lumpy and aggregated, with numerous small peripheral white patches, resembling retinitis punctata albescens.

This delayed adaptation of the retina to the dark was also observed in some cases of high myopia, in which there was a thin choroid and a deficiency of retinal and choroidal pigment, and no doubt the intensity of the sunlight and of the glare from the sand in desert stations was the cause of this unusual and exaggerated retinal fatigue.

In the great majority of cases nothing abnormal was found, and careful observation led to the conclusion that the night blindness was either grossly exaggerated or a fiction. The men alleged to be so afflicted managed never to injure themselves in the dark, and on being told they would not be invalided for the condition, nothing more was heard of it.

In this connection I may remark that I attach no importance to the restricted field of vision so often observed, not only in association with night blindness, but also with shell shock.

To chart a field of vision accurately, even in a definite lesion of the field, requires considerable intelligence and attention on the part of the patient, and at the best of times the chart is merely approximate, while in functional cases, such as shell shock, a chart of vision is of no value whatever.

I have often demonstrated that a patient, whose field of vision as charted was much constricted, could thread his way among chairs and avoid obstacles in a darkened room, in a way that would be impossible for a man with a field of vision so constricted from an organic lesion. And I have, therefore, relied more on the patient's general power of moving about without accident than on a perimeter chart.

Among the Turkish prisoners night blindness was much more common and was undoubtedly caused by malnutrition. As I have mentioned before (page 105) there were at one time in the Prisoners of War Camp at Heliopolis 172 cases of pronounced xerosis of the conjunctiva with night blindness, associated with pellagra and other forms of intestinal disease. These cases all cleared up with rest and a generous diet.

Shell Shock.

As will be seen from the statistics, shell blindness was negligible in the army in Egypt. There were a fair number of cases from the Gallipoli Peninsula before the period covered by these statistics, but in the later years of the war it practically did not occur. I always held the view that shell blindness was a subject, not for the oculist, but for the neurologist or the psycho-therapist, it being only one of the protean forms of traumatic neurasthenia in a pronounced form.

As to the various merits of isolation, suggestion, psychotherapy, or of the comparatively frequent miracles reported in the daily press, I feel incompetent to speak.

> "'Tis an awkward thing to play with souls,
> And matter enough to save one's own."

My experience had been small, and as I was not trained in the understanding of the normal or abnormal workings of the mind, I did not feel justified in attempting the cure of others.

Malaria.

One fact I think should be put on record in this connection. Malaria, malignant and benign, was almost a pestilence in both the British and Turkish armies in Palestine. Large doses of quinine were given, both in intensive methods of treatment and spread over long periods. I made inquiries everywhere, but I was not able to find a record of a single case of quinine amblyopia.

Other Eye Diseases.

Of the remaining eye diseases there is nothing to say. They were the ordinary affections such as would be met with in civil practice, and in much the same proportion, among a body of men in the healthiest period of life.

Conclusion.

As will have been gathered from the foregoing account, the principal duty of the ophthalmic surgeons in Egypt was the investigation of errors of refraction and the treatment of ophthalmia. If I have dilated upon these subjects at excessive length it is merely because they were, in actual practice, our chief preoccupation. And I have no doubt that in any future campaign in the Near East they will still hold a predominant position.

I have attempted in this short paper to give some general account of military ophthalmology in Egypt, as we saw it in 1915—1918 in the hope that it may be of interest or assistance in similar circumstances in the future. I am convinced that a hundred years hence conditions in the unchanging East will be much the same as they are now. To quote my text once more, "The thing that hath been, it is that which shall be."

In conclusion I should like to express my gratitude to Dr. H. P. Keatinge, C.M.G., late Director of the Cairo School of Medicine, for access to the Kasr-el-Aini Library and to Larrey's works; to Dr. E. C. Fischer, Professor of Ophthalmology in the Cairo School of Medicine, for much valuable information concerning diseases of the eye in Egypt; to Dr. A. C. MacCallan, Director of Travelling Ophthalmic Hospitals, D.P.H., Egypt, for his invaluable statistics and unrivalled information on ophthalmia; and last, but not least, to the ophthalmic specialists in the various hospitals, who, unmentioned and unhonoured (such is the Army way), did all the laborious and valuable work which I have so roughly reviewed.

THE DEVELOPMENT OF CASUALTY CLEARING STATIONS.

By

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Apart from the general advance of surgery, three measures in the war have probably done more than anything else to save life and diminish suffering. One was the substitution of motor ambulances for the traditional "returning empty supply wagons" and horse transport; another was the routine early application of Thomas' splint; and the third was the development of the Casualty Clearing Station from a waiting room for wounded into a fully-equipped hospital, where any operation whatever could be performed within a few hours of the man being wounded.

In the so-called "collecting zone" from the trench to the Field Ambulance, all was done from the beginning of the war that pluck and hard work could accomplish. And at the Base the best of treatment and accommodation was always ready. But in the area between these two the greatest development took place, for from being a mere "distributing zone" it became ultimately the chief centre of surgical work.

When I joined a Casualty Clearing Station in January, 1915, we had two or three hundred stretchers, a few beds collected locally, and four sisters who had recently been added as an experiment. The outfit of instruments consisted chiefly of

catheters. One table in a back kitchen, with just room to move round it, represented the theatre. A small spirit steriliser served for knife and forceps, larger instruments and all dressings had to be boiled in dixies on the fire.

The operation record for the last five months showed eighteen operations, several of them amputations of the finger. The Casualty Clearing Station had, in fact, acted solely as a place where casualties could be fed and tended pending the arrival of an ambulance train, and nothing more had been expected of it. The same Casualty Clearing Station three years later had hospital beds for 100 cases, and could accommodate up to 800 if necessary. There was a matron and staff of sisters, a full and good surgical equipment, an X-ray outfit, a pathological laboratory, and 12 operating tables arranged in pairs in a roomy theatre. There was a receiving room to take 200, and a resuscitation ward with a special team for this work. Instead of the five or six harassed medical officers who struggled with the rush of wounded at the time of Neuve Chapelle, a dozen or more extra officers could be drafted in as re-inforcements before any general engagement, so that work could be carried on in shifts day and night.

The same changes had, of course, taken place in other units. As the surgical work, done at first under the difficulties described above, began to show results, equipment was gradually forthcoming. At the beginning of the war all very bad cases, such as chests and abdomens, used to be kept on a régime of morphia and sips of water for days in the Field Ambulance. This was the South African tradition, and operation was considered hopeless. In the early summer of 1915 a localised effort was made to get these cases down as quickly as possible for operation. When it was seen that this change resulted in an obvious saving of life it was extended and became general in the autumn, and later the worst cases of every kind were usually sent direct from the advanced dressing stations to the Casualty Clearing Station without going through the Field Ambulance at all.

Surgical specialists were first appointed to Casualty Clearing Stations in the spring of 1915, but it was not till some three years later that their position was recognised by the grant of field rank. They had meanwhile improved much in quality, as the work in this zone began to appeal to the keener surgeons, and by the end of the war many of the best operators in the Army were holding these posts.

The team system was also gradually developed. As time went on it became increasingly evident that it was wasteful to keep good men idle in a quiet part of the line while their opposite numbers in a busy sector were getting no sleep. The supply of surgeons had to be mobilised and set to flow in the direction of the greatest pressure at the moment. At first this was confined to the occasional loan—usually after the need was over—of three or four medical officers not specially selected. Then the practice was instituted of sending a certain number of "teams" to help the Casualty Clearing Stations who expected a rush, and their usefulness was increased by sending them before they were needed instead of after. Each team consisted of a surgeon, an anæsthetist, a sister, and a couple of theatre orderlies, all used to working together. As men got scarcer the anæsthetists were commonly women, and very good they were. As many as 80 teams were sent on one occasion to help an army heavily engaged, but this was only possible if the fighting was localised. The teams were drawn from other Casualty Clearing Stations in quiet sectors, or from the base, and they took their place as shifts in the Casualty Clearing Station they were attached to, taking charge of one table and the beds occupied by the cases they had operated on.

The question of the most economical shifts was at one time much debated. Eight-hour shifts—eight hours on and four hours sleep—enabled three teams to keep two tables running night and day—and this could be kept up for about a week, but hardly longer. The general result of experience was in favour of twelve-hour shifts with a short rest in the middle of the day or night, after the chief meal.

Another development of interest was the establishment of advanced operating centres. It was found impossible to operate usefully, except for certain emergencies, in a Field Ambulance with the ordinary staff and equipment. But men and equipment were sometimes attached to Field Ambulances for this special purpose, and special units were formed and put in convenient places near the line to deal with abdominal and other urgent cases. The idea was an attractive one, especially to the surgeon, but it had certain disadvantages. For example, such a unit had to be well and fully staffed, or it was soon swamped with work, except in quiet times. This happened to me when I was attached for this purpose to a Field Ambulance at the Battle of Loos, with no other surgeon. And if many men, and those the best men, are detached for this purpose it weakens the Casualty Clearing Stations very much, while there is always a loss of economy in splitting up personnel. Moreover, the wounded have not only to be operated on, but kept for a week or so, and it is not sound or humane to keep wounded men under any but the most occasional shell-fire. So that the place had to be free from shelling, and if this was so it was usually possible to put a Casualty Clearing Station there. In any case the time occupied in going in a car from such a centre to the nearest Casualty Clearing Station was usually not great, a small fraction of the time which had already been spent in getting them down from the line by hand carriage along a communication trench. So that although under certain conditions these units did very good work, and although they were very interesting professionally, they were not, as a rule, economical.

The distance of the Casualty Clearing Station from the line depended partly on the position of rail-head, and partly on the kind of fighting in progress. In stationary warfare they were pushed up to a few miles from the line, in any place that was not likely to be shelled. At the cost of a few hurried retreats this worked well; the more advanced units got their cases early, and got the pick of them, and did very well. But in

the German advance of 1918 it was impossible to get all the more advanced ones away, for a Casualty Clearing Station fully equipped requires anything over 30 lorries to move it. So in some of the later fighting a more cautious policy was adopted, and Casualty Clearing Stations found themselves as much as 20 miles behind our line. They then advanced in turn, travelling as light as possible, and shedding in haste much of the material they had accumulated at leisure. But even so they never reverted to their original state, but remained hospitals to the end.

The greatest change which took place in their internal arrangement occurred when they went under canvas. In all the early part of the war they were installed by preference in buildings, chiefly schools and monasteries. To fit them in required a good deal of ingenuity, and no general system was possible. Later, in some armies earlier than others, they were driven to plant themselves in the open. This was a blessing in disguise (in winter a very complete disguise), for it enabled them to be planned and laid out for the work they had to do. It was difficult without huts to make a good theatre, and for wards the British tents left much to be desired. But in compensation there was freedom of design, and out of the many possible arrangements a type was gradually evolved. Many men claimed to have originated it, really it was the result of combined experience, and was adopted with slight variations by nearly all units.

The method adopted in busy times was usually as follows—Two large compound tents were provided for reception work, holding up to 200 each, one for walking cases and the other for stretchers. In these the clerks took down the particulars and the men got hot drinks and food. At the far end of them junior medical officers under the supervision of some one senior man examined each case thoroughly on trestles in a good light, and decided their disposal. Those that required no interference were dressed and sent straight to the evacuation wards, which were cleared *en masse* whenever there was

a train. Of the others, some were marked by tickets or any other device to "remain," some for "operation," and some for "resuscitation." The latter went to the resuscitation ward, where a special team took charge of them, and passed them on to the theatre when they were fit for it. The operation cases went to the general "pre-operation ward," were dealt with in turn by the teams on duty in the theatre, and were then sent either to the evacuation ward or to the ward of the surgeon who had operated on them. The cases marked "remain" were cleared out from time to time to the evacuation wards as they became fit to travel. To work this system required a number of tents so arranged as to facilitate this sorting, and a body of men used to working rapidly and methodically. Given these, it was found that an enormous number of wounded could be properly dealt with without any fuss or confusion.

The most important duty was undoubtedly the original sorting, on which the man's fate largely depended. The realisation of this led many of the best surgeons to leave the actual operating to the visiting teams, and to devote themselves to the less spectacular but more important work of sorting and supervision of the pre-operation wards. In the theatre the teams were fed in rotation from the cases awaiting operation.

If the greatest difficulty arose in sorting, the greatest delay was undoubtedly in the theatre. Of course, a few surgeons were incompetent, and some men would always keep urgent cases waiting while they toiled for hours over hopeless abdomens. But the vast majority of surgeons were sensible, and developed a good rate of speed. This work, like everything else, became systematised, and an experienced surgeon working on well-selected cases with his own team, and "twin" tables, so that the next case was always cleaned up and anæsthetised before the first was finished, could get through an astonishing amount of work. Gas and oxygen saved both time and shock, and by the end of the war loss of time in the theatre was reduced to a minimum.

A good clearing station working under pressure was as good an example as one could find of organised team work.

The X-ray equipment was one of the developments which took some time to establish. The first effort in this direction was the provision of one mobile X-ray unit for each army. Units had to apply for its services to the Army Headquarters. This was almost useless, for in nine cases out of ten the patient had to be operated on or evacuated long before the X-rays could be got to him. Accordingly an effort was made to provide each Casualty Clearing Station, or at any rate each group, with an outfit of its own. The first hospital outfit of this kind that I saw was towards the end of the Somme fighting in 1916. These outfits were so useful, especially in screening cases for the immediate removal of retained missiles, that towards the end of the war they were considered indispensable.

The pathological laboratories were in the same way provided to serve a number of hospitals, and to some extent shared the disadvantages of the army X-ray outfits.

But one of the many advantages of getting the Casualty Clearing Stations out in the open was that it was then possible to group two or three of them in the same place. And under these circumstances they could all have the same laboratory available at all times. But quite apart from this minor advantage the grouping of the Casualty Clearing Stations, when it was possible, led to great saving of confusion in reception and evacuation, and to a good deal of healthy rivalry and exchange of views, which was less easy when the units were some miles apart.

Two developments which increased the work of the Casualty Clearing Stations in the latter part of the war were the scientific treatment of shock, and the thorough cleaning and immediate closure of wounds. Both were well worth doing, but consumed a great deal of time. Much good work was done on shock, of which Cowell's is, perhaps, the best known, and a very sensible system was established at the Field Ambulances which led to the wounded coming down in much better condition. Blood

transfusion was worked out and systematised with excellent results.

Experience also showed that while the nature of the dressing applied to the outside of a wound made very little difference to its fate, it was possible by a thorough cleaning in the theatre to obtain primary healing and closure in a number of cases. Special Casualty Clearing Stations were at first devoted to this work, and a good deal of it was done in others. But it took a good deal of time, commonly about three-quarters of an hour, to clean a wound of any size scrupulously, and for military reasons the plan had to be adopted of sending most of the lighter cases directly to the base. Here, even after an interval of a day or more the same methods proved unexpectedly successful. Of the first 500 cases of this kind arriving at one base about one-quarter were considered suitable for this treatment. The rest were either too slight or too grave, or were very often only technically "wounded." But of this quarter, 80 per cent. were closed and healed by first intention. In this way the Casualty Clearing Stations were relieved of a quantity of work and could devote themselves to the more urgent cases.

The Thomas' splint organisation deserves a special notice. This splint was introduced in 1915, I believe chiefly by Wallace, and proved a great advance on the official splint, the Long Liston. It was soon realised that the only satisfactory way to treat a fractured femur, or for that matter most other fractures, was to apply a splint of this type as soon as the man was picked up, and to keep it on till he reached the base. Once this was grasped, the method of application was taught systematically by lectures to all ranks of the forward units, and teams even competed in applying it rapidly by numbers, as a sort of drill. The splints were issued to all Advanced Dressing Stations, Aid Posts, and Motor Convoys, and anyone who failed to use them properly was asked the reason why. This simple measure saved a vast amount of life, limbs and suffering, and was a good example of what can be done by standardising, instruction, and team work.

But the whole history of Casualty Clearing Station work is an instance of how much can be done by pooling experience, and then standardising the results. Most of our progress was due to the combined experience of a number of men who cheerfully put into the common stock what they could, without making any fuss about their personal credit or priority. And the actual work was done by teams working together, each doing what others thought he could do best instead of what he himself preferred to do. The result was amazingly good; it remains to be seen how much of this spirit will survive in civil life.

THE WAR NEUROSES AND THE NEUROSES OF CIVIL LIFE.

By

ARTHUR F. HURST.

I.—Introduction.

At an early stage in the Great War functional nervous disorders became so common that it was clear that some special organisation was required to deal with them. At first sections of general hospitals and later whole hospitals were devoted to the care and treatment of soldiers suffering from these conditions. After my return from Salonica in August, 1916, I was in charge of the Neurological Section at Oxford, and from December of the same year the larger Section at Netley. Finally I was in charge of the Seale Hayne Military Hospital near Newton Abbot from the date of its opening in April, 1918, until it was closed in June, 1919, with Major J. L. M. Symns, and subsequently Major J. F. Venables, as second in command. In this hospital we had about 350 beds, all of which were reserved for soldiers suffering from war neuroses.

I was always fortunate in being associated with medical officers who were keenly interested in the subject. The majority of these were Guy's men—R. Gainsborough, who assisted me at Oxford, Major J. L. M. Symns, who was with me at Netley and in Devonshire, and Major J. F. Venables, Captain W. R. Reynell, Captain C. H. Ripman, and Captain G. McGregor, who were with me at the Seale Hayne Military Hospital. The Seale Hayne Neurological Studies, which were

published in 1918 and 1919, contained original articles by each of these officers. My earliest observations on hysterical blindness were made in 1915 with Major A. W. Ormond, and on hysterical deafness in 1917 with Captain E. A. Peters.

Several other Guy's men have done important work in connection with the war neuroses. Major W. Johnson, M.C., was in command of a special Casualty Clearing Station in France for the war neuroses, where they were successfully treated in their earliest stages. Surgeon H. Carlill, R.N., was in charge of the Neurological Wards at Haslar, where he did valuable work on syphilis of the nervous system as well as on the neuroses. Captain Worster-Draught at Woolwich, Captain C. P. Symonds at Aldershot, and Laughton Scott, at a pensioners' clinic in London, added their contributions to the subject. Finally, Lt.-Col. Maurice Craig was largely responsible for organising the hospitals for war psychoses.

II.—The Causes and Nature of the War Neuroses.

The two conditions which led to the great frequency of neuroses in soldiers compared with their comparative rarity in men under peace conditions were exhaustion and emotional strain. The exhaustion caused by long days of forced marching or strenuous fighting followed by nights with little or no sleep, combined in some cases with insufficient food, and in eastern campaigns with a great variety of infections and exposure to extreme heat, naturally led to a more profound neurasthenia than is commonly seen in civil life. In spite of this the intervals of rest and opportunities of relaxation, which became increasingly common as the war progressed, together with the admirable supply of food in most cases and the freedom from epidemic infections on a large scale owing to the excellence of the sanitary arrangements, except at Gallipoli and in the earlier part of the Mesopotamian campaign, prevented it from being as widespread or as severe as might have been expected. More important perhaps than the actual production of neurasthenia were the increased liability to the development of psychoneu-

roses, such as hysteria and psychasthenia, and the aggravation of incipient organic diseases, such as general paralysis and tabes, which resulted from exhaustion.

A few lucky individuals are born with a temperament which does not allow them to know what fear means. "Hunger and thirst could not depress them," wrote the Student in Arms, "rain could not damp them; cold could not chill them. Every hardship became a joke. They did not endure hardship, they derided it. . . As for death, it was, in a way, the greatest joke of all." The vast majority of men, however, including many of the bravest, were terrified when first exposed to the horrors of a bombardment. The majority became accustomed to it in time, but sooner or later the exhaustion of active service often resulted in a gradual failure of this adaptation, so that not only the constitutionally timid—the martial misfits—but some of those who for months or even years had faced the life cheerfully and even with enjoyment ultimately broke down from the long-continued emotional strain.

The emotion of fear acts in three ways. In the martial misfit, who is by nature very suggestible, it gives rise at once to severe physical symptoms, which often become perpetuated by auto-suggestion as hysterical tremor, mutism and paraplegia; in other cases it gradually leads to the development of psychasthenia; and finally it may result in such a disturbance of the suprarenal and thyroid glands that the condition I have called functional hyperadrenalism-hyperthyroidism results.

Apart from the fear which is caused by the general conditions of a prolonged bombardment, the more acute emotion caused by a single exceptionally terrifying experience leads to such a change in the individual's nervous system that he becomes for a short time extremely liable to develop hysterical symptoms by suggestion. This is particularly true if the experience has led to actual physical results; however evanescent these may be, they are likely to be unconsciously perpetuated and even exaggerated by the patient under such conditions. Thus a man who is gassed may develop hysterical blepharo-

spasm, ptosis, and blindness after the initial conjunctivitis has disappeared, hysterical aphonia after the disappearance of the laryngitis, and hysterical vomiting after the disappearance of the gastritis. If a man is blown up or buried, the amnesia, headache, hemiplegia, convulsions, and deafness which may result from the concussion of the brain, and the paraplegia and incontinence of urine, which may develop as a result of the concussion of the spinal cord, may be perpetuated as hysterical symptoms after the actual changes in the nervous system have so greatly diminished in degree and extent that the symptoms should have completely or almost completely disappeared.

III.—Neurasthenia.

Neurasthenia is a functional disorder, resulting from exhaustion of the nervous system and probably of certain endocrine glands, especially the suprarenal, which manifests itself by abnormal mental and physical fatiguability, and irritability of the nervous system.

The conditions which gave rise to it during the war produce actual exhaustion changes in the cells of the brain and the suprarenal gland. The importance of the changes in the latter has only become fully realised recently; physical exhaustion and infections, such as paratyphoid fever, bacillary dysentery and malaria, cause profound degeneration in the suprarenal gland, and the similar effect of severe and prolonged emotions is described in a later section. Thus neurasthenia has an organic basis and is not strictly a functional disorder, though the structural changes are evanescent, regeneration of the cells occurring with rest and removal of any toxæmia which may have been present.

The symptoms of neurasthenia observed in soldiers during the war were the same as occur in civilians, the chief being abnormal fatiguability combined with an irritable state of the nervous system, which manifested itself in the appearance of a variety of abnormal visceral sensations and reactions, the most important of which were circulatory.

With the exception of a comparatively small proportion of cases, which depended upon over-action of the sympathetic nervous system with functional hyperadrenalism-hyperthyroidism, as described in a later section, so-called disordered action of the heart,—the D.A.H. which was one of the chief medical causes of disability in soldiers, was really due to neurasthenia, though a moderate degree of cardio-muscular inefficiency, caused by the same toxins as those which affected the nervous system was often added to the group of symptoms produced by nervous exhaustion. General muscular fatiguability was always present in addition to the circulatory symptoms. The latter were partly the result of weakness of the vasomotor centre and partly of the abnormal irritability of the nervous system, which led to very slight derangements of cardiac activity, which a normal man would ignore, being felt with such great clearness that the individual was often led to fear that his heart was seriously diseased, a fear which was generally aggravated by the unfortunate diagnosis of D.A.H.

Insomnia was constantly present, and was often accompanied by nightmares, which will be more fully discussed under the head of psychasthenia. This naturally aggravated the symptoms of exhaustion and complete recovery was impossible until it had been overcome. An uncomfortable, heavy sensation in the head, which rarely amounted to actual pain, was often present. The patient became incapable of sustained mental activity, and was disinclined for either mental or physical work. The excessive physical fatiguability resulted in aching of the limbs and still more frequently of the back, which was often increased by his inability to relax his muscles completely, even though lying in bed. A fine tremor of the hands was often present when they were outstretched; this was secondary to the rigidity, and disappeared as soon as the patient learned to relax his muscles. Anorexia was generally present, which was increased by the unappetising food and by the still more unappetising way in which it was served.

The exhaustion of active service not infrequently led to temporary impotence. The discovery of this when on leave after a long period of abstinence often came as a considerable shock to men who had expected that their sexual functions would be unusually active. Rest and a further period of abstinence, together with re-assuring explanations of the physiological cause of the trouble and, in some cases, suggestion under hypnosis invariably resulted in a rapid cure.

Uncomplicated neurasthenia in soldiers required no treatment beyond a period of rest away from the sights and sounds of the front. It was soon found that a week or ten days in bed was amply sufficient, and that this must be followed at once by a period of physical training in the open air. Men who were sent to convalescent homes, and particularly to luxurious V.A.D. hospitals run by over-sympathetic women, invariably did badly, and often became permanently unfitted for further military service. Drugs were never required, except perhaps a small dose of bromide at night, and in severer cases of insomnia medinal and aspirin. But the more experience we had the less we used drugs for insomnia, as we found that psychotherapeutic conversations, coupled in some cases with direct suggestion under hypnosis, generally led to the return of natural sleep in a few days.

IV.—Hysteria.

Hysteria is a condition in which symptoms are present, which have been produced by suggestion and are curable by psychotherapy. This definition is novel in not recognising an hysterical condition apart from the presence of definite hysterical symptoms. Charcot believed that hysteria manifested itself in two ways: by the symptoms that were obvious to the patient and about which he complained, and by physical and mental stigmata which were present before the obvious symptoms appeared and which persisted after their removal.

Investigations carried out with Major J. L. M. Symns have confirmed the teaching of Babinski that the so-called physical

stigmata of hysteria are always produced by the unconscious suggestion of the observer. The mental stigma, which is regarded as most characteristic of hysteria by the majority of writers and which is the only one accepted by Babinski, is abnormal suggestibility. But our investigations have proved conclusively that although abnormal suggestibility renders a man unusually prone to develop hysterical symptoms, there is no one who is so devoid of suggestibility that he may not develop them if the suggestive influence is sufficiently powerful. Whether a person will develop hysterical symptoms under given conditions depends on the degree of his susceptibility and the strength of the suggestion. It is clear therefore that abnormal suggestibility is simply a predisposing factor and is no more a part of hysteria than a tuberculous family history is of phthisis. Many cases of gross hysterical symptoms occurred in soldiers who had no family or personal history of neuroses, and who were perfectly fit until the moment that one of the exceptionally powerful exciting causes, such as occur comparatively rarely apart from war, suggested some hysterical symptom; and after its disappearance as a result of psychotherapy the man was once more perfectly fit, and his subsequent history showed that he remained no more liable than any of his companions to develop new symptoms.

As soon as it is recognised that although certain mental stigmata predispose to the development of hysteria they are not themselves a part of hysteria, it becomes obvious that many cases of hysteria will be missed if it is only looked for in so-called hysterical persons. When, on the other hand, it is remembered that there is nobody who may not develop hysteria if the provocation is sufficiently great, it must follow that hysteria is infinitely more widespread than has generally been supposed.

Hysterical symptoms following the emotion of fear.—In the majority of cases very little difficulty is experienced in discovering the nature of the suggestion which gives rise to hysterical symptoms. In the first place there are the symptoms

which follow the emotion of fear. Extreme terror gives rise to certain familiar symptoms: the individual becomes shaky, "paralysed with fear," and unable to speak — "his tongue cleaves to the roof of his mouth." Under ordinary conditions the cause of fear is momentary and the physical results disappear in a few seconds. But during a heavy bombardment a man often remained terrified for hours. If the tremor, inability to move the legs and speechlessness persisted all this time, it was natural that these physical expressions of fear, which were not in any way hysterical, should make such an impression on the individual's mind that when the original emotion had disappeared the tremor, paraplegia and mutism persisted as hysterical symptoms.

In the first two years of the war cases of this kind were given the unfortunate name of "shell-shock," in the belief that they were organic in origin and due to the actual concussion caused by the explosion of powerful shells. Consequently no attempt was made to cure them by psychotherapy, and the treatment by rest and sympathy helped to perpetuate them; this unsatisfactory result was increased by the use of the word "shell-shock," which gave the patient the idea that he was suffering from some new and terrible disease. When at last the true nature of the condition was recognised, it was found that psychotherapy not only resulted in the immediate disappearance of the symptoms, when they were treated in the special advanced hospitals opened for the purpose by the British and French, such as the Casualty Clearing Station of which Major W. Johnson was in charge, but cases of two, three and even four years' standing were also frequently cured at a single sitting in hospitals in England. Although this form of hysteria was most common in neurotic individuals, a large proportion of the patients treated within the first forty-eight hours recovered so completely that they were able to return to the firing line and showed no tendency to relapse. A few of the patients, whose condition had persisted for many months before coming under treatment, could not return to France, but even

FIG. 1.

Hysterical ptosis of left eye with spread of paralysis to whole of left side of face, hysterical spasm of right eye with spread of spasm to whole of right side of face, and hysterical amblyopia: a sequel of gassing, and cured by psychotherapy in a single day.

Fig 1 (a).—Position at rest, showing double ptosis, right-sided facial spasm and left-sided facial paralysis.

Fig 1 (b).—Same as (a) with left eyelid raised so as to see; this could not be done with the right eye owing to spasm.

Fig. 1 (c).—Voluntary effort to open eyes, resulting in over-action of left frontalis, though left side of face is paralysed, and spasm of right side of face including platysma.

such men were always able to go back to their old civil occupation and often had no underlying mental condition requiring further treatment, although in some cases the hysteria was associated with neurasthenia or psychasthenia or both. Indeed many patients at once lost such symptoms as headache, depression, insomnia and nightmares, which had troubled them for months or even years, directly the obvious physical symptoms, such as mutism or stammering, tremor and paraplegia, were removed by explanation, persuasion and re-education.

We now believe that stammering in civilians as well as soldiers is hysterical and should be curable by psychotherapy with far greater rapidity than we formerly believed to be possible. Most of our cases during the last nine months of the war were cured at a single sitting, and recently Major J. F. Venables taught two soldiers, each of whom had been almost inarticulate from stammering since early childhood, to talk fluently in less than half an hour.

Hysterical symptoms which followed gassing.—The second great group of hysterical symptoms in soldiers resulted from gassing. The irritation of the eyes, throat and stomach caused conjunctivitis, laryngitis and gastritis, the latter being due to the swallowing of saliva in which the gas was dissolved. The pain caused by the conjunctivitis induced the patient to refrain from opening his eyes with his levator palpebræ superioris; if, however, he tried to open them, his attempt was frustrated by a reflex protective spasm of his orbicularis palpebrarum. Under ordinary conditions the conjunctivitis had improved sufficiently at the end of three weeks for the eyes to be opened without difficulty, but if the patient was led to fear for his vision on account of previous weakness of the eyes, the previous loss of one eye, as in two of our cases, or too prolonged treatment with local applications, bandages, dark spectacles or eye-shades, the voluntary inhibition of the levator might be perpetuated as hysterical ptosis and the reflex spasm of the orbicularis as hysterical blepharospasm (Fig. 1). As the uneducated layman associates the idea of blindness with inability to open the eyes,

many of these patients thought they were blind. Consequently when they were taught to open their eyes, it was found that they could only see indistinctly, as they had hysterical paralysis of accommodation, or less frequently they could not see at all, as they had become so convinced that they were blind that they had ceased to look, and, not looking, they could not see. Simple explanation followed by re-education in looking resulted in permanent recovery.

In the same way the whispering in cases of laryngitis, which was originally in part voluntary in order to avoid pain and in part due to a protective reflex, was frequently perpetuated as hysterical aphonia. This was most commonly the case when an expert laryngoscopic examination had revealed the presence of some abnormal congestion which led to intralaryngeal medication, as both the diagnosis and treatment afforded the necessary suggestion to perpetuate the idea in the patient's mind that his voice was permanently lost.

When these patients were taken away from their unfavourable surroundings and treated by explanation, persuasion and re-education, without any recourse to suggestion by electricity, anæsthetics or other means, they invariably recovered. Each one of a series of 100 patients treated at the Seale Hayne Hospital was cured at a single sitting, although the average duration of the aphonia before admission was 205 days. About one third of these cases were not caused by gassing, but by ordinary laryngitis, or they followed mutism, which had disappeared either spontaneously or after treatment which had been discontinued too soon. The 101st case was recognised to be organic by the timbre of the voice, a view which was confirmed when one cord was found to be paralysed and an aneurysm of the aorta was discovered. We believe that the liability to relapse is greatly reduced by our simple method of treatment and the avoidance of suggestion.

In a much smaller number of cases other hysterical affections of respiration, such as tachypnœa, hiccup, and spasms of the diaphragm resulted from gassing.

The gastritis caused by gassing resulted in vomiting, a protective reflex which fulfilled its object by removing the irritant from the stomach. The actual gastritis rapidly disappeared, and whenever the vomiting persisted for more than three or four weeks it was always hysterical. A very large number of soldiers were invalided from the service for so-called gastritis, the only symptom of which was vomiting. We found that cases of this sort could be cured by a single conversation, if this was continued until the patient was obviously quite convinced that he was not longer suffering from gastritis, and that he could eat anything without fear of vomiting, even if he had vomited after every meal for many months and had been kept on a strictly fluid diet. Captain W. R. Reynell published an account of a number of cases of this kind in the *Seale Hayne Neurological Studies.*

Hysterical vomiting is much more common in civil life than is generally supposed. The vomiting in chronic appendicitis, which may continue even after the removal of the appendix, and that of phthisis, are often in great part hysterical. We saw several examples of these conditions in soldiers, and also of hysterical vomiting, following the vomiting caused by various infections, such as influenza and bacillary dysentery.

Hysterical symptoms following trivial wounds of limbs.—Perhaps the most common of the hysterical conditions in soldiers were the paralysis and contractures which followed comparatively trivial wounds of the limbs. A great many different forms were observed, and in many cases the paralysis and contracture were associated with marked vasomotor disturbances, including cyanosis or pallor, a pulse of small amplitude, œdema, and trophic changes in the skin, nails and bones. At the same time the muscles showed a moderate degree of atrophy, accompanied by an increased irritability to mechanical stimulation and certain changes in electrical reactions, which did not, however, amount to the reaction of degeneration. These changes were often most easily observed under a general anæsthetic, which did not result in complete relaxation of the

spasm until a stage of anæsthesia was reached beyond that in which consciousness is first lost. Babinski and Froment experienced considerable difficulty in producing any improvement in the paralysis and contracture by psychotherapy. Impressed by this and by the fact that the associated vasomotor and trophic conditions could not possibly by hysterical, as they were obviously neither capable of being produced by suggestion nor cured by psychotherapy, they concluded that the paralysis and contracture were also not hysterical. They revived the old theory of reflex nervous disorders, with which Vulpian and Charcot had sought to explain the muscular atrophy and spasm that often accompany diseases of joints. They ascribed both the muscular symptoms and the associated vasomotor and trophic disturbances to some obscure form of reflex action.

Our experience has led us to believe that there is no foundation for this theory of Babinski and Froment, and that all the cases they described as reflex are really hysterical. The immobility and spasm may arise as a voluntary or reflex response to pain, or they may be due to localised tetanus, or to the aplication of splints or bandages; the abnormal posture and the immobility and spasm are perpetuated by auto-suggestion after the primary cause has disappeared, and to this is very often added the hetero-suggestion involved in treatment by electricity and massage. The hysterical paralysis and contracture which result could invariably have been prevented by persuasion and re-education directly the condition of the wound made active movement permissible.

The hysterical nature of the paralysis and contracture is proved by their rapid cure with psychotherapy (Figs. 2 to 5). In a series of 100 consecutive cases treated at the Seale Hayne Hospital, the majority, if not all, of which might have been diagnosed as reflex, as each one of the cases shown in the illustrations of Babinski and Froment's book was represented in our series, ninety-six were cured at a single sitting of an average duration of fifty-four minutes, and the remainder were cured in four days (two cases), two weeks and four weeks respectively

Fig 2 (a).—Hysterical contracture of hand persisting thirty-five months after wound near elbow.

Fig. 2 (b).—Same hand as Fig. 2 (a) after half an hour's treatment, showing depressions formed in palm by pressure of nails (Captain C. H. Ripman).

Fig. 3 (a).—Hysterical contracture of six years' duration following amputation of a finger.

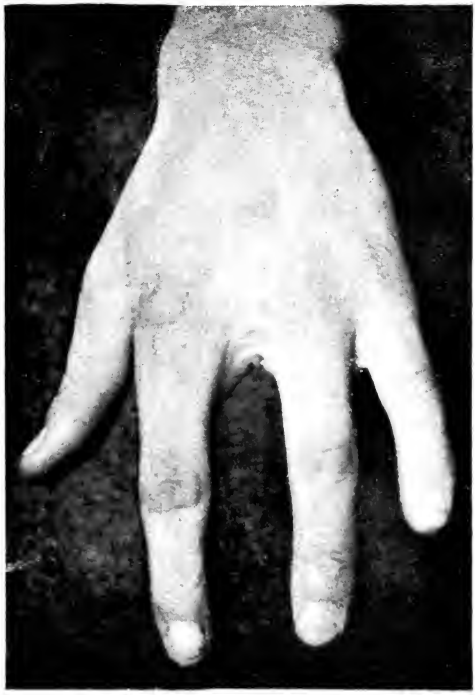

Fig. 3 (b).—Recovery after one hour's treatment (Major J. L. M. Symns).

Fig. 4 (a).—Hysterical contracture of foot of fourteen months' duration.

Fig. 4 (b).—Half an hour later, after psychotherapy.

Fig. 5 (a).—Hysterical contracture of toes associated with hammer-toe.

Fig. 5 (b).—Same case as Fig. 5 (a) cured after half an hour's treatment

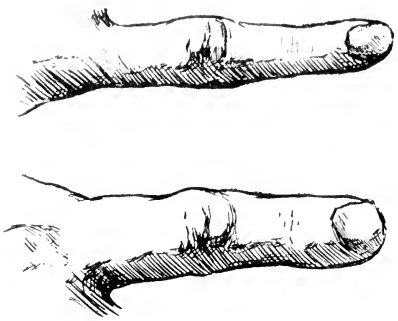

Fig. 6.—Atrophy of index finger of left hand, compared with normal finger of right hand, resulting from hysterical contracture of fingers of eighteen months' duration, drawn after recovery from the contracture.

Fig. 7.—Skiagram of right and left hands, showing increased transparency of the bones of the left hand, taken immediately after recovery from hysterical paralysis of sixteen months' duration.

although the average duration of treatment before admission was eleven months. In April, 1919, Major J. F. Venables cured a man with a completely useless hand, dating from a wound received in October, 1914, in just over five minutes. It is clear, therefore, that the paralysis and contracture are hysterical, as they are caused by suggestion and cured by psychotherapy.

Disuse of a limb, whether caused by organic disease or hysteria, leads to deficient circulation. This by itself is enough to explain the cold, blue and sometimes œdematous extremities, as they are most marked in cold weather and in individuals who have always had a feeble peripheral circulation. They disappear temporarily, as Babinski and Froment showed, by artificially increasing the circulation by the application of heat, and permanently, as we have repeatedly observed, by restoring the power of movement by means of psychotherapy.

Deficient circulation gives rise to deficient nutrition, so that the skin and subcutaneous tissues become atrophied (Fig. 6), the bones decalcified as shown by the X-rays (Fig. 7), and the nails thin and brittle. In a striking case, in which some trophic changes had developed as a result of hysterical paralysis and contracture of over a year's duration, and in which the power of movement was restored at a single sitting, the nails subsequently showed a very definite horizontal line separating the opaque, vertically ridged, thin and brittle part which grew during the period of disuse, from the pink, smooth and otherwise normal part, which began to grow immediately recovery took place (Fig. 8, opposite page 139).

The changes in mechanical and electrical reactions and in the deep reflexes were also shown by Babinski and Froment to disappear when the circulation was temporarily improved by immersion in hot water, and we found that immediate and permanent restoration followed recovery from the paralysis and spasm as a result of psychotherapy. These changes, therefore, are nothing more than the functional effects of deficient circulation on muscular tissue.

In the same way the rigidity of the finger joints, observed both in cases of organic nerve injury and in hysterical paralysis and contracture, which persists under deep anæsthesia, has always been regarded as due to adhesions or fibrous contractures, which only give way under forcible manipulation with sounds of tearing and resultant effusion. This condition is really the result of some coagulative process in the fibrous tissue caused by the accumulation of products of metabolism, which are normally removed by the blood when the circulation is efficient. It is well known that a slight increase of mobility of such joints follows the application of warmth to improve the circulation, and we have found that complete and immediate restoration of mobility followed the return of the natural circulation as a result of the rapid cure of the paralysis and contracture. This must have been due to the removal of waste products permitting the temporarily coagulated fibrous tissue to return ot its normal fluid consistence.

It is thus clear that the so-called reflex nervous disorders of Babinski and Froment are really hysterical, and that the associated vasomotor and trophic disorders are caused by the resulting disuse.

DIAGRAM 1.

DIAGRAM 2.

We have often noticed that when a man is rapidly cured of a contracture by psychotherapy, he continues to keep his limb in the same abnormal position as before, although he is capable of moving it without any difficulty in every direction. I believe that this is due to the development to a new "postural length." If AB in Diagram 1 represents the normal length of a muscle when at rest, it can shorten to AC on active contrac-

Fig. 8.—Improved nutrition of nail, drawn six weeks after sudden recovery with psychotherapy from hysterical paralysis, which had lasted over a year.

Fig. 9 (a).—Abnormal posture persisting after complete recovery at a single sitting from hysterical contraction and paralysis of sixteen months' duration.

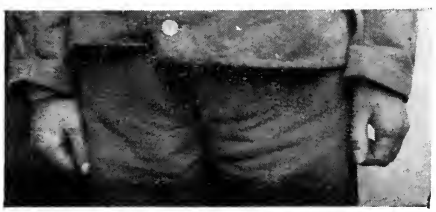

Fig. 9 (b).—Same as Fig. 9 (a). Return of normal posture after three days' re-education of postural tone.

tion and lengthen to AD on active relaxation, relaxation being just as active a process as contraction. All muscles adopt an intermediate length of this kind, the exact length depending upon the habitual posture of the limb. Thus the fingers are slightly flexed when at rest, both during consciousness and during sleep and anæsthesia. In order to extend them the extensors shorten and the flexors lengthen, and in order to flex them the flexors shorten and the extensors lengthen. If as a result of the continued contraction of one group of muscles, whether as a result of organic disease or hysteria, a new posture is assumed for a long period, their anatomical structure becomes altered, so that the postural length of the contracted muscles is abnormally short (*e.g.*, AE in Diagram 2) and that of the opposing muscles is abnormally long. When recovery takes place, even if this occurs almost instantaneously in an hysterical case, the muscle AE can contract to AC and relax to AD, but it always returns to AE when at rest. Consequently the abnormal posture remains during sleep and under anæsthesia to the same extent as when the patient is awake. It is in no sense hysterical, but is organic, although the structural condition upon which it depends ought never to be permanent. As soon as complete mobility is restored, the patient should be taught to keep his limb in the normal posture by an effort of will throughout the day and he should walk up and down in front of a looking glass to see that he maintains it. In the course of two or three days this training results in a return to the normal postural length, and the patient then no longer requires to pay any attention to his posture (Fig. 9).

Orthopædic surgeons have long known the importance of using splints to maintain a good posture after nerve injury. It has generally been thought that this has the object of preventing the paralysed muscles being overstretched, as their contractility might otherwise become impaired. In all probability, however, the splint really acts by maintaining the normal postural length of both the paralysed and opposing muscles. That this is the more likely explanation is shown

by the improved results obtained recently in cases of dropped wrist due to musculo-spiral paralysis, the extreme hyper-extension formerly used having been replaced by moderate extension which keeps the postural length of the muscles normal instead of increasing that of the flexors and reducing that of the extensors. The abnormal postures and gaits, which are often adopted after a painful wound has completely healed, are probably also due to the development of abnormal postural lengths of muscles whilst the position of greatest comfort was maintained before the wound had healed. The condition is often described as hysterical, but it is not produced by suggestion, and is really organic, though easily curable by re-education.

Hysterical symptoms following injury or disease of the nervous system. — This group of cases is, I think, the most important, because it is one which is very common both in soldiers and civilians, though its true nature is comparatively rarely recognised. It consists of conditions, which are primarily organic and due to an injury or disease of the nervous system, but which are eventually in part or completely hysterical. When the structural changes produced by an injury or acute disease of the nervous system gradually diminish in extent owing to the disappearance of the vascular and other temporary changes, which surround the comparatively small area of total destruction, if indeed such an area is present at all, the symptoms caused by the throwing out of action of the parts controlled by the nervous tissues primarily involved should disappear *pari passu*. Just as the physical signs in slowly progressive diseases, such as tabes and disseminated sclerosis often precede the onset of symptoms, so in these cases the physical signs are generally still present when the functional capacity has returned to normal, and if the lesion does not disappear completely they may remain as permanent evidence of a past organic lesion.

In many cases, however, a man does not realise that his functional capacity is improving. If he has been hemiplegic, he

FIG. 10.

Hysterical hemiplegia of two years' duration following organic hemiplegia caused by nephritis, with persistence of organic physical signs.

Fig 10 (a).—Before treatment.

Fig. 10 (b).—After two and a-half hours' treatment.

Fig. 10 (c).—After six months' treatment (Major J. L. M. Symns).

has in the early days made repeated efforts to move his paralysed limbs, but without success, and he finally gives up the attempt and reconciles himself to the idea of permanent hemiplegia. If his physician is too much concerned with the possible dangers of early movement, he will exaggerate the patient's own fears of permanent disability, with the result that the organic hemiplegia is gradually replaced by hysterical hemiplegia, instead of slowly disappearing as the organic lesion becomes more and more reduced in extent. A time may eventually arrive when the hemiplegia is entirely hysterical, but, as already pointed out,, the physical signs of organic disease, such as extensor plantar reflex, ankle-clonus, exaggerated deep reflexes and lost abdominal reflex, may still be present on the affected side (Fig. 10).

A number of additional signs have been described, particularly by Babinski, which depend on the fact that the behaviour of the paralysed muscles in organic hemiplegia differs in various respects from what an average layman would expect, so that a man with hysterical hemiplegia, the exact nature of which must depend on his own conception of how his muscles would behave if they were paralysed, fails to show these signs. But if the hysterical hemiplegia was suggested by an organic hemiplegia, these signs would be present, as the patient would be trained by his own organic symptoms to maintain them in an unaltered form when they were no longer organic. Thus while the upper part of the face is unaffected, the lower, including the platysma (Babinski's platysma sign, Fig. 11, opposite page 142), would be paralysed, and Babinski's pronation sign and the combined flexion of the thigh and pelvis (Babinski's "second sign") would be present. In the same way the characteristic posture of the arm and leg in organic hemiplegia would be perpetuated. We should thus be face to face with a case following an injury or disease which is known to result in organic hemiplegia, and in which incontestible physical signs of organic disease, such as the extensor plantar reflex, as well as the characterestic pos-

ture and the accessory signs described by Babinski and others, are present, although the hemiplegia is entirely hysterical.

Such cases can only be diagnosed by experimental psychotherapy. If, as occurred in numerous cases under our care, more or less recovery takes place—although, of course, the permanent physical signs of organic hemiplegia persist—it is clear that the paralysis is almost entirely hysterical, although grafted on an organic basis.

The old method of diagnosing between organic and hysterical paralysis thus breaks down, as the physical signs of organic disease do not, as is too often assumed, indicate that the paralysis is entirely organic, but simply that there is an organic element in the case, which may be quite insignificant in proportion to the hysterical. Moreover, it is no help in such cases to consider whether the patient is or is not neurotic, as the large majority have no personal or family history of neuroses, and are in every way normal except for the particular symptom from which they are suffering. No more powerful suggestion of hysterical paralysis could be imagined than organic paralysis, and no abnormal degree of suggestibility is necessary for its development.

We have seen cases of homonymous hemianopia, persistent headache, amnesia, and epileptiform convulsions develop after head injuries; paraplegia and persistent incontinence of urine, after spinal injuries; paralysis and anæsthesia after nerve injuries in the exact distribution of the peripheral nerves, the anæsthesia even resulting in accidental burns (Fig. 12); all of which were primarily organic and showed the characteristic features of symptoms caused by an organic lesion, although the recovery with psychotherapy proved that they were hysterical. In many cases, of course, recovery was incomplete, the proportion of hysterical to organic incapacity depending on the extent of permanent damage done to the nervous tissue.

In the same way we have found that the well-recognised association of hysteria with disseminated sclerosis is even more common than is generally supposed, that an hysterical element

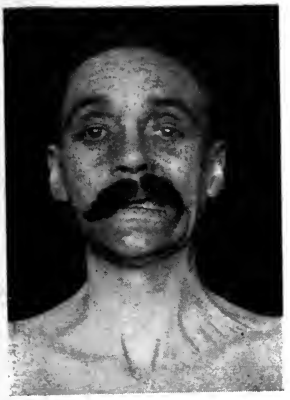

Fig. 11 (a).—Same case as Fig. 10. Upper neurone type of facial paralysis before treatment, showing paralysis of platysma.

Fig. 11 (b).—After forty-five minutes' treatment for face.

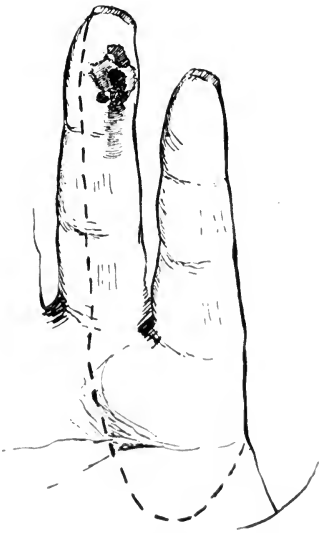

Fig. 12.—Hysterical anæsthesia in median nerve distribution, with unfelt accidental burn. (Reproduced by permission from the *British Journal of Surgery*).

is frequent in tabes and may occur in such a disease as Friedreich's ataxia. A soldier suffering from the latter disease, who had been unable to walk or stand without assistance and had been unable to feed himself or write for several months, improved to such an extent as a result of a week's psychotherapy that he was able to walk steadily and use his hands for all ordinary purposes, although, of course, the physical signs remained unaltered and the ultimate prognosis was as hopeless as before.

I believe that the same principle should be applied to all organic disease, whatever part of the body is affected, and the possibility of an hysterical and therefore removable element should be considered, however normal the mentality of the patient may appear to be. Our experience further shows that the ideal method of treatment in such cases is a rapid one—by explanation in language suited to the intelligence of the individual, combined, when necessary, with persuasion and re-education.

Hysterical deafness.—In order to hear, it is necessary to listen, listening being as active a process as moving. Perhaps the dendrites of the nerve cells are thrown out at each cell station in the auditory tract when an individual listens and are withdrawn when he is inattentive. If a man has become temporarily deaf owing to a loud explosion or continuous gunfire, he may become so convinced that he will never hear again that he ceases to listen. This is the origin of hysterical deafness. It is consequently a true nerve deafness; the patient's voice alters like that of a deaf man, he may spontaneously learn lip-reading, and in severe cases the auditory-motor reflex, in which the pupils dilate and eyelids blink in response to loud noises, may disappear owing to the blocking produced at the lower as well as the higher auditory centres by the withdrawal of the dentrites when inattention is extreme. The only signs of organic deafness of any value are those which indicate vestibular disorder, as this never occurs in hysteria, and an organic lesion which is sufficiently severe to cause complete deafness must

always involve the vestibule or vestibular nerve or nucleus as well as the cochlea or cochlear nerve or nucleus. All cases of concussion deafness, even if the drums are ruptured, are at any rate partly hysterical, and recovery occurs as soon as the patient is taught to listen once more, the auditory-motor reflexes reappearing at the same time.

I believe that the question of attention is of very great importance, and many patients with partial deafness from otosclerosis or other causes can be greatly benefited by being taught to listen and to use whatever power of hearing they still possess to the greatest advantage.

Hysterical hemianopia.—It has generally been taught that homonymous defects of vision, such as hemianopia, is always organic. But we have observed such defects resulting from wounds of the occipital region, which were due to the hysterical perpetuation of a condition which was originally organic. The loss of function having been largely due to concussion and other transient changes, vision returned spontaneously, but the individual having become temporarily blind in one or more homonymous quadrants of his fields of vision had ceased to look in the corresponding directions and re-education was required to teach him to do so, the rapid recovery which followed this method of treatment proving that the condition was really hysterical.

Hysterical headache.—Persistent headache due to concussion, whether caused by direct injury or a shell explosion, is often if not always of the same nature, as it disappears with psychotherapy when all other forms of treatment have proved useless. Major J. F. Venables cured each of two cases of constant vomiting following concussion by a single psychotherapeutic conversation, neither patient vomiting again, although they were given a full diet after having been unable to keep down the whole of a single meal, even of peptonized milk, for over a year.

Hysterical fits.—Hysterical fits are, I believe, much more common than is generally believed, and they may very closely

simulate epilepsy. Such symptoms as passing urine and biting the tongue may occur, especially in a man who has at one time suffered from true epilepsy, as nothing is more likely to suggest the occurrence of fits in an emotional individual during times of stress than the memory of true fits in the past. The fits resemble the early ones in those features which the patient remembers or with which he is familiar from what his relatives have told him.

I have seen a small number of cases of Jacksonian epilepsy following head injuries which were perpetuated as hysterical fits; they resembled the original attacks in every detail, but persisted when the primary cause was no longer operative, and, being hysterical, they were cured by psychotherapy.

Hysterical incontinence of urine.—Incontinence of urine was very common in soldiers; it was almost always hysterical, and rapidly responded to psychotherapy. I believe that the enuresis of children must be hysterical, as many of these cases were simply relapses under the strain of active service of a condition which had been present in childhood, and in a few cases the incontinence had never ceased, but was none the less cured by explanation, persuasion and re-education, even if it was diurnal as well as nocturnal.

The incontinence which follows spinal wounds and spinal concussion has always been regarded as organic, but we have had several cases which were cured by psychotherapy after lasting many months or even a year or two. These were generally associated with paraplegia, which was similarly due to the hysterical perpetuation of a condition originally organic.

V.—Psychasthenia.

Psychasthenia is a functional nervous disorder, characterised by inability to co-ordinate the mental processes, which results in inability to regulate the ideas and actions in a logical manner, together with difficulty in concentration and, in more severe cases, in obsessions and emotional crises. It is a pure psycho-neurosis, and has no organic basis of any kind. It is

the result of keeping painful memories and conflicting instincts in the subliminal consciousness by more or less voluntary repression.

Psychasthenia is most common in individuals with a neuropathic inheritance and generally shows itself in a mild form from childhood. It is most frequent among the educated classes, and is often associated with the so-called artistic temperament. Psychasthenia was thus most common among the martial misfits, individuals who were constitutionally unsuited to the life of a soldier. Definite psychasthenic symptoms are likely to develop when a predisposed individual is exposed to emotional strain; as the former was generally greater in officers than in men owing to their responsibility, psychasthenia was most common in officers. Mental and physical overwork do not of themselves cause psychasthenia, but the neurasthenia to which they often gave rise under war conditions made men abnormally liable to develop psychasthenia.

An officer becoming psychasthenic found it difficult to adapt himself to changing conditions. He hesitated when called upon to decide between two possible lines of action, and when at last he had adopted one he was full of doubts as to whether he had not made a mistake. His power of concentration became deficient, and an abnormal effort was required to recall past events. Without fully realising it, his mental energy was largely taken up in repressing painful thoughts and conflicts, kept in the background of his mind in order to avoid distress. As a result of this he showed a want of confidence in all his doings, and was often fearful that he would be unable to perform his duties when an emergency arose. Thus his sense of duty urged him to keep at his work, and was in acute conflict with his instinct of self-preservation, which urged him to get away from his hateful surroundings. When in the day-time his mind was not fully occupied, an emotional crisis might arise, in which he was overwhelmed with an apparently causeless emotion, such as dread, horror or terror, associated with their physical accompaniments of tremor, palpitation, sweating, and even diarrhœa,

and of laughter or weeping, popularly called "hysterics." Owing to the need of active thought to keep the distressing memories and mental conflicts buried, he often found it difficult to fall asleep, and when at last he slept, the controlling influence over his thoughts was relaxed and they came into consciousness in a distorted form of nightmares, with a result that he would wake in a condition of terror, though often unaware of its cause. The disturbed nights led to exhaustion and secondary neurasthenia, with headache and tendency to mental and bodily fatigue. It was then often impossible to disentangle the neurasthenic and psychasthenic elements of the composite clinical picture which the war-worn soldier presented. In severe cases obsessions developed, an obsession being an inadequate idea or unsubstantial fear—commonly called a phobia —which intrudes itself into the consciousness in an irresistible manner without completely filling or dominating it.

The prognosis depended upon the duration of the symptoms and especially upon whether the individual was otherwise normal when the circumstances arose which gave rise to his psychasthenia. When, as was frequently the case, he had always been of a nervous disposition, the outlook was less good, as although the symptoms might be greatly relieved there often remained a tendency to relapse with a return of mental strain.

Except for the associated neurasthenic symptoms the treatment of psychasthenia should be entirely mental, and the old-fashioned rest cure and the administration of drugs are useless. The first essential is to gain the patient's complete confidence, so that he becomes willing to speak about his most intimate thoughts and to discuss affairs which he has kept hidden from everybody. It was quite impossible to treat such patients during an ordinary ward visit, and good results could only be obtained when the conversation between the patient and his medical officer took place without witnesses in a private room. The man is encouraged to search his memory for the real origin of his symptoms and to face bravely the memories and conflicts he has been repressing. An investigation into his thoughts when

he lies awake at nights and into the subjects of his dreams was often of great value. He is helped to solve his difficulties and he is made to realise that a free discussion of the thoughts he has been attempting to repress, however painful they may be, will cause his nightmares to disappear and his condition during the day to improve. It is remarkable how rapidly persistent nightmares, long-standing phobias, hitherto inexplicable emotional crises, and other psychasthenic symptoms disappeared directly the patient thoroughly understood the mental processes which had given rise to them.

The analysis of his mental state might appropriately have been called psycho-analysis, were it not for the fact that the term has unfortunately become attached to the special teaching of Freud, who believes the suppressed psychical origin of the condition to be invariably sexual. Although sexual phobias were occasionally present in soldiers, in the vast majority of cases there was absolutely no sexual element at all. Perhaps the term *psychological analysis* might be employed. When the cause of the symptoms has been removed, the patient should be given mental exercises in order to restore his memory and powers of concentration. These quickly return, as he can now avail himself of the mental energy previously used up in futile efforts connected with his worries.

VI.—Functional Hyperadrenalism-Hyperthyroidism.

The emotions of fear and anger manifest themselves in physical phenomena which respectively prepare the individual to fly and to fight—the natural sequels of these emotions. Most of these physical phenomena are the direct result of the stimulation of the sympathetic nervous system by the emotions. Thus the blood pressure rises and the pulse is accelerated, the blood supply to the muscles being thereby increased. The coronary and cerebral arteries do not take part in the vasoconstriction, and consequently the heart and brain also receive the additional supply of blood they will require. The bronchioles dilate in

order that respiration should be unimpeded. The secretory and motor activity of the stomach and intestines is inhibited and the sphincters contract, and digestion consequently ceases; the blood supply of the alimentary canal can therefore be cut down by the general vasoconstriction for the benefit of the skeletal muscles, which would be undesirable if digestive activity continued.

The experimental work of Cannon, Elliot and Crile has shown that one of the most important results of the sympathetic activity caused by fear and anger is the secretion of the suprarenal glands which it calls forth. Adrenalin has the effect of stimulating all structures supplied by the sympathetic nervous system, but not those supplied by the cranial and pelvic autonomic nerves. Consequently the stimulating effect of the emotions on the sympathetic nerves is enhanced by the adrenalin. But adrenalin has other properties, which are of great value for an individual preparing to fly or fight. It increases the output of sugar by the liver and so provides the muscles with an additional supply of the chief source of their energy, and it destroys the fatigue substances produced by muscular activity, so that the muscles can continue to work for a longer period than would otherwise be possible.

At the same time the cervical sympathetic, which as part of the general sympathetic nervous system is stimulated both directly by the emotions and indirectly by the adrenalin, causes increased thyroid activity, as Crile was the first to suggest and as Cannon has recently proved by experiment. This results in a general stimulation of metabolism and a further re-inforcement of the activity of the cervical sympathetic, which is the only part of the sympathetic system activated by the thyroid. The pulse is further accelerated, but apart from this the value of the results to the individual is not much more obvious than is the increased metabolism. Possibly the dilatation of the pupils widening of the palpebral fissures and proptosis, together with the erection of the hair, which produce a typical picture of terror, have in turn the object of inducing terror in the heart

of the enemy: but, useful as this may be to cats, it has long lost any importance it may once have had in man.

The physical results of fear are never of any value to the soldier, who may not run away; the physical results of anger help him if he is attacking, for

> "When the burning moment breaks,
> And all things else are out of mind,
> And only Joy of Battle takes
> Him by the throat and makes him blind,"

he may be able to perform prodigies of strength and endurance, of which under ordinary conditions he would be totally incapable.

The physical results of fear, if prolonged for a sufficient period, result in exhaustion of the nervous system, including the vaso-motor centre, and ultimately the heart and skeletal muscles. This was an important factor in the production of neurasthenia and one form of so-called disordered action of the heart in soldiers; it is discussed in the section on neurasthenia.

If the response of the sympathetic nervous system to fear was so excessive as to incapacitate the individual, who was unable to respond in the natural way—by flight—to his emotion, the over-activity generally disappeared after a few hours' rest, directly he was removed from the source of fear, the front line. But occasionally his fears were still aroused in nightmares, and in severe cases the patient also pictured to himself all through the day the terrors which he had recently experienced. In such cases the physical results of the emotion became perpetuated, and the patient presented a picture of combined hyperadrenalism and hyperthyroidism, which has been described by most writers as simply hyperthyroidism, as the symptoms of the hyperadrenalism, which is the more important and in the absence of which the thyroid activity would be much less marked, are at first sight less obvious. The picture differs in certain important respects from that of Graves' disease, which depends upon over-activity of the thyroid gland caused by

structural changes in its secretory tissues and is not, like the functional hyperadrenalism-hyperthyroidism of soldiers, simply one of the results of general sympathetic over-activity. Thus well-marked hypertrophy of the gland is never present in the latter cases, though there is occasionally a slight enlargement, probably due to vasodilatation, which disappears with the other evidence of sympathetic over-activity when recovery takes place. The eyes are often slightly prominent, but there is never the extreme degree of exophthalmos often seen in Graves' disease. The prominence of the eyes varies greatly from day to day and even from hour to hour. It may be exceedingly obvious for a few minutes if the patient is excited, although immediately before and again shortly afterwards it is hardly recognisable. This is due to the fact that the symptoms depend entirely upon the emotional state of the patient, which controls the sympathetic activity and through this the suprarenal and thyroid secretions. The blood-pressure is normal in Graves' disease, but in this condition it is always high at the onset, when it may even be as much as 200 m.m. Hg. in a man of twenty, but it quickly falls to normal as improvement takes place, though it remains liable to sudden elevation with emotional upset, just as is the case with the exophthalmos; the high blood-pressure is partly due to direct sympathetic action, but is mainly the result of the secondary hyperadrenalism. The difference is explained by the fact that although thyroid extract accelerates the pulse it does not raise the blood pressure, whereas the rise in pressure is the most striking effect of adrenalin. A few experiments on the effect of hypnosis in these cases, some of which were carried out with Captain G. H. Hunt, showed that the blood-pressure and pulse rate fell rapidly to normal when the patient lost consciousness, and the general aspect of hyperthyroidism disappeared, proving that there is no constant over-activity of the thyroid gland as in Graves' disease, but that the whole condition is maintained by emotional activity. There is always marked vasomotor and pilomotor instability; the latter is shown by the frequency with which the hair stands

constantly on end, as first observed by Major John Fawcett, and by the brisk cutaneous pilomotor reflex.

The functional hyperadrenalism-hyperthyroidism responds satisfactorily to rest, combined with psychotherapy directed to the relief of the nightmares and disturbing day-dreams, as described in the section on psychasthenia. As the condition is not due to structural changes in the thyroid gland, treatment with X-rays or by operation would obviously be useless. As it generally occurred in men who were of a nervous temperament, it was seldom possible for them to return to duty at the front. But the majority recovered sufficiently for home service, whilst the remainder were eventually discharged from the Army, but not before they were fit enough to return to their civil occupation.

Functional hyperadrenalism-hyperthyroidism has not hitherto been clearly recognised in civil life. But many of the so-called *formes frustes* of Graves' disease, emotional patients with tachycardia, vasomotor instability, excessive sweating and tremor, but without any marked enlargement of the thyroid or exophthalmos, and some cases of so-called idiopathic hypertension in nervous individuals, are probably of this nature, and an investigation into the origin of their emotional instability followed by appropriate psychotherapy would doubtless be much more effective than simple medical treatment with rest and drugs, whilst X-rays and thyroidectomy are clearly contra-indicated.

VII.—Organic Disease of the Nervous System.

There has in the past been much controversy as to whether physical exhaustion and emotional strain ever resulted in the development of organic nervous diseases. In recent years it has been generally agreed that this does not occur, but both factors have been regarded as important in hastening the development of diseases already present in a latent or early stage, and possibly as the deciding factor in causing such a disease to appear in a man predisposed by the essential inherited or acquired factors, whatever these may be. The ex-

haustion and emotional strain caused by the war has given an opportunity, such as has never been known before, to investigate these problems.

Paralysis agitans and *disseminated sclerosis* are the two diseases of unknown origin, in which the influence of mental strain seemed most probable. About five cases were sent to us with the former diagnosis and twenty with the latter. In spite of the fact that in many instances the resemblance was very striking, all of these cases except two of disseminated sclerosis proved to be hysterical, as they recovered with psychotherapy, and any organic physical signs which persisted proved to be due to slight organic change caused by concussion of the spinal cord in cases which had followed burial. We saw only one case of very early paralysis agitans in a soldier in spite of the large numbers of middle-aged men who were on active service, especially in labour battalions, and only about half a dozen cases of disseminated sclerosis. All of these were early cases, and in every instance the first symptoms either preceded the war, when active service did not seem to have had any effect in accelerating the development of the condition, or if it had appeared after enlistment the patient had never been exposed to great physical or mental strain. Major J. F. Venables subsequently observed a case of true paralysis agitans, which appeared to have developed as a direct result of being blown up by a shell, and Captain C. Worster-Drought described two or three cases in which the development of disseminated sclerosis appeared to have been accelerated by war service. It is clear, however, that mental and physical strain must be an almost negligible factor in the causation of paralysis agitans and disseminated sclerosis.

A soldier, 25 years old, whose brother was completely incapacitated with *Friedreich's ataxy*, had been unsteady when walking in the dark for two years. He rapidly became very ataxic whilst on active service, and when admitted he was unable to stand or walk without assistance and could not write. Captain W. R. Reynell treated him so successfully with psycho-

therapy that in twenty-four hours he could stand and walk without assistance, and at the end of a week he was only very slightly ataxic, the condition of his hands having also greatly improved. As all the physical signs of the disease were still present there could be no doubt about the diagnosis, and it is clear that what was removed was a superadded hysterical element. This is a point of the utmost importance in civil life, as it would have been quite impossible without trying the effect of psychotherapy to have recognised that there was any hysterical element present, as the patient was not in the least neurotic and presented a quite characteristic picture of Friedreich's ataxy. I believe that a mild degree of ataxy or paresis caused by organic disease is very likely to become greatly exaggerated by auto-suggestion, and this possibility, with the corollary that considerable improvement will result from psychotherapy, should be remembered and the effect of psychotherapy tried in all cases of such apparently hopeless organic diseases as disseminated sclerosis and Friedreich's ataxy.

There is no doubt that the mental and physical strain of war had a marked influence on *tabes* and *general paralysis*. Many patients, whose symptoms were so slight that the true nature of their condition had not previously been recognised, rapidly became incapacitated on active service. In other cases there did not appear to have been any sign of the disease before the war, though it is obvious that the spirochætes must have been lying dormant in the central nervous system. That the strain accelerated the onset of the disease in these cases, in some of which it might perhaps never have become manifest under favourable conditions, was shown by the interval between the primary infection and the first symptoms of tabes or general paralysis being on an average definitely shorter than that observed in civil life. The concussion caused by the explosion of a big shell was sometimes the exciting cause of the onset or sudden aggravation of symptoms. In one case a shrapnel wound of the head led to the immediate development of ophthalmoplegia and symptoms of general paralysis, the diagnosis

being confirmed by the positive Wassermann reaction and excess of lymphocytes in the cerebro-spinal fluid, although the patient was fit in every way until the moment he was wounded.

The severity of the symptoms observed in these cases of tabes and general paralysis does not give an accurate indication of the severity of the pathological process, as there was an even greater tendency than in civil life for slight symptoms to suggest severer ones, so that a large hysterical element was often present. Rapid improvement up to a certain point consequently occurred with psychotherapy in spite of physical signs and changes in the cerebro-spinal fluid which could leave no doubt as to the accuracy of the diagnosis. It was hoped that prolonged treatment with intravenous injections of salvarsan until the Wassermann reaction disappeared might arrest the progress of the disease itself, as owing to the conditions under which the symptoms appeared a diagnosis was often made at an earlier stage than is generally possible in civil life.

It might be expected that active service would increase the frequency and severity of fits in *epilepsy*, would lead to relapse in apparently cured cases, and might even produce the disease in individuals who were predisposed by heredity. Among the enormous number of men sent home diagnosed as epilepsy it soon became clear that almost all of those who had no personal or family history of the disease were really suffering from hysteria. Later investigations showed that even with a strong family history or a history of epilepsy in childhood the fits were almost invariably hysterical, though possibly in a very small number of cases severe war strain led to the development of true epileptic fits. Finally we discovered that even in men who had had regular fits up to the time they enlisted the increased frequency which often resulted from active service was to a great extent only apparent, as true epileptic fits were little or no more common than before but were now often associated with very frequent hysterical fits. The mode of origin, diagnosis and treatment of hysterical fits in these cases is described in the section on hysteria.

SOME EXPERIENCES OF THE WORK OF GENERAL HOSPITALS IN FRANCE.

By

PHILIP TURNER, M.S., F.R.C.S.

I HAVE been asked to give some account of the General Hospitals of the Expeditionary Force in France, and of the work done in them. Since the subject is a very large one, and the space at my disposal is limited, I shall give a short account of the organisation and working of hospitals, of which I had personal experience, and then, if space permits, give a brief, outline of the surgical work we were called upon to perform.

In 1914 the War Establishment of a General Hospital was 520 beds. This number was found to be too small and was soon increased, so that hospitals moving abroad in the spring and summer of 1915 were provided with accommodation for 1,040 patients by the simple process of doubling the entire equipment of the original establishment. Later on, the number of beds was still further increased as the site of the particular hospital permitted. Thus at No. 3 General Hospital there were, in the autumn of 1915, 750 beds, which were subsequently increased to 1,000, and eventually, with emergency accommodation, to 1,350. Other hospitals with larger sites were enabled to increase to 1,800, and some of the later hospitals were provided with 2,000 beds or over. "Emergency" beds as the name implies were designed to meet the requirements of sudden rushes of wounded men, but there was always a tendency for emergency accommodation to be regarded eventually as part

of the normal accommodation of the hospital. These emergency beds were obtained in the following ways: (1) By putting up additional hospital marquees on any vacant ground (2) by adding additional beds to existing wards and huts; thus our huts originally contained 30 beds but this was permanently increased to 34 and on occasions to 36 and 38; (3) when a permanent building such as an hotel or casino formed part of the hospital, extra beds were put in wards, and rooms used for other purposes, and also in corridors; (4) church huts, Y.M.C.A. and other recreation huts, canteens, cinemas, &c., were temporarily fitted up as wards. Needless to say emergency beds often consisted of mattresses and blankets on trestles or stretchers, or even on the floor: hence as far as possible light cases only were sent to these beds, and it was astonishing how comfortable the men made themselves.

Stationary hospitals originally provided only 200 beds, but, in the later years of the war, many of these became indistinguishable from general hospitals both as regards size, equipment and the amount and the character of the work they were called upon to perform.

In the first year of the war general hospitals were comparatively mobile, and though some were lodged in permanent buildings, such as hotels, casinos or schools, many were entirely under canvas, and so were easily able to move if required. As it became certain that the position of the armies would not alter to any great extent for some time, canvas was replaced by huts, and the hospitals became comparatively fixed and permanent institutions. As an example of the movement which might be required in the early days, No. 3 General Hospital in August, 1914, was sent to Rouen. When this town was evacuated during the German advance it was hurriedly moved to St. Nazaire; being subsequently transferred again to Rouen after the German retreat and then, after an interval, to Treport. After the Armistice was signed this hospital was attached to the Army of the Rhine and stationed near Cologne. As also preparations were made for moving during the German

advance on Amiens in March, 1918, I suppose that this hospital had as much experience of moving as any with the Expeditionary Force in France. The early history of No. 3 General Hospital is of considerable interest, and was described by Col. S. F. Clarke, A.M.S., who was then in command, in the *R.A.M.C. Journal.**

The first hospital to which I was attached, No. 22 General, left Southampton for Camiers at the end of May, 1915. Though this district afterwards became such a large and important centre, the hospital camp was then only beginning to be laid out, and there was no sign of the extensive railway sidings and other camps which were subsequently formed in this district. Several other Guy's men were attached to this hospital, and I daresay they will recall our feelings when, after a long and trying journey, we were shown a cabbage field as our "site." However, we set to work, and in a fortnight a hospital of 1,000 beds had arisen and was ready to receive patients. Our first admission was one of our own orderlies who was knocked down by a passing train and got a depressed fracture of the skull, but a few days later we took a share of a convoy of wounded. In those days there was no siding at Camiers; the trains had to be unloaded at Etaples, four miles away, and the patients brought to us by motor convoy. The camp at Camiers was situated on gently rising ground bounded on the west by the main Boulogne-Paris railway and on the east by a steep line of chalk hills. Beyond the railway across some two miles of sand dunes is the sea. The soil of the camp was very sandy, which rendered it difficult to fix tent pegs securely with the result that even in summer time during bad weather tents and marquees were constantly collapsing. I believe that in the winter of 1915 the camp was practically evacuated. There was also difficulty with the water supply, but during the next

*The Mobilisation and Early Career of No. 3 General Hospital, B.E.F., R.A.M.C. Journal, 1916, vol. 2, p.512.

Also A General Hospital Changing Base, R.A.M.C. Journal, January, 1920.

year this was overcome, huts were erected in place of marquees, and, as is well known, a great amount of excellent work was done here until the end of the war.

At first we were provided with two operation tents, which were too small and not very convenient; artificial light was given by acetylene burners which attracted moths and other insects in enormous numbers. Earwigs in particular were a dreadful nuisance, and made their way everywhere, even into the sterilised dressings. After a few weeks an operation hut was provided containing two operation rooms, X-ray rooms, a pathological laboratory, and a small ward. It was not a well-designed hut, and I believe this particular type was soon given up. One of the chief defects was that it was only possible to enter the pathological laboratory by going through the X-ray room, which led to a wordy warfare between the officers in charge of these departments. Eventually the pathologist, with the help of old boxes and packing cases, constructed a staircase which provided an additional entry to the laboratory via the window.

At the end of July No. 22 General was handed over to an American unit from Harvard. This was not, however, the first British hospital to be staffed by American medical officers for a few weeks before a general hospital at Etaples was handed over to a unit from Chicago. The Harvard Unit was composed of a number of well-known physicians and surgeons from Boston, who came provided with an elaborate outfit and equipment with which they did extremely good work. Of course, this was long before the United States were at war with Germany, and hence the officers were unable to wear the American uniform, and, as they did not hold commissions in the British Army, could not wear the British uniform. They were provided with a uniform closely resembling our own, but without rank badges and with a very much modified R.A.M.C. badge. Apparently the French authorities were not informed of this, with the result that shortly after their arrival in Boulogne thirteen were arrested on suspicion by the French

police, and another was afterwards detained by a British military policeman at Etaples. Fortunately, like the good fellows they were, they regarded this as an excellent joke, and one rather timid member of the party who would not leave the camp during sultry days in July and August unless he was wearing a mackintosh to conceal his tell-tale tunic was a source of much merriment to the rest.

After a short stay with the Harvard Unit I was transferred to No. 3 General Hospital at Treport. This hospital had been at work since the beginning of the war, and had been established on the position it then occupied for some months. It occupied a large and imposing hotel, providing accommodation for about 500 patients and a number of marquees with beds for about 250 patients. In addition there were a number of huts under construction providing another 160 beds and barrack accommodation for the R.A.M.C. personnel. Adjoining were two other general hospitals, one Canadian and one British, and a convalescent depot. In 1916 a fourth general hospital was added, and also a Red Cross Hospital of about 60 beds for officers. There were thus about 6,000 beds in all, with a convalescent depot capable of accommodating about 2,000 convalescents. The whole formed a compact and well defined camp with, even when emergency beds were in demand, plenty of space for gardens and recreation grounds. The site was on a cliff about 350 feet high, some half a mile from the town, on area about to be developed for building purposes and known as "Les Terrasses." Only two or three small villas had been erected, and these were used as offices by the R.E. and the A.D.M.S. One advantage of the site was that a few roads had been roughly laid out, which formed a good basis for communications between the various parts of the camp. The site in summer, and in fine weather, was ideal, but as it extended along the cliff edge and was exposed in all directions without shelter except perhaps to the south it will be seen that in the winter and in stormy weather it had serious disadvantages. In a gale from the west

or north-west the force of the wind was terrific, and the probability was that many marquees and tents would be destroyed. In No. 3 alone from 12 to 20 hospital marquees were on several occasions destroyed in a single night. The ropes and pegs could be made to hold, but when the canvas had been exposed to the weather for some time it tore into ribbons and the poles were frequently broken by the force of the wind. In the worst gale we experienced in November, 1915, practically all the marquees of all the hospitals were blown down or destroyed, but fortunately the huts were then practically completed, so that the work was but little interfered with. The severe cold in January and February, 1917, was very trying in such an exposed place. For six weeks the temperature did not rise above freezing point, and on five occasions in the open air in the convalescent depot zero Fahrenheit was recorded. Owing to the non-arrival of coal ships there was a great shortage of coal, very little being available for heating purposes. In addition the electric light failed completely for three weeks, and the water supply was very precarious owing to the freezing of pipes, so that, since the hospitals were full, chiefly with sick, the general discomfort and inconvenience can be imagined.

One of the first considerations in discussing the suitability of a site for a hospital camp is its relation to railways and the presence of suitable sidings for ambulance trains. Though it should be conveniently situated with regard to the railway, it should not adjoin it, since railways and sidings are legitimate objects of attack from the air. The Treport camp was situated about half a mile in a direct line from the station, but, as the latter was at the sea level, the approach was by a road about two miles in length which rose steadily with some sharp turns, but without any really very severe gradient.

The railway connections were good, lines running direct to Dieppe, Beauvais, and Abbeville, the latter joining with the main Boulogne-Paris line. At first all were single tracks, but these were doubled during 1916. This was fortunate for, after

the German advance in March, 1918, for about four months, these lines formed the only railway communication between the Boulogne district and Paris and the south. From Abbeville a line ran to St. Pol, Arras, Bethune, with connections to all the railheads on the northern part of the front. We were thus in connection with, and received convoys from, the whole of the British line. A striking example of this was seen after the first German "mustard gas" attack in the summer of 1917, which took place on the Belgian coast, but the majority of the gassed cases were sent to Treport. Another important point in the selection of a hospital site, and one which, perhaps, was not fully realised in the earlier days of the war, is that it should not too closely adjoin railway sidings, dumps, aerodromes, base depots, or other legitimate objects of attack from the air: the camp at Treport was on the whole satisfactory in this respect. There was at one time a French coast defence battery between one of the hospitals and the cliff edge, but on representations being made this was removed to a short distance beyond the boundary of the camp; also towards the end of the war preparations were made for erecting a large aerodrome only a few hundred yards away. Otherwise the nearest camps were a large tank reinforcement camp and an aerodrome each about two miles away, while a small town about the same distance was used as a divisional headquarters.

A good supply of pure water was obtained from an artesian well at the foot of the cliff, the water being pumped up into tanks, from which it was distributed to the whole camp. Though the supply was ample the pumps were not of sufficient strength, and hence economy always had to be observed, while occasionally the pumps failed for a longer or shorter period, causing a good deal of inconvenience, and, on one or two occasions, rendering it necessary for water to be brought up by motor water tanks. Though the water from the well was pure, there were several sources of contamination possible before it arrived in the camp, and, as these could not be with certainty eliminated, the water had to be chlorinated

Electric light was supplied by the local company, but their plant was unequal to the extra demand upon it, with the result that the light was very uncertain. This was a great annoyance in the operating rooms, the only alternative being acetylene burners, but eventually the Royal Engineers started an installation which supplied current sufficient for essential lights, such as those in the operating rooms, when the main current failed.

Laundry work was carried out by contract by a French laundry at Dieppe, all articles being taken there and returned by A.S.C. motor lorries. Looking back one cannot help thinking that it would have been better both as regards economy and efficiency if, from the first, a laundry and independent electric lighting installation had been started for the camp together with a more powerful pump for distributing water to the various hospitals. As it was, efficient pumping engines arrived in October, 1918, and were being fitted at the time of signing the Armistice. I suppose that in the earlier days there was some uncertainty about the permanence of the camp, and that later it was hoped that a speedy termination of the war might render these undertakings unnecessary.

One may, perhaps, say something here as to the relative merits of marquees, huts, and permanent buildings such as hotels and casinos for hospital purposes. Before having any practical experience of either I should have been strongly in favour of the permanent building, but, having worked in all, I can say—and I think that every one who has had opportunities of comparing them will agree—that for comfort, convenience and simplicity of administration the hutted hospital comes easily first. Marquees are very satisfactory and comfortable, even for serious cases, in the summer time and during fine weather, but in the winter or during bad weather, especially in exposed situations, difficulties in lighting, heating, and ventilation, quite apart from the liability of damage, render them far from satisfactory.

The following are the chief disadvantages of buildings, and should be considered before taking over any building for this purpose:—1. Drainage. The drainage of most hotels on the continent, even of the most modern and up-to-date description, is often very primitive. A large proportion of the beds of No. 3 General Hospital were contained in a large modern hotel completed only two years before the war, and though so near the sea the only drainage was into a cesspool. Though doubtless sufficient when used for perhaps 200 visitors, for three months in the summer it was wholly insufficient when the building was used as a hospital for 500 patients all the year round. In the autumn of 1915 a state of affairs arose which rendered the construction of several new pits imperative, and after this there was no further trouble. 2. While the public rooms provided three or four really imposing and spacious wards there were a great number—about 160—of small rooms used for patients. These mostly communicated with one another by double doors with the idea I suppose of providing suites of rooms, and also opened into a corridor, the result being a regular labyrinth. The rooms were provided with from one to six beds according to size, and each wing on each floor formed a ward of about 110 beds. This corresponded roughly to three huts, but any medical officer would prefer to look after six huts than one of these wards. Though light cases were as far as possible put into these rooms, it was often necessary to send quite bad cases to them, and the difficulties in nursing can be imagined. Many of the doors, too, would not take stretchers. Another drawback was that the labyrinth offered great opportunities to men who wished to dodge the Medical Officer, and also supplied these elusive patients with an excuse when they were finally found. 3. Danger of fire. The French building laws as regards protection from fire must be very different from those of this country. This large building with three stories and over 200 rooms was provided with only one staircase and a smaller staircase for servants adjoining this. There were two lifts, one

for passengers and one for luggage (but neither able to take a stretcher), also situated at the side of the stairs. There were no outside staircases and no means of descent from the upper stories except by the ways already mentioned, and which in the case of a serious fire might have been easily rendered impassable. To remedy this we had sent over one of the old pattern fire escapes as used by the L.C.C., and canvas chutes for the upper floors. Fire drills were held weekly, as well as many surprise alarms. The importance of these was shown on one occasion when, in a hose about 50 yards long, a hole gnawed by rats through which one could put a fist was found about a yard from the standpipe. Danger from lightning also had to be considered. There was no lightning conductor, but the building was of reinforced concrete, and I suppose, owing to the framework of girders, the whole structure was practically a lightning conductor. At any rate, though the building was observed on several occasions to be struck no damage was done either to the structure or any of the inmates. 4. Heating, again, was a difficult problem. There was a system of central heating, but as the building was intended for use only during the summer months the radiators were few in number and not very efficient. As the same boilers provided the hot water supply it was often found that in really cold weather the radiators refused to work or were only just warm. This difficulty was to a certain extent overcome by using a number of closed stoves in the larger wards and in the corridors and a few of the smaller rooms. 5. There was a good deal of difficulty over repairs and renewals, since many parts and materials were naturally required which were difficult or impossible to obtain during the war. On the other hand, I believe that the rent paid compared very favourably with the cost of erecting a hutted hospital.

At first the whole camp was under the administration of the Senior Commanding Officer, but later the district was enlarged and put under the control of an A.D.M.S. The latter was a much more satisfactory arrangement, for though we were

certainly very fortunate in our Senior Medical Officers, yet it is difficult, when the administrator is in command of one of the hospitals, for him to avoid unduly favouring his own unit, and so to cause a certain amount of friction.

The nature and objects of the work of a general hospital may be summed up as follows :—

(1) To treat all severe and serious cases, and to get them in a fit condition for transfer to home hospitals as quickly as possible; (2) to treat all slighter cases, and to get them fit as soon as possible for return to base depots for duty, or for return to duty after a stay at the convalescent depot; (3) to co-ordinate the hospital accommodation with the demands likely to be made upon it; (4) to carry out clinical and pathological investigations, especially in all new or unusual injuries and diseases; to try, and to investigate, all new forms of treatment; to devise new means of dealing with unusual conditions ; and generally, to endeavour to advance and improve both the practical and scientific aspects of military medicine and surgery.

The importance of the first of these is easily understood, but, as regards the second, its great importance was only fully appreciated in the later days of the war, when the cost and difficulty of transport became so marked, and when the vital importance of "man power" was more fully appreciated. If lightly wounded men had to be transferred to home hospitals it was usually many weeks or even months before they were returned for foreign service, whereas if they could be kept in France, either in hospitals or in convalescent depots, they could be returned to duty in a very much shorter time. Of course, when large numbers of wounded were arriving at the hospitals these lighter cases had to be sent away, and if they could not be accommodated in convalescent camps or in other hospitals they had to be sent to hospitals at home. Though this fact is obvious, it did not appear to be always recognised by the administrative authorities in England.

The co-ordination between the accommodation and the demands likely to be made upon it was naturally of the greatest

importance. In times of severe pressure the work of a general hospital closely approximated to that of a Casualty Clearing Station. During such times, under favourable circumstances, perhaps 10 per cent. of all cases of wounded were operated upon at the Casualty Clearing Station, but during the German advance in March, 1918, the proportion was considerably less. The remainder were treated and operated upon in general hospitals when this was urgently required, and these cases as soon as they were fit to travel were evacuated to home hospitals. During these times of severe pressure many cases where operation was desirable but not urgently required had, owing to the necessity of at once making beds for further cases, to be transferred for this purpose to other hospitals either in France or at home. There was every stage between these strenuous times and comparatively slack periods when no active military operations were in progress, and it was possible to keep patients in for a long time and render a large proportion fit for return to duty without evacuation to home hospitals. It will be seen that the essential means of effecting this co-ordination was by regulating the duration of the stay in hospital, and by varying the type of cases to be selected for evacuation.

What may be termed the scientific aspect of the work was of very great interest since so many of the injuries and diseases were rare or not met with in civil practice, so that new mechanical and other methods of treatment had to be improvised to deal with them. The great drawback to this work was that during times of pressure, when the opportunities most frequently occurred, the amount of work, and especially of routine work, rendered it difficult for investigations to be carried out. This was to a considerable extent overcome by making notes and observations at the time and working these out when there was more leisure. This work was greatly helped by the formation of a Medical and Surgical Society on similar lines to those at other large centres. The meetings were held in the winter months when, generally speaking, the pressure of work was less. Cases of unusual interest were shown and papers

were read, many of the latter being afterwards published in the various medical journals.

We were fortunate in having in Major G. Richardson, R.A.M.C., and Captain H. Noel, R.A.M.C., two pathologists who were very keen on pathological preparations and specimens, with the result that a large number of the specimens in the Royal College of Surgeons collection came from No. 3 General Hospital; many of these were sent long before any official interest was taken in the matter. Hospitals were not allowed to form pathological collections, but as specimens were sent off at intervals when a number had accumulated we generally had a small collection, which was of great interest to any visitors who happened to be interested in this work. As an example of such a series I may mention a collection of 17 preparations of injury to the spine, each with the corresponding spinal cord showing the injury to that structure and the membranes as well as the fractured vertebræ. These were mainly from German prisoners, of whom we had a large number with wounds of the spine in the summer of 1918.

Major Richardson, in addition to providing on all desired occasions wet specimens for immediate investigation and demonstration, elaborated a method of rapid preparation of dry specimens of injuries to bones and joints. By this method it was possible in 48 hours to have the bones not only separated from soft parts and dry, but bleached, with fat extracted, with fractured fragments joined by glue and lines of fracture marked out, the joints articulated by wires, and mounted as a finished museum specimen. Many specimens thus prepared are at present in the collection of the Royal College of Surgeons. The educational value of this was very great, for, suppose one had to amputate a limb for some injury to bone or joint, it was possible two or three days after the operation, while clinical and operative details were fresh in one's mind and the patient still under close observation, to see the exact nature and extent of the injury. I cannot help thinking that this system might be adopted with advantage in civil hospitals

where such specimens are often stored and do not appear on museum shelves until years have elapsed from the time of injury or operation.

The X-ray Department, under the charge of Capt. M. H. Watney, R.A.M.C., got through a vast amount of work, but during very busy times in this, as in other departments, the amount of work was really more than could be dealt with. Great attention was paid to stereoscopic radiography, and large numbers of really excellent stereoscopic plates of fractures, injuries of the joints, and especially of the skull and chest were prepared. When patients were transferred to home hospitals prints of any plates were sent with the index card and notes, unless the result of the examination was negative, when a report to this effect was sent.

These prints rarely did justice to the excellence of the negatives, and in many cases can have conveyed little or no information. At various times I made a large number of tracings of X-ray plates of interesting fractures, and in this way a permanent record is quickly and easily obtained. As this is much quicker and far more economical than printing, I suggested that these tracings might largely replace prints but the suggestion was not adopted. The objection, of course, is that the tracing instead of being a piece of impartial evidence naturally conveys and emphasises the interpretation of the person who makes the tracing, but I am not sure that this is not really an advantage.

The accommodation of a general hospital is divided into a medical and a surgical division, but the line of demarcation between the two could not be sharply defined. While severe fighting was in progress, generally during the spring, summer and early autumn, the surgical division expanded while the medical division shrank, sometimes almost to vanishing point. On the other hand, generally in the winter, when no active military operations were in progress, or during an influenza epidemic, or when there were a large number of gassed cases, the medical division increased at the expense of the surgical.

Most general hospitals had to provide accommodation for the whole of certain special groups of patients or classes of cases who were sent to their particular district. Thus No. 3 General was the special hospital for the following:—

1. Up till the summer of 1916 all sick and wounded officers were accommodated. From then until the end of the war officers were also sent to No. 10 Red Cross (Lady Murray's) Hospital, as far as possible from alternate convoys. No. 3 provided beds for 100 officers, afterwards increased to 150. The largest number of wounded officers we had to deal with at one time was 279. Capt. D. Wood, R.A.M.C., and Capt. C. M. Dickinson, R.A.M.C., each had a long period in charge of the Officers' Ward.

2. All eye cases. The number of beds set apart for these varied according to necessity, but the average was about 15. In addition there was a very considerable out-patient department. From 1916—18 Capt. G. Viner, R.A.M.C., was ophthalmic surgeon.

3. All mental cases. These were treated by a mental expert, Capt. A. L. Taylor, R.A.M.C., in a specially constructed hut providing accommodation both for officers and men.

4. All "shell shock" cases who were also in charge of the mental expert and treated as far as possible in a special ward.

5. All Sisters, members of the Q.M.A.A.C., and other women's organisations.

6. All officers and men of the allied armies, except Americans. From time to time we had a number of French, Belgians, Portuguese, natives of India, and Chinese. The natives of India were transferred as soon as possible to the Indian hospital at Rouen, and the Chinese to the Chinese hospital at Noyelles. One Russian, who was a prisoner with the Germans and was at work in their advanced trenches and was wounded while escaping into our lines, was also admitted. On one occasion about 100 Portuguese sick and wounded were admitted, and as none of them spoke English or French, and, of course, no one at the hospital spoke Portuguese, considerable difficulty was experienced in deal-

ing with them until a Portuguese medical officer who spoke French was sent to us to act as interpreter.

7. All German prisoners. The number of these varied considerably. In the early days they were something of a curiosity, but in 1918 there was accommodation for about 400 in marquees in a barbed wire enclosure as well as a ward for the more severe cases. This accommodation was most severely taxed in spite of rapid evacuation. The largest number under treatment at one time was 550. At the end of March, 1918, when the German threat to Amiens was most serious, six prisoners evaded the sentries and broke through the wire and were not recaptured for two days. After this the barbed wire cage was greatly strengthened and the guard and sentries increased, with the result that there were no further attempts at escape.

In addition to the above the following cases were taken for a time only.

8. All cases of hernia, varicocele, and similar cases requiring operative treatment. These were only taken in the winter months and when the hospital accommodation was not required for wounded men. The number of these was considerable, and in the winter 1916—17 I operated on over 150 cases of hernia alone. Later these operations were performed at all hospitals, and in 1918 large numbers of them were sent to the hospitals at Trouville.

9. For a short time in 1916 all cases of fracture of the femur. This was before the days of special hospitals for these fractures, and the order was soon rescinded.

The number of officers on the establishment of a general hospital, of course, varied with the size of the hospital. The number allotted to a hospital the size of No. 3 was 25, but this was never reached except, perhaps, during the summer of 1915. The number really necessary for the efficient running of the hospital was 15. If the strength was below this it became difficult to get all branches of the work efficiently carried out, while if it rose much above, the division of work soon became

artificial, so that whereas some were overworked others had but little to do. The arrangement of work is, of course, much easier in a uniform hutted hospital. The busier the hospital was, the fewer were the medical officers available. This was owing to the fact that general hospitals were continually called upon to furnish reinforcements for front line units. The lowest number ever reached was eight during the first battle of the Somme. As this number included pathologist, radiographer, ophthalmic surgeon, registrar, and mental expert, it is obvious that, with convoys arriving daily, it was impossible to carry out the work satisfactorily. From that time until the signing of the armistice there were not sufficient R.A.M.C. officers available for the efficient staffing of the hospitals, the deficiency being lessened by officers supplied by American and Canadian units which, as a rule, were provided with larger staffs than the British. From the summer of 1916 I suppose about one-third of the officers attached to No. 3 belonged to the C.A.M.C. or the U.S.A. Medical Corps. Needless to say, during times of pressure, the pathologist, mental specialist, ophthalmic surgeon and radiographer had to take charge of surgical wards in addition to their own special work. A quite false idea of the number of officers was sometimes given owing to the fact that medical officers admitted to hospital as patients were, on discharge, attached to the strength of the hospital before returning to their units. These officers remained, perhaps, for a day, or perhaps for so long as a week, but as it naturally takes some little time for anyone to become acquainted with their duties, especially when, as was generally the case, these were regimental medical officers who had had no experience of the work of general hospitals, it will be seen that it was not much good putting them in charge of wards. Many of them, however, did admirable work as anæsthetists. As a matter of fact, the continual rearrangement of work which was necessary during strenuous times was very trying. It is no exaggeration to say that every other day some change was required which was very trying to the officers and not conducive to the interests of the patients or the work of the

hospital. Similar, and even more frequent changes took place among the sisters and nurses.

Of course, a certain amount of changing and transferring of medical officers and sisters was absolutely necessary, but one cannot help thinking that these might have been less frequent. It must be remembered that quite apart from strictly speaking medical and surgical work, there was a great deal of routine duty for ward medical officers. The days for duty as Orderly Medical Officer and Garrison Field Officer soon came round, and, in addition, there was a great deal of clerical work involved in filling up field medical cards, index cards, diet sheets, case sheets, ship's labels, and very probably other returns, not to mention the routine giving of anti-tetanic serum and days for anæsthetic duty. In busy times it was no unusual thing for a Medical Officer to have as many as 100 patients pass through his hands in addition to operations and dressings, so that the extent of these duties can be understood, as well as the difficulty of keeping the routine work of a ward up to date when the Medical Officer had to be changed every few days.

The number of ambulance trains arriving varied very considerably. When little or no fighting was in progress there might be only one or two per week, while during times of pressure there might be four or five or more in a day. The trains accommodated from 400 to 550 or more patients. There were four hospitals in the camp, and each train was, as far as possible, divided between two of them, so that each took from alternate convoys. This, of course, did not apply to the special cases, these being sent from every train to the appropriate hospital. Thus, as a rule, there would arrive from one train a large number of men, say about 250, and from the next a small number of cases belonging to the groups mentioned above, say 30 or 40. When, however, the hospitals were very full it was often necessary to make use of whatever accommodation was available at all the hospitals.

A convoy consisted of "cot" cases and "sitting" cases. As a general rule the former were the more severe, but not always

so. Occasionally light cases were conveyed as "cot" cases in order to make use of the whole of the accommodation on the train. Not infrequently, too, unexpectedly severe wounds were found among the sitting cases. As an example of this we received one motor convoy of 500 sitting cases from Albert during the first battle of the Somme among which were no less than 20 cases of depressed fracture or penetrating wounds of the head.

The details of the admission of a convoy naturally varied to a certain extent in different hospitals. At No. 3 the arrangement was that large convoys should be admitted by the Officers-in-charge of the medical and surgical divisions, while the small convoys from alternate trains should be admitted by the Orderly Medical Officer. As convoys generally arrived between the hours of midnight and 5 a.m., this was often rather trying, especially when trains were arriving nightly or at more frequent intervals, for an undisturbed night in bed was then an unusual luxury. There were, however, many advantages in this plan which more than compensated for the inconvenience. For instance, one knew from one's own observation the general character of the convoy; whether composed chiefly of "sick" or wounded; whether the latter were septic or in a satisfactory condition; the proportion of severe cases, and the probable number which would require operation. Also one knew the wards to which the severe cases were sent and also could arrange that any particular cases were sent under the care of medical officers who were specially interested in them. In this way a considerable amount of work was saved on the following day which could be devoted to operating and seeing the serious cases.

All particulars of the patients were taken by the clerks in the reception hall, and the average time for the admission of a convoy was about two hours, even when the number admitted was four or five hundred.

Before having any experience of the arrival of a convoy of wounded men one would have expected that immediately after

admission there would have been a large number who would have required operation at once. As a matter of fact, however, one found that what most of the men required after their experiences was a rest in bed, and hence, except for changing soiled dressings, re-adjusting splints, and giving hot drinks, and otherwise attending to their comfort, they were given a few hours' rest before investigating the wounds and commencing treatment on the following morning. The only cases operated upon at once were those where there was hæmorrhage or some other really urgent condition.

As soon as a convoy had been received and the patients had been examined, the probable disposal of the cases had to be considered, for the cry, especially during times of pressure, was always for beds—more beds. Generally speaking, slightly wounded men, who after a short period of treatment would be fit for return to duty or for transfer to the convalescent depôt, were kept and treated; severe cases and those requiring operation were kept and treated until they were fit to travel and then marked up for evacuation; other cases who would not soon be rendered fit for return to duty and who were fit to travel were put on the "England roll" at once. The correct and rapid disposal of patients was of the greatest importance, and unless carefully attended to resulted in the accommodation of the hospital not being put to its best use. It naturally took a Medical Officer unacquainted with the work of a general hospital some little time to fully grasp the importance of this, and it also required some experience to know the correct method of dealing with the great variety of wounds and diseases under his care. This was one of the reasons why frequent change of medical officers was so trying, especially when the pressure on the hospital accommodation was severe. In order to meet this difficulty, at the suggestion of Lieut.-Col. S. H. Fairrie, R.A.M.C., the Commanding Officer, we drew up a series of "Instructions to be followed in the selection of cases for Evacuation," founded upon the various general and local orders in force. A copy of these instructions, which were first issued in

1915 and subsequently revised on several occasions to bring it up to date, was given to every Medical Officer on first joining the Unit in order that he might at once make himself familiar with the system. The following extract from these instructions will give some idea of the method adopted and of the safeguards to prevent severe cases being transferred before they were fit to travel, and to ensure that whenever possible slight cases should be sent back to duty without undue delay :—

No. 3 General Hospital. Procedure in the Selection of Cases for Evacuation.

The following instructions are to be regarded as a general guide to the disposal of patients on discharge from this hospital. Modifications or alterations may be introduced from time to time depending upon the pressure on the hospital accommodation and the military situation; such alterations will cancel or modify any of the instructions given below.

Selection of Cases for Evacuation to England.—Under ordinary conditions cases will be proposed for evacuation to England if they are not likely to be convalescent in, say, three weeks. During active operations in the field and pressure on the hospital accommodation this period may have to be shortened or the cases otherwise disposed of. On the other hand, when the pressure is less, the period may be extended. However, in any case, slight cases should not be proposed for evacuation, but should be accommodated in tents, or transferred to the convalescent depot, where, during times of pressure, the treatment of mild cases may be undertaken. Cases for evacuation are divided into the following groups, which should be indicated by writing the appropriate abbreviation on the index card of the patient when fit to travel.

"Eng. A." Men who require special attention and accommodation during the journey. Only the most serious cases, such as wounds of the spine, serious head wounds, compound fractures of the thigh or leg, and those recovering from serious illnesses should be so marked.

"Eng. B." Men who are doing well and do not require special attention but who require to be transported lying down. Men, however, in this class should not be absolutely helpless, but in case of an emergency on the hospital ship should be able to walk upstairs or to a boat with assistance.

"Eng. B. Helpless." Similar cases to the above, but who would be unable to help themselves in an emergency. Cases of severe wounds of the leg, especially those wearing splints, and cases of fracture of the arm with the limb abducted, will be included in this group.

"Eng. C." Men who can walk tolerably well, but for whom it is desirable that lying down accommodation should be provided during transit.

"Eng. D." Men who are able to walk, and who require only sitting accommodation on hospital trains and ships.

Doubtful cases should not be marked for England until the Officer in charge of the Division has been consulted. Cases dangerously ill must not be proposed for evacuation, but cases on the serously ill list may be proposed and transferred as such. Recent cases of gun shot wounds of the skull or brain, wounds of the chest involving the intra-thoracic organs, or of penetrating wounds of the abdomen should not be proposed. Cases of acutely septic wounds, or those with insufficient drainage or those thought liable to secondary hæmorrhage should on no account be proposed. Metal fragments should, as a rule, be removed before evacuation is proposed, but when, on account of small size, inaccessibility, or for any other reason, this has not been done the fact should be recorded both on the index card and the field medical card. Cases of compound fracture should be kept until the condition of the wound is satisfactory, pyrexia has subsided, and the danger of secondary hæmorrhage has passed.

Cases of acute illness, those showing serious pyrexia, cases suffering from complications which have not cleared up, cases in which there is any suspicion of infectious disease, will on no account be proposed for evacuation.

The index cards of patients proposed for evacuation to England, together with the field medical cards, will be submitted to the Officer in charge of the division for his initial and approval. All cases able to walk attend first at the office of the division and afterwards at the C.O.'s office for inspection and final approval before being included on the England roll. All "Eng. C" cases who are up and about should attend at the Divisional and the C.O.'s offices. Personal explanations should always be made when asking sanction for the evacuation of special or doubtful cases.

In the event of any relapse or of any complication arising after evacuation has been sanctioned, such proposal must be cancelled and notice sent to the C.O.'s office in order that the name may be removed from the England roll.

Before evacuation the M.O. in charge of the case must see that the ship's label and any special ones required are duly filled up, signed, and attached to the patient.

Disposal of cases in France.—The attention of Officers is directed to the important fact that slight cases of sickness or of wounds should not be evacuated to England. Every effort should be made to render these men fit and to discharge them either to the convalescent depot, or to their Base Depot for duty. Cases who will not be benefited by a period at the convalescent depot, and, though not

fit for duty at the front, are able to carry out duties on the Lines of Communication ar at the base, may be sent to the Base for a medical board with a view to their being given Base duties either temporarily or permanently. Cards of patients for Base or Convalescent Depot must be completed and signed, and the men parade at the Divisional and the C.O.'s offices as in the case of men for evacuation.

For the Convalescent Camp (marked "C.C.").—Only cases which are expected to improve fairly rapidly and become fit for duty in a month or less should be sent to the convalescent camp. Men thus disposed of must be able to wear boots and to walk tolerably well, and to take ordinary diet. Helpless cases must not be sent, and the men must be able to dress and to attend to themselves. Men who are wearing splints (except finger splints), those who require fomentations or who have deep or septic wounds, or where removable metal fragments are still present, are not suitable. Light dressings are undertaken at the convalescent camp, but the wounds should be such as may be expected to heal quickly. Perforating wounds of the leg should not be sent until healed on account of the liability of these to become septic and for inguinal adenitis to develop.

Local admissions, when fit, should be marked "Duty," and are returned direct to their units.

Men other than Local Admissions who are fit to return to duty are to be marked "Base A." Such must require neither dressings or treatment.

Men who, owing to age or to some chronic disability not amenable to treatment, are not fit for duty at the front are to be marked "Base for Med. Board." Many cases of varicose veins, chronic knee troubles, and deformities of the feet which interfere with marching are examples of this type of case.

The disposal of officers was on exactly similar lines. The disposal of German prisoners varied from time to time, but generally speaking slightly wounded men were treated until they could be sent to the Prisoners of War Base Depôt, whence they were transferred to Prisoners of War working companies. Severely wounded cases were transferred as soon as fit to travel to hospitals in England.

The method of disposal of soldiers of the various Allied armies, and of special cases, such as mental cases, cases of self-inflicted wounds, infectious diseases, and venereal disease were also given.

It was also felt desirable to include in these instructions some indication of the lines on which certain very common diseases, such as hernia, varicose veins, varicocele, appendicitis, synovitis of the knee, piles, boils, "I.C.T.," etc., should be treated as well as their subsequent disposal.

It has already been pointed out that when there was a continued, pressing, and urgent demand for beds the only way of providing the required accommodation was to shorten the duration of the stay of patients in hospital by transferring serious cases to home hospitals as soon as fit to travel and by sending the slighter cases either to convalescent camps, to other hospitals in France, or by evacuating them to England. We have also seen that an important function of a general hospital was to return as many men as possible directly to duty with their units. It will readily be understood that this latter function was of less importance in times of severe pressure than the adequate supply of beds. With a view to co-ordinating the accommodation of the hospital with the demands likely to be made upon it, I drew up a series of "Scales of Evacuation." These were four in number, and were as follows :—

Scale A.—Keep hospital as clear as possible. Severe cases requiring operation to be operated upon, and to be proposed for evacuation as soon as possible. Other severe cases, if fit to travel, to be marked for evacuation at once.* Only cases not fit to travel to be kept and treated, and these to be evacuated as soon as fit. Light cases to be transferred to Convalescent Camp in, say, three or four days or less. If likely to be quickly fit for duty these cases may be perhaps kept for a few days longer, but it may be necessary to transfer at short notice all light cases to the United Kingdom, or, if the arrange-

*In times of pressure it was often imperative to evacuate many serious cases. Every care was taken to avoid transferring those who might be adversely affected by the jarring and jolting inseparable from transport on motor ambulances, trains and ships. As full notes as possible were provided for the information of Medical Officers in charge of these patients en route. Of course, a certain additional amount of risk was unavoidable, but the rarity with which one heard of any harm happening to these men speaks volumes for the care and attention they received on hospital trains and ships. It was often much safer to transfer recently wounded men at an early stage, say after two-four days than after ten-fourteen days when, for instance, secondary hæmorrhage was more likely to occur.

ments can be made. to hospitals in other areas in France. No operations to be performed on hernias or other "sick" cases unless urgently required. These cases should be proposed at once for transfer to the Convalescent Depot, or to other hospitals, or for home hospitals.

Scale B.—Severe cases are to be disposed of as in Scale "A," but a slightly longer stay in hospital is allowed, especially for cases who have been operated upon in this hospital or who have had a severe operation at a Casualty Clearing Station. Light cases may be kept and treated up to ten days if they will then be fit for convalescent depot or for duty. If not considered likely to be fit in this time they should at once be proposed for evacuation. Every effort is to be made to keep really light cases in France, and if possible arrangements will be made for transfer of light cases to hospitals in less congested areas. "Sick" cases will not be operated upon except for urgent symptoms, but should be disposed of as in Scale "A."

Scale C.—Severe cases, whether requiring operation or not, to be kept until sepsis has subsided, the danger of secondary hæmorrhage has passed, and the general and local conditions are satisfactory. Light cases who will be fit for duty or for convalescent depot in, say, three weeks to be kept and treated here. Light cases which will require a longer period of treatment and convalescence to be proposed for evacuation to the United Kingdom as soon as it is certain that they will not be fit for duty or convalescent depot in this time, but every effort is to be made to keep light cases in France. Suitable cases of hernia, varicocele, and other "sick" cases, who will be fit for duty after about three weeks in hospital and three weeks in convalescent depot, may be operated upon. Such cases requiring a longer period of treatment and convalescence should be proposed for transfer to special hospitals or to the United Kingdom.

Scale D.—As few cases as possible of any description to be evacuated. Only those who will be permanent invalids, or who will require a long period of convalescence to be proposed for evacuation to the United Kingdom. All light cases to be kept and treated until fit for duty or the convalescent depot. "Sick" cases requiring operation to be kept and treated here provided that in a reasonable time they will be "Class A" men or will be better able to carry out the duties upon which they were formerly employed.

Of these "Scales," Scale "C" may be taken as the one in general use and was fully explained in the "Procedure in the Selection of Cases for Evacuation." In the spring, summer, and autumn Scales "A" and "B" were frequently necessary. Scale "D" was seldom required. but was occasionally in force in the winter time as well as on two or three occasions after cross-channel hospital ships had been attacked or sunk.

The chief difficulty was that often, owing to inexplicit or contradictory instructions, one was uncertain as to which scale should be put in force. In order to remedy this I made a suggestion, which was not adopted, but which, as I think it would have made this important part of our work much simpler and easier, I repeat here. It was that these, or similar "scales" should be officially recognised so that, when the occasion demanded, instructions should be definitely issued to the various hospitals as to the scale of evacuation necessary to meet the situation. During periods of severe fighting one often found that whereas the hospitals in one area might be extremely congested, those in another area might have but little to do. Under these circumstances the hospitals in the first area might have instructions to evacuate according to Scale "A" while in the second area they might be ordered to evacuate according to Scale "C." At the end of the period of pressure the first area might have definite instructions to revert to Scale "C" while, if pressure was anticipated in the second area, they might be warned to change their Scale to "A" or "B." As it was the termination of a period of pressure often had to be deduced by the arrival of a letter complaining that cases of too slight a kind were being sent to England, or that cases of too severe a kind were being transferred to the convalescent depôt.

I had hoped that it might be possible to have given some account of the clinical work of the hospital, the kind of cases which had to be treated, the means of dealing with them, and the results of treatment, but even a brief account would take a great deal of space which is not at my disposal. I hope, however, that the outline I have given of the work of a general hospital in France will give some idea of the nature of the work as well as the methods of dealing with some of the problems of military surgery.

MESOPOTAMIA, 1916—1919.

By

R. DAVIES-COLLEY, C.M.G., M.Ch.

The Editors of the "Guy's Hospital Reports" have insisted that their War Memorial Number cannot be complete without a history of the surgical work of the Mesopotamian Campaign, and that is my only excuse for attempting to compress into the following short account the chief impressions, which a three years' sojourn with the army on the banks of the Tigris have left with me. If I have been able to set down little or nothing that can be called an addition to our knowledge of surgery, it is because we were, surgically at least, a very healthy force, and the available material, except in one or two directions, was scanty; or perhaps it may be that the lethargy of the East prevented us from making the best use of the opportunities that were given to us for the study of disease. It is certainly true that much of our time was passed in idleness, but that is one of the necessary evils of service in a war area, and I fail to see how it can ever be overcome.

I have said little about the surgery of wounds, because so many excellent papers, dealing with every type of wound in France and elsewhere, have been published, that it seemed to me superfluous to swell their number with conclusions based on the relatively small number of cases which we dealt with in this campaign. So I have confined myself to a few points in which the wounds in Mesopotamia differed more or less strikingly from those in Europe.

The dreary monotony of the trench warfare in France throughout 1915 induced many besides myself to jump at the oppor-

tunity of joining the Indian divisions, which were transferred to the East at the end of that year. I sailed from Marseilles with the fag end of the Lahore division early in December, and we were dodging submarines in the Mediterranean when the first news of the retreat from Ctesiphon reached us; so that any hopes, with which we may have started, of a victorious entry into Baghdad were dispelled long before we landed in Basra on January 19th, 1916. I doubt if any of us, however, expected things to be as bad as we actually found them. Everything was at its worst. The casualties from the miserable efforts to relieve the force locked up in Kut were heavy, and the medical arrangements for dealing with them were hopelessly inadequate. I was in France during the first battle of Ypres, and had seen something of the effects of an ill-equipped medical service, short of supplies and personnel; but the knowledge which had been gained during the first year's fighting in France had apparently not reached the lofty mind of Simla. The Government of India, I have heard it said, is capable of thinking only in terms of grains of rice, and any action is, or was before the war, determined by precedent. No precedent existed for the enormous casualties of this war, so no preparations could be made for them. It was quite simple. And the answer to the incessant demands of the army struggling in the Tigris mud was, "Not available; carry on."

It was fortunate that the gas gangrene and tetanus, which played such havoc with the wounds in Europe, were practically unknown here. If they had been added to the horrors of the campaign at this stage the mortality of our wounded would have been colossal. It was quite a common thing for a man to arrive in Basra in these days with suppurating wounds covered by the first field dressing, which had been applied sometimes as much as a fortnight or even three weeks before. Even if there had been an adequate supply of dressings on the river boats, it would have been quite impossible for the

medical officer in charge to attend properly to the dressings of his patients. How could he, with his meagre staff of orderlies? He was usually busy from morning to night doling out food supplies, which were short like everything else. A very large proportion of the patients, too, had dysentery, which enormously increased his work.

It would be difficult to conceive of anything more uncomfortable than the river transports, which plied between Basra and Sheikh Saad at the beginning of 1916. There were no beds, and the sick and wounded were laid in rows upon the decks with, as a rule, nothing but a blanket or a thin quilt to separate them from the boards, and so crowded together that it was almost impossible to pick one's way between them. Soaked by the frequent storms of rain, from which the deck awnings afforded only a very scanty protection, and chilled to the marrow by the bitter winds, which blew continuously from the snows of the Caucasus and Pusht-i-kuh, it was a constant source of wonder to me that the men did not all develop pneumonia. As a matter of fact, I hardly saw a case of it among the wounded all the time I was in the country.

The hospitals were only a little better than the boats. About half the patients were housed in solid brick buildings: the rest were in tents and huts, which were draughty to the last degree and by no means rain-proof, and the patients in them lay on stretchers or bed-boards, which raised them only a few inches from the wet ground. The supply of bedding was miserable, and the staffs of medical officers and orderlies were less than half strength. As for the equipment of the operating theatres, those who have had to operate with the flimsy tools provided in the regulation surgical instrument cases know the difficulty of the task; and few of the hospitals had anything else. Splints were almost unobtainable in the forward area, where every available piece of wood was needed for firing, and fractures used to be sent down with scarcely any support. Even in Amara and Basra imagination did not soar above a long Liston for

a fractured femur, and I believe that some Thomas's knee splints, which I had made for me in the Bazaar at Amara, were the first to be used in the country, though they had been in routine use in France for more than a year.

Such was the state of affairs at the beginning of 1916, and so it remained, with but little improvement, until the fall of Kut in April put an end to the fighting. The surgery during these months was necessarily of a rough and ready description, but the cases did not do badly on the whole. The vast majority were fortunately bullet or shrapnel wounds, and their most striking feature was their comparative freedom from infection. I have said that gas gangrene and tetanus were almost unknown. With the arrival of divisions from France at the end of 1915 and the beginning of 1916 a few cases of gas gangrene began to appear, and I think that the victims must have brought the infection with them in their clothes, for I never heard of a case occurring in a man who had come straight to Mesopotamia from India, and I do not believe the organisms are endemic in the country. They are scarcely likely to be in one where cultivation is so scanty and the soil is never treated with manure. A few cases of tetanus occurred later on, chiefly among the Turkish prisoners, but routine injections of anti-tetanic serum were never really needed.

The arrival of nursing sisters was the first step towards comfort and better management in the hospitals, and I should like here to pay a tribute to those brave pioneers of the Nursing Service, who did so much by their untiring energy to alleviate the sufferings of the sick and wounded at a time when things were going so badly Their mere presence in the wards gave a sense of comfort, which only a man, who has not seen a white woman's face for many months, can appreciate, and their constant supervision of the orderlies' work made a difference, which was obvious from the moment that they took charge of the wards.

With the fall of Kut and the advent of the hot weather surgery came practically to an end, and gave place to dysentery, para-typhoid and cholera, which filled the hospitals to overflowing throughout the summer months. This was the most depressing period of the campaign, and we were reaping with a vengeance the fruits of the mismanagement of the previous year. I can only speak with personal knowledge of Amara at this time, but conditions at Basra were much the same, and those at Sheikh Saad were infinitely worse. In the winter we lacked the means of keeping warm, and now in the summer we had nothing wherewith to combat the heat; and the high rate of mortality in the epidemic of para-typhoid, which raged through the four hot months, was directly due to this fact. There was an old native ice-factory in Amara, which was capable, when in working order, of turning out about 700 pounds of ice a day, but 700 pounds of ice do not go far among 6,000 patients, and the supply was usually exhausted well before the hottest part of the day. There were no fans, and anyone with a high temperature ran a grave risk of heat-stroke. It is remarkable that among the thousands of cases of typhoid and para-typhoid that passed through our hands during those months there was, as far as I can remember, only one case of perforation. The explanation is that the severe cases, who would have been the most likely to perforate, usually succumbed to the effects of heat within the first week or ten days of the disease, before perforation could be expected to occur. Sir Victor Horsley's death was an example of the tragic termination of paratyphoid, so common at this time. He came into hospital on July 15th, having had for two days a slight pyrexia, which had not prevented him from leading his usual energetic life. It so happened that that night was the hottest of the year, the thermometer on the hospital balcony standing at 105° at midnight, and by the following morning Sir Victor had all the symptoms of heat-stroke, from which he died towards the end of the day.

But depressing though the conditions were in the summer of 1916, there was now at last some hope of better things. The

War Office had superseded Simla in the management of the campaign, and a new Medical Headquarter's Staff, who had had experience of the fighting in France, had arrived upon the scene, and were re-organising the medical service in the country; drafts of medical officers were pouring in, and the parcimonious policy to which we had become so used was now giving place to extravagant expenditure.

At the end of July I was invalided to India with para-typhoid, and when I returned to Mesopotamia in January, 1917, exactly a year after my first landing there, the transition stage had been completed. The development of a new country is a fascinating study, full of surprises, and I could not have believed it possible that the few months of my absence could have brought about so complete a transformation. Basra had now all the appearance of a busy, up-to-date port, with several miles of solidly constructed wharves along the river bank, on which swarms of coolies were at work, and the broad reach of the Shatt-el-Arab was as full as the Pool of London with a heterogeneous collection of shipping, which included types ranging from Sinbad's Mahailah to the most modern liner. River steamers from almost every navigable stream in the world seemed to have found their way there, and even the penny steamers from the Thames had been pressed into the service, and in their new coats of Navy grey looked as much at home in the muddy waters of the Tigris as they ever did off the Old Swan Pier. Amara had become a busy hospital centre with some 6,500 beds, besides two large convalescent depots, and all were housed in good buildings. The hospital staffs and equipment were sufficient, and the medical stores depots were well stocked with dressings, splints and surgical instruments. Above all, electric light had been installed, and the buildings were all supplied with fans. The whole atmosphere was different; the dejection of the previous year had vanished altogether, and the spirits of the men were rising with the rapidly developing success of the new offensive at Kut.

From February 1st, when I first took up my duties as Consulting Surgeon, until the end of May, when the hot weather again put an end to the fighting, we were kept constantly occupied, and it would be well to consider here what were the lessons that our experience of the treatment of wounds taught us. It must be remembered that Amara was situated some 150 miles from the fighting zone in the early stages of the offensive, and a great deal more as the army advanced, so that it was exceptional for us to see cases within less than four or five days after the wounds had occurred, and we had no opportunities for early excision, as practised so widely in the latter part of the war in Europe. By the time we saw them our cases were usually either already in a healing state or suppurating freely.

The two chief problems which we had to face were the treatment of sepsis and of fractures, especially from the point of view of transport. I have already mentioned the comparative freedom from infection of the wounds in the earlier fighting round Kut; but in the new offensive, which began in the autumn of 1916 and ended with the capture of Samarra in May, 1917, there was a considerable increase in the proportion of infected wounds, though they never became the rule. This increase was due to several reasons, of which the two most important were the relatively higher percentage of shell and bomb wounds, and the larger proportion of ground under cultivation as the fighting drew nearer to Baghdad.

The one essential in the treatment of sepsis was, of course, as it always will be, the provision of adequate drainage, and the skill of a surgical specialist could be measured fairly accurately by the number of secondary hæmorrhages in his wards. I have often heard men recounting cases of secondary hæmorrhage as though they were a question of luck. They are not a question of luck, but simply one of bad surgery, and they do not occur if no pockets of pus are left undrained around the large vessels.

The most satisfactory antiseptic for all purposes was undoubtedly eusol, and various modifications of the Carrel-Dakin method of flushing the wounds with it were used with excellent results. It has the disadvantage that bleaching powder will not keep in a hot climate, and supplies must be constantly renewed or the eusol solution tends to become too weak for efficient action. I also found bismuth and iodoform paste a most useful dressing, especially for badly comminuted fractures, where it saved the patients from much painful manipulation of the wounds. It is particularly useful when the cases have to be transported for long distances and anything which simplifies the dressings is of the greatest value. I never saw a case of bismuth or iodoform poisoning follow its use.

Lack of space forbids me to refer to fractures in any but the briefest terms. For the treatment of fractured femurs I have yet to see any form of splint to equal a Hodgen. In my experience it is more comfortable and more easy for nursing than a slung Thomas, and its one disadvantage is that it must be changed for a Thomas when the patient is moved to another hospital. The many elaborate and highly ingenious contrivances for slinging limbs which I saw in France in the early days of the War were, to my mind, quite unnecessary and merely a waste of time and labour. In any case they were an impossibility in a country like Mesopotamia, where wood was so scarce. Our experience of fractures of the other large bones was much the same as in other theatres of the War, and needs no special mention. The difficulty of their transport was, as I have said, our main problem, and it was a very real difficulty in the case of Indians. Indians seem to have a diabolical knack of wriggling out of their splints, and in the case of fractured forearms, for instance, if one finger were left free you could be perfectly certain that, before an hour was out, the splint would have slid out of place.

Wounds of the knee-joint were very rarely septic, owing probably to the fact that the men fought almost always in shorts,

and there was little likelihood of pieces of clothing, etc., being carried in by the missile. It is impossible to form any very definite opinion on the few cases of suppurating joints that were treated in the Amara hospitals, except that, as it was found elsewhere, the insertion of drainage tubes into the cavities of joints gave the worst possible results. The main difficulty, I think, was to decide when the condition of the joint was so hopeless that the limb must be sacrificed, and I am quite certain that in most cases amputation was put off longer than it should have been.

Abdomen, thorax, and head wounds came very little our way in their early stages. The shifting nature of the fighting made abdominal surgery practically hopeless, and only a very few cases survived to reach Amara. At one time we considered the advisability of providing special units for their treatment close to the Front, but came to the conclusion that it was useless to make the attempt, and I do not think that with a rapidly advancing force it would ever be practicable. In the early days, when the fighting was stationary round Kut, the medical arrangements were in too chaotic a condition even to think of it.

The Mesopotamian Campaign was unique in having water as its only means of transport—at least it was the only means until railways were laid between Basra and Amara and between Kut and Baghdad, and, as far as the sick and wounded were concerned, it was always the principal means—and we had ample opportunity of judging what was the best type of vessel for the purpose. I have no hesitation in saying that the elaborately fitted hospital ships, which made their appearance on the Tigris in 1917 and 1918 were simply a waste of money, except in so far as they may have served to allay the misgivings of the public at home. They were certainly not the most comfortable type of vessel for a sick man to travel in, and some of them were so hopelessly incompetent to deal with the swift current of the river that they were never even used. The large paddle steamer of the type that was built for the Tigris in 1916—

the P.-S. 50-class, in Mesopotamian terminology—was far the best. On the wide upper decks of these boats there was accommodation for an enormous number of patients who could be made perfectly comfortable either on trestle-beds or on mattresses laid on the decks. They could also be used for the transport of troops up the river, and so were fully employed on both journeys. Fixed cots occupy so much room that much space is bound to be wasted, and the cots of the upper tier are so near the deck awning, that the heat is apt to be well-nigh intolerable in the hot weather. The loading and unloading, too, especially of fracture cases, is always an awkward business, and sometimes dangerous.

The actions of May, 1917, proved to be the last serious fighting of the campaign, and for the remaining two years of my stay in the country the surgery was almost entirely of a non-military character. Two diseases stand out as being particularly worthy of mention, because, though not peculiar to Mesopotamia, they are diseases of tropical countries, and they formed between them a very large percentage of the total admissions to hospital: I mean Baghdad Boil and Dysentery.

Baghdad Boil, or Oriental Sore, is produced by the inoculation of Leishmania Orientalis, and the bites of various insects have been held responsible for the infection. I see no reason to doubt that, at any rate in a large number of cases, an insect bite is the active agent, though whether any particular insect is the guilty one has yet to be discovered. But an insect bite is not the only cause. I can remember two cases in which typical ulcers containing the protozoa followed cuts on the fingers, and I think it is quite likely that many are caused by scratches from thorns, etc. The well-known liability to infection of exposed parts of the body would fit in just as well with this theory. I think also that the cases of multiple sores on the trunk, which one occasionally sees, may be the result of inoculation of patches of "prickly heat" from the clothes.

The treatment of Baghdad boil was the subject of many a heated discussion, and the methods in use were almost as numerous as the hospitals in the country. Intravenous injection of tartar emetic had a great vogue at one time, but it had little effect except in the dry, non-ulcerating type of case. When there was an open sore it was useless. The best results that I saw were obtained by the local application of an ointment containing 5 per cent. of antimonium tartrate for four days followed by boracic fomentations. In a series of thirty cases treated in this way at one hospital cure was complete in an average period of thirteen days, which was very much less than was achieved by any other method that I saw used.

The surgical aspect of dysentery was confined mostly to the treatment of amœbic abscess of the liver. I have little to add to the text-book descriptions of this disease, but one or two impressions that I formed may be worth recording. One was the great value of X-rays in the diagnosis of abscess. Of all the cases which I saw examined by X-rays, not one, in which pus was afterwards found, failed to show limitation of movement or complete fixation of the right cupola of the diaphragm, and when, unconvinced by the X-ray demonstration of a freely-moving right cupola, I needled the liver for pus, I never once found any. In this connection I might mention that in several instances, in which thorough needling of the liver failed to show pus, the symptoms of hepatitis rapidly subsided after the operation, and apparently as the result of it, so that my efforts to find an abscess were not altogether wasted. In the treatment of hepatic abscess, open drainage appeared to give the best results. Aspiration in my hands was disappointing, and almost always had to be followed by the open operation. Perhaps the acute type of abscess, with which we were confronted, is less amenable to aspiration than are the more chronic forms. It certainly seems reasonable to expect that a chronic abscess, in the walls of which the amœbæ have long ceased to be active, will be likely to respond more readily to simple evacuation of

its contents than an acutely spreading one bounded by semi-necrotic liver tissue.

Few diseases react more quickly than dysentery to appropriate medical treatment, when it is caught in its early stages, and surgical interference should never be necessary for the intestinal ulceration. Now and then, however, either because the patient does not report early enough or because the disease is not taken in hand with sufficient energy, the ulceration gets into a chronic and most intractable state, and surgery may do some good. In the cases on which I operated I found that cœcostomy either had no effect or produced only a transient improvement, and latterly I gave it up in favour of complete section of the lower part of the ileum with the formation of an artificial anus. By these means the large gut obtained complete rest, and in two of the three cases, in which I used the method, the immediate improvement which followed the operation was most noticeable. Both patients lost their pyrexia within a day or two of the operation, and began rapidly to put on weight, and I was able at the end of two months to re-unite their intestines ; and complete cures resulted. The third case was moribund when I did the operation, and only survived for two days. Not much can be argued from these three cases, but at least I think the method is deserving of a more extended trial.

The remaining surgery was of the type usually seen in the hospitals at home, herniæ, appendices, loose cartilages, etc., and there is little to be said about it, except that a remarkably large number of men, who had recently undergone operations for hernia in England, presented themselves soon after their arrival in Mesopotamia with their hernial sacs still intact.

I was also struck by the frequency of bad results from operations on varicoceles. Men often reported with chronic œdema or atrophy of the testis or cysts of the epididymis from this cause, and though these were probably the result of faulty technique, it is surely time that the Public Services ceased to insist on

their recruits undergoing operations which so frequently do more harm than good, and which are, as a matter of fact, only very rarely needed.

A point which interested me a good deal, and which crops up frequently in the writings on surgery in India and other hot countries, was the effect of the climate upon operations. I have operated many times in theatres in which the temperature was well over 100° F., and sometimes as much as 120° F., but the only ill effect to the patient that I have seen was post-anæsthetic bronchitis. The high rate of incidence of bronchitis after operation, especially after laparotomies, was so striking that I took to giving prophylactic doses of tincture of belladonna after all abdominal operations during the hot weather. It was not due to ether, which was very seldom used owing to its volatility, and I came to the conclusion that it was probably caused by the draught set up by the overhead fans with which all the wards were fitted.

Another anticipated source of danger was the dust. If ever there was a dusty place, it was Mesopotamia, and whenever there was a wind the air was full of it; and even the most elaborate precautions could not keep it out of the buildings. But I never saw any wound infected by it, and I doubt if any pyogenic bacteria can remain for long in a flourishing state, when exposed to the blaze of a tropical sun.

And now one word more, and I shall have finished. It was most noticeable wherever one went during the war, that scarcely in one single instance was the post of surgical specialist to a hospital held by an officer of the regular R.A.M.C. The reason of course is that hardly any members of the Corps had, before the war, any experience of surgery. It is the fault of the system, and the result, when, as in the earlier stages of the Mesopotamian campaign, the officers of the regular R.A.M.C. are called upon to operate, is bound to be disastrous. Some of the things I saw done in the name of surgery, when I first arrived in Mesopotamia, were really appalling. I am not

criticising the Indian units. The I.M.S. surgeons have at least an opportunity in peace time of practising their craft, though they may not always keep exactly up-to-date in their methods. But the R.A.M.C. officers have no chance of keeping in touch with surgery unless they happen to hold one of the very few surgical posts in the military hospitals at home. There is not enough surgery in the Army in peace time to go round, and if the Army is ever to possess expert operators material other than military must be found for them to practise on.

I have often wondered whether the enormous mass of material in the Poor Law Infirmaries could not be utilised for the purpose. I see no grave reason why R.A.M.C. officers should not be seconded for service upon the Infirmary staffs, and the added inducement of practical surgery and medicine would probably attract better men to the Service.

The Sanitary and Administrative Departments of the Corps are both excellent, and it seems to me the greatest pity that simply from lack of opportunity the departments of practical medicine and surgery should lag so far behind them.

DENTAL SURGERY AND THE WAR.

By

MONTAGU F. HOPSON.

In writing, however briefly, of Dental Surgery and the War, it is unfortunately necessary, at the outset, to comment on the official attitude of the War Office towards a dental service.

"Orthodoxy has ever been the Bourbon of the world of thought. It learns not, neither can it forget." The orthodox Director General of Medical Services has never recognised the value and importance of Dental Surgery, nor the obvious relation which exists between oral and dental disease and general affections of the body; facts which have been a commonplace of informed medical science for many years past.

Just as the Director General in the Crimea, when Florence Nightingale was endeavouring to teach the elements of preventive medicine, scoffingly asked what a soldier needed with a toothbrush, so the Director General at the outbreak of the war, having learned nothing from the experience of the South African campaign, but remembering the dictum of his predecessor, Sir Robert Hall, in 1855, stubbornly refused assistance from the British Dental Association to establish an efficient Dental Service, and at the end of 1915 informed the Recruiting Department of the War Office that, in his opinion, dentists as a class should not be excused from *combatant* military service, and that the system of Local Tribunals was sufficient to meet the case.

In the national emergency which had arisen the rôle of the skilled Dental Surgeon was:—

1. To render recruits dentally fit for service.

2. To maintain dental fitness in the field.
3. To co-operate with the surgeon in the treatment of wounds of the face and jaws.
4. To meet the needs of the civil population.

To cope with this task there were available about 4,500 dental surgeons in the whole of the United Kingdom. If ever there were a time calling for thorough, careful and efficient organisation it was then. Yet all offers of help from those possessing special knowledge, and from bodies having facilities for effecting organisation were declined. For three whole years the Government remained indifferent to the value and importance of the dental surgeon as a national asset, and no provision was made to utilise his services in his professional capacity; like any untrained individual he was subject to the caprice of ignorant tribunals; the dental schools were depleted of their students, with the exception of those who were within twelve months of qualification, so that, in 1917, there were only 153 male students as against 1,000 in 1914.

Despite the large number of applications, only 20 dental officers, ranking as temporary Lieutenants on the General List, were appointed during 1914. How pressing was the need is shown in the following official table relating to the condition of the teeth of recruits in the Northern Command:—

	Age Group.			
	18 and under.	19–24	25–29	30 and over.
Per cent. of men examined with all teeth sound	19·8	4·9	4·1	3·2
Per cent. of men examined with decayed teeth	64·0	84·0	83·2	80·7
Average No. of decayed teeth per man	4·5	7·3	6·9	6·5

From the point of view of Public Health, most of the men examined would require dental treatment. The percentages of those who could be considered as "dentally fit" from the Public Health standpoint, compared with those who, under the

present Army standard (under which only the minimum of treatment which will enable a man to masticate, and under which of necessity many teeth which are savable are allowed to become unsavable), were actually passed as "dentally fit," are shown in the following table:—

Dentally fit.	18 and under.	19–24	25–29	30 and over.
	Per cent.	Per cent.	Per cent.	Per cent.
Public Health Standard	33·0	10·3	13·0	14·0
Army Standard	57·0	49·0	52·0	54·0

At the request of the Air Ministry the writer, with a colleague, inspected the members of the Officers Cadet Unit at Hastings, numbering some 5,000 men, with the following result:

RATIO PER CADET.

A Extractions.	B Fillings.	C Fillings with Root Treatment.	D Scalings with simple Gingivitis.	E Pyorrhœa or severe Gingivitis.	F Required Artificial Dentures.
1·74	3·14	·28	·69	·04	·13

In connection with the above, it must be borne in mind that the men came from the upper and middle classes, and that most of them had been in the habit of receiving regular dental treatment.

In peace time the Army Regulation was "The acceptance or rejection of a recruit on account of loss or decay of teeth will depend on the consideration of the relative position of sound teeth, and the physical condition of the recruit; thus the loss of many teeth in a man of indifferent constitution would point to rejection, whilst a robust recruit who has lost an equal number might be accepted. Too much attention cannot be paid to this latter point." Civilian dental surgeons were occasionally employed at a fixed rate of remuneration to make a likely recruit dentally fit.

At the outbreak of the war dental practitioners banded themselves together and arranged for the *gratuitous* treatment of recruits otherwise suitable, who might be rejected on account of defective teeth. Many thousands were thus rendered fit for service. Dental Hospitals and Institutions also rendered very valuable and extensive voluntary service in this way. In aid of this work the trustees of the late Sir William Dunn (The Commercial Union Assurance Company) made a generous contribution to Guy's, enabling that Institution to treat a very large number of service men; over a thousand artificial dentures were made free of charge. The carrying out of this work was only rendered possible by a call upon old Guy's dental men to come and work in the Department of their old School, a call which was nobly responded to. Mention must also be made of the great work done under the auspices of the Ivory Cross Fund.

Later on a system was adopted for the treatment of soldiers by civilian dentists at a fixed scale of remuneration paid by the Government. It was found, however, that a civilian scheme was too costly; it lacked in efficiency owing to the want of central organisation coupled with inspection.

Still the War Office hesitated and procrastinated in the matter of granting Dental Commissions. At the end of 1915 the number of officers was only 179, and even these were working not under the direction and supervision of senior dental officers but under junior medical officers who did not pretend to possess any special dental knowledge.

The fine example set by the Dominion Governments in establishing thoroughly equipped and well organised Dental Corps, to render their troops dentally fit during training and to accompany them and maintain that fitness whilst on active service was ignored by the Home Government, which, however, did not hesitate to employ the Dental Surgeons attached to Dominion troops to treat English soldiers in France until the Dominion Dental Officers protested.

The following was the proportion of Dental Surgeons to men amongst the Dominion Forces:—Canadian, 1 per 1,000 men; New Zealand, 1 per 2,500 men; Australian, 1 per 2,600 men. The United States Army also had a proportion of one Dental Surgeon to each thousand troops.

With the ever increasing demand for troops men of a lower degree of general and dental fitness were enrolled. This brought into prominence the very difficult question of the supply of artificial dentures, which was ultimately, satisfactorily and economically solved by the establishment of Army Dental Laboratories in the various home commands and at certain bases on the different fronts, dental mechanics serving as combatants being transferred to the R.A.M.C. for this purpose.

Still with a shortage of Dental Officers, and with none of senior rank with power and authority to organise and direct, the dental service, such as it was, muddled along. The treatment of troops, instead of being commenced immediately on enlistment, was necessarily delayed until near the end of their training, with the result that large numbers left for the front either untreated or with work unfinished, to swell the number of men in a similar condition. This led to troops on active service being rapidly incapacitated, and consequent congestion at the bases where the few overworked Dental Officers were stationed. Hence a large and unnecessary wastage of man power. There never was a Senior Dental Officer in charge in France. At the end of 1915 a few Dental Officers were appointed Inspecting Dental Officers, both at home and abroad, but with no executive powers. Some of these received the rank of Major in 1917.

In the middle of 1917 the President of the Local Government Board established a Dental Service Committee, composed of dentists and representatives of certain interested Government departments, with limited powers over dentists of 35 years of age and upwards, and those under that age who were unfit for general service. At the time of the establishment of that

Committee there were approximately 1,000 dentists serving in the Forces. The number of Army Dental Surgeons was 530 (as compared with 250 in the Canadian Army Dental Corps alone); 160 were acting as Medical Officers in the R.A.M.C., 100 were serving in the Navy, chiefly as dentists, surgeons, and surgeon probationers, etc., whilst 250 were serving as combatants.

In November, 1917, a Parliamentary Committee of 13 members, presided over by Mr. D. F. Pennefather, investigated the position, and after hearing evidence published a report and made the following recommendations:—

COMMITTEE'S RECOMMENDATIONS.

After careful consideration we have come to the conclusion that the efficient man-power of our Army would be increased and preventable sickness and suffering to our soldiers reduced:—

(1) By much greater attention being paid to the teeth of soldiers while training in this country prior to being sent abroad, particularly in regard to "conservative" treatment, *i.e.*, treatment calculated to prevent unnecessary extractions.

(2) By increasing the number of qualified Dental Surgeons at base camps and casualty clearing stations, and also by the use of travelling dental lorries or ambulances.

(3) By detailing a larger number of specially skilled Dental Surgeons, to co-operate with Army medical officers in the treatment of jaw wounds.

(4) By withdrawing from combatant and other non-dental services (other than medical and surgical services) all qualified Dental Surgeons who are now in the Army or may come up for recruitment, detailing them to dental work in order to carry out the duties mentioned in the preceding paragraphs, and providing the necessary numbers of dental mechanics.

(5) By placing the organisation of the Military Dental Service under the general direction of one or more experienced Dental Surgeons with special authority over Army dental officers of all ranks and an advisory position in regard to dental supplies and equipment; such Dental Director or Directors and Officers to be under the orders of the P.M.O. of the R.A.M.C.

Signed on behalf of the Committee,
D. F. PENNEFATHER, *Chairman.*

House of Commons.
December 12th, 1917.

In March, 1918, an Advisory Dental Officer, with the rank of Lieut.-Colonel, was appointed on the staff of the new Director General at the War Office. Although this officer possessed no real executive powers a very marked improvement in dental organisation was effected. As late as October 26th, 1918, an Army Council Instruction (No. 1187) on Dental Treatment was issued, the first paragraph of which reads: "In order to provide adequate dental treatment for troops required for service overseas and to ensure uniformity, the following instructions have been drawn up, and will come into operation forthwith. *Dental Officers will be appointed as may be necessary.*"

A confession and a promise—a justification of professional claims, four years too late. Within a fortnight the enemy was suing for peace.

Three months previously a Dental Tribunal had been appointed, to which all dental surgeons of service age were made amenable. This tribunal was an enlarged Dental Service Committee, and possessed powers which enabled it to enforce the national *professional* service, military or civil, of any dental surgeon who came within the provisions of the National Service Act. Further, such dental surgeons as were serving as combatants in the ranks were offered Dental Commissions. The tribunal was actively engaged upon its duties when the Armistice came.

There are no available figures as to the amount of routine dental work done by English Dental Officers, but the following table of that accomplished by the Canadian Army Dental Corps alone gives some idea of the gigantic nature of the task set them.

CANADIAN ARMY DENTAL CORPS.
JULY 15TH, 1915—JUNE 30TH, 1919.

Fillings.	Treatments.	Dentures.	Prophylaxis.	Extractions.	Teeth Devitalized.
1,007,257	393,720	173,179	225,105	545,220	99,948

At the cessation of hostilities about 1,300 dental surgeons were serving in H.M. Forces; 831 as Army Dental Surgeons, 83 as Naval Dental Surgeons (R.N.V.R.), and 61 as Dental Surgeons, Royal Air Force. About 120 were still serving as combatant officers, and the remainder were serving as Medical Officers in Navy and Army.

In many respects the most important services rendered by dental surgeons were in co-operation with the general surgeon in the treatment of gunshot wounds of the jaws and face. Here again it has to be recorded that the War Office showed culpable negligence in rejecting the oft repeated warnings and offers of help tendered by those best qualified to advise. It is true that in 1914 a number of Dental Surgeons attached to teaching institutions were asked to act in an honorary consulting capacity in these cases. But, as not infrequently happens with other consultants, they were hardly ever consulted. No provision was made for the early dental treatment of jaw cases on the various fronts. The patients were distributed haphazard in large and small hospitals throughout the country where skilled attention was unobtainable. In Gallipoli the conditions were appalling. The result was that a large number of cases came into the hands of the Dental Surgeon when the opportunity of rendering any efficient service had long passed.

In August, 1915, the writer with two of his hospital colleagues visited a number of French hospitals in the Paris area which had been set aside for the special treatment of jaw injuries. On their return they reported fully to the War Office the results of the experience afforded by their visit, and urged once again the necessity of segregating this type of injury, and the institution of special jaw centres at home and abroad. This was eventually done, but only after prolonged opposition on the part of the Army Medical Service, and when the matter had become one of the minor scandals of the war. The chief jaw centres were situated at Sidcup, Croydon, Millbank, 1st and

3rd Territorial General Hospitals, London, at King George Hospital, the Maxillo-Facial (Red Cross) Hospital, Camberwell, and in the provinces at Birmingham, Manchester, Liverpool, Leeds, Edinburgh, and in Ireland. In the main, the dental staffs were composed of visiting civilian consultants, together with resident Army Dental Officers. There were also centres at three bases in France, and in Egypt and India.

It is a pleasure to add that in the end the provision for the treatment of wounds of the jaws and face reached a stage of perfection unsurpassed amongst the Allies.

No reference has been made in this short article to special cases or to treatment. A bibliography of the more important contributions on "Dental Surgery and the War," culled from English journals, is appended.

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THE COMMITTEE OF REFERENCE.

By

SIR WILLIAM HALE-WHITE, K.B.E.

The Hon. Secretary of the Committee of Reference was Mr. F. G. Hallett, who was indefatigable in the work he did for it, and it is to him that its success is largely due. When I mentioned to him that the Editors of the GUY'S HOSPITAL REPORTS had asked for an account of its work, he kindly supplied me with the following extract.

In March, 1916, at the request of H.M. Government, through Lord Sydenham, Chairman of the Central Tribunal, the Royal Colleges of Physicians and Surgeons appointed a Joint Committee consisting of the President and four members of each College "to advise the Government Department concerned therein, through the Central Medical War Committee, on any case affecting the several Medical Schools and Hospitals during the war in respect of medical men on their staffs (including residential and teaching staffs) with regard to whom the question arises as to whether a particular individual is indispensable or would suffer excessive personal hardship if required to enter Military Service, and further similarly to advise on the case of any other medical man in England or Wales in respect of whom the Central Tribunal under the Military Service Act of 1916 or the Central Medical War Committee thinks it desirable that the Advisory Committee should be consulted."

The Committee originally consisted of Dr. Frederick Taylor, President, Dr. William Pasteur, Dr. Sidney Martin, F.R.S., and Dr. James Galloway, representing the Royal College of Physi-

cians; Sir Watson Cheyne, President (or, in his absence, Sir Rickman Godlee), Mr. W. F. Haslam, Mr. D'Arcy Power, and Mr. Charles Ryall, representing the Royal College of Surgeons.

Later on this Committee became known as the Committee of Reference.

The primary duty of the Committee was to decide which members of the staffs of the Metropolitan Hospitals and Medical Schools should be required to enter H.M. Forces and which should be retained for the purpose of safeguarding the interests, from a health point of view, of the Civil Community.

In June, 1916, the Committee became a Statutory Committee under the Military Service Act, Session 2, 1916.

Various questions arose from time to time which, although not officially within the reference of the Committee were felt to be of such importance as to warrant investigation and in order that the Committee might have power to deal with such questions, they requested the Royal Colleges of Physicians and Surgeons to extend the terms of appointment so as to enable the Committee "to consider either independently or in conjunction with other Bodies urgent medical questions arising out of the war, such as the treatment of Disabled Soldiers and if necessary to advise the Government thereon."

The Committee, having received the additional powers, dealt with the following subjects:—

1. The calling up of Members of Staffs of Hospitals and Medical Schools.
2. Appeals from such members.
3. Matters relating to the calling up of Members of the Profession of joint interest to the Committee and the Central Medical War Committee.
4. The Treatment of Discharged Disabled Soldiers.
5. The Treatment of Dischargeable Disabled Soldiers.
6. The Grouping of Hospitals.
7. Board of Assessors under the Local Government Board.

8. Food Control.

9. Demobilisation.

On the 1st November, 1916, Dr. Hale-White became a representative of the Royal College of Physicians on the Committee in place of Dr. William Pasteur, who had been appointed Consulting Physician to the Forces in France, whilst Dr. Turney and Dr. F. W. Mott also joined the Committee as representing the Royal College of Physicians. Mr. F. F. Burghard, C.B., became a member of the Committee in January, 1917, whilst in July, 1917, and April, 1918, Sir George Makins, President of the Royal College of Surgeons, and Sir Norman Moore, Bart., President of the Royal College of Physicians, became "ex officio" Members of the Committee.

The Committee from time to time obtained returns of the staffs of all the hospitals and schools in London and considered the conditions of each Institution as to the number of staff required to maintain a reasonable service under the conditions of war, and at the same time decided which members of the staff ought to be spared for service in H.M. Forces.

A Sub-Committee was appointed to go through the lists of members of the staffs of the hospitals and to determine which of these men should be called upon to serve, and lists were prepared for consideration by the Committee of Reference. The Committee, having considered these lists, calling up notices were sent, and each man had the right of submitting a personal statement to the Committee of Reference. The Committee then considered such statements both as they bore on the requirements of the hospital in regard to its staff and on the private circumstances of the applicant. In several cases Governors of Hospitals attended before the Committee and explained why a member of the Staff should not be spared.

The work of the Sub-Committee in going through and weighing the claims of the hospitals and individuals was extremely onerous, and for a long period the Sub-Committee met once and sometimes twice a week. Altogether some 560 cases were

investigated by the Committee after a still larger number had been considered by the Sub-Committee.

Arrangements were come to with the War Office by which no one attached to the staff of a London Hospital was to be called up without the sanction of the Committee. This arrangement was made in order that the Committee might be in a position to decide whether or not the work of the hospital could be carried on with the remaining staff, and was referred to in correspondence between Guy's Hospital and the Local Government Board in May and June, 1917, when the hospital called attention to the danger of the calling up of all doctors of military age. Lord Rhondda in his reply to the Hospital pointed out that the Committee of Reference had been set up to deal with members of the staffs of hospitals with a view to meeting this express difficulty.

In January, 1917, as the pressure by the War Office for additional Medical Officers continued to be acute, the Committee commenced the consideration of a scheme for grouping the London Hospitals into areas with a view to economy of man power. In order to make use of the whole profession in the best interests of the State, it was suggested that the Hospitals should, if necessary, be grouped, and to each group a minimum number of Physicians, Surgeons and Specialists should be allotted, that some hospitals should be temporarily closed or attached to other hospitals, and that part-time doctors should be employed as full-time men. Various sections of the Royal Society of Medicine were consulted by the Committee as to the number of Specialists in various subjects who would be required to staff the several groups of hospitals and valuable advice was received from that Society.

As the war proceeded the question of the arrangements for treating sick and wounded officers in small Sectional or Auxiliary Hospitals came under consideration in regard to the wastage of man-power involved in this arrangement.

Later on, in April, 1918, the approval of the Ministry of National Service was asked for the grouping of hospitals and

the scheme was being worked out in detail when the Armistice rendered further procedure unnecessary.

Amongst the matters dealt with the Committee, in November, 1916, presented a report to the Prime Minister and other Members of the Government, putting forward a scheme for dealing with Discharged Disabled Soldiers.

In December of that year the Committee adopted a report of the Sub-Committee of Joint Representatives of the Committee of Reference and the Central Medical War Committee on the treatment of Dischargeable Disabled Soldiers, and this was sent to the Prime Minister and the Secretary of State for War.

Towards the end of 1917 the Local Government Board proposed to set up eleven Appeal Tribunals throughout the country and the Board requested the Committee of Reference to nominate eight Assessors, four Physicians and four Surgeons, to the Appeal Tribunal in London.

Amongst the Physicians so nominated was Dr. Hale-White.

Later on further Assessors were nominated and ultimately the rota of Assessors was established and the administration of the Board of Assessors was undertaken by the Committee.

The work of the Boards of Assessors became so onerous that a Special Sub-Committee was appointed to deal with the Boards, consisting of Dr. Sidney Martin, as Chairman, Dr. W. Hale-White, and Mr. Charles Ryall.

The work of the Assessors continued incessantly until the date of the Armistice.

In March, 1918, on the resignation of Sir Frederick Taylor, Bart., Dr. Sidney Martin was elected Chairman of the Committee of Reference.

The question of the seconding of newly qualified doctors to assist the hospitals for three months after qualification was taken up by the Committee with two objects: (1) to facilitate the working of the hospitals in the interests of the civil community, and (2) to increase the value of the newly qualified

doctor on entering the Army by giving him three months hospital experience. The Committee succeeded in obtaining this concession from the War Office.

In September, 1917, the Committee called the serious attention of the Government to the shortage of doctors, and they recommended (1) that medical students now serving in the Army as officers or privates who have already passed the examination in Anatomy and Physiology for a Medical Qualification should be demobilised and returned to their Medical Schools to complete their studies, (2) that medical students now serving in the Army whether as officers or privates who have not passed the examination in Anatomy and Physiology should be seconded to their Medical Schools for a reasonable period to enable them to pass that examination, and that, if successful, they should be demobilised to complete their studies. The conditions under which medical students could be allowed to return to their Medical Schools to complete their studies were subsequently adopted by the War Office.

The establishment of the Ministry of National Service in 1917, with Sir James Galloway as Chief Commissioner for Medical Service, brought about considerable change in the procedure of the Committee, inasmuch as all questions dealing with the calling up of doctors was settled through the Ministry, and the most harmonious working between the Ministry and the Committee of Reference continued until the termination of the war.

As the result of an interview between the Chairman (Sir Frederick Taylor) and Lord Rhondda in January, 1918, a joint Sub-Committee of the Committee of Reference and the Central Medical War Committee was formed to advise the Food Controller on doubtful points of Medical interest, consisting of Dr. Hale-White (Chairman), Mr. D'Arcy Power, Dr. F. W. Mott, and Dr. Charles Buttar, to which were co-opted Professor E. A. Starling and Dr. Robert Hutchison.

This Sub-Committee considered various matters referred to them by the Food Controller, and presented several reports to the Department in reference to (a) extra rations in case of patients suffering from certain diseases, (b) the advice to be given to doctors in issuing certificates for extra rations, (c) priority supply of dried, condensed or sweetened milk for children, (d) the supply of gluten flour, etc.

At the conclusion of the Armistice the Committee was requested by the Ministry of National Service to deal with the question of Demobilisation so far as it related to members of staffs of the hospitals. The Committee thereupon applied to the hospitals to forward lists of the members of the staff whom they desired to be demobilised at the earliest date. Lists were compiled by the Committee showing the order of urgency specified against the various cases for demobilisation and forwarded to the Minister of National Service. Generally speaking these lists were dealt with in a satisfactory manner except where officers were serving in Salonika, Egypt, Mesopotamia and India, where considerable delay occurred, and some cases of hardship were brought to the notice of the Committee on account of the difficulty of supplying vacancies in the Medical Staffs. In the same way delay took place in regard to the Medical Officers in the Army of Occupation, and the Committee did what was possible to facilitate the return of members of the Staffs asked for.

At the conclusion of the business of the Committee a letter from Sir Auckland Geddes, Minister of National Service, was received by the Chairman expressing his high appreciation of the services that the Committee had rendered in association with his Medical Department, and conveying his personal thanks and the thanks of the Government to the Members of the Committee of Reference for the important national work which they had done.

THE LATE SYMPTOMS OF GAS POISONING.

By

G. H. HUNT, M.D., F.R.C.P.

In the early days of the war two of the most potent causes of prolonged invalidism were trench fever and trench feet, two diseases which, because of their novelty, had never been considered. Towards the end of 1915 a third cause was added to these, and this forms the subject of the present paper. Poisoning by asphyxiating gas was responsible for a considerable number of deaths, but it also diminished the fighting strength of the Allies by incapacitating men for a considerable period after they had passed the dangerous stage of their illness, and were thought fit for discharge to a convalescent camp. It was, in fact, at the convalescent camps that it was first recognised that the effects of gas-poisoning might cause a man to be quite unfit for duty long after the acute pulmonary symptoms were over; the medical officers attached to these camps kept on finding that men, who were on ordinary clinical examination apparently perfectly sound, often complained of being unable to march more than a short distance, and that if they were put to an actual test their statements were perfectly correct. They found, in fact, that in many men slight physical exertion caused very genuine distress, often sufficient to make any continuance of work impossible. In the summer of 1916 a large number of "gassed" men were sent to the hospital, to which I was attached, to find out the proportion of men who were suffering in this way, the signs showing that the supposed incapacity was genuine and the best way of treating it.

In a few patients there was evidence of persistent bronchitis, but the real difficulty arose in patients who looked perfectly well, and in whom physical examination revealed nothing abnormal. In these I found that the only way to demonstrate any disability was by testing their response to exercise. In some a walk of a hundred yards caused obvious exhaustion, dyspnœa and tachycardia; others only showed these signs after walking half a mile or more. Those who exhibited these signs complained that exercise brought on palpitation, pains in the chest, dizziness and headache. The clinical picture was, in fact, identical with that met with in cases of effort syndrome, a condition which was at that time being investigated at the military heart hospital by Lewis. In addition, however, a certain number of patients suffered from attacks of acute dyspnœa at night, the cause of which was very obscure. The patient would be awakened by a feeling of suffocation, and would sit up in bed to get relief; when seen during an attack, the patient looked anxious rather than acutely ill; his breathing was rapid and shallow, but not difficult; his pulse was sometimes slow and full, sometimes rapid and almost impalpable; it was rare to find any râles or rhonchi in the chest, and the dyspnœa resembled that seen in cases of uræmia much more than that in cases of bronchial asthma. (All these patients had been gassed by chlorine or phosgene; in subsequent cases suffering from mustard gas poisoning true bronchial asthma was often seen.) The cause of these attacks was very puzzling, but a partial explanation of the pathological condition underlying them was suggested by the condition of the blood; I was very fortunate in having the help of an old Guy's man, Dr. C. Price Jones, who had a wide experience of blood examination, and he investigated a large number of my patients. He found that those who suffered from dyspnœa at night nearly always had a raised hæmoglobin percentage with a corresponding increase in the red cell count, the hæmoglobin sometimes being over 120 per cent. Patients who simply suffered from effort syndrome and whose sleep was undisturbed, on the other hand, had a normal

blood count. The discovery of this polycythæmia invited a comparison between "gassed" patients and dwellers at high altitudes; in both we find the following features, dyspnœa and tachycardia on exertion, disturbed sleep, polycythæmia and some alteration in the mental condition: the last is well known among the dwellers at high altitudes, and a striking feature in many "gassed" men was mental depression: acidosis, too, is found in both. The symptoms of mountain sickness have been definitely shown to be due to an insufficient supply of oxygen to the tissues, and disappear completely on a return to the sea-level, where the oxygen tension in the alveolar air is greater. Mr. J. Barcroft accordingly sugested that the "gassed" patients were suffering from anoxæmia, and that they might be benefitted by continuous inhalation of an atmosphere rich in oxygen. We investigated this later on at Cambridge, but before describing the results a rather more detailed description must be given of some of the commoner features of chronic gas-poisoning.

By chronic gas poisoning is meant these late effects of gas poisoning which are present after the acute symptoms of lung irritation are over. Two classes of gas were used by the enemy, the suffocative gasses, of which chlorine, chloropicrin and phosgene were the most frequent, and the vesicant gas, dichlorethylsulphide or "mustard gas." Both groups act on the lungs, but the former acts primarily on the alveoli producing œdema of the lungs and capillary thrombosis with but little bronchitis, whereas the latter primarily attacks the bronchi, causing bronchitis and in severe cases bronchopneumonia. In both cases the patient passes through a period during which he suffers from deficient aeration of his blood with consequent anoxæmia, and it is believed by some physicians that the late effects of gas poisoning are due to the changes in the tissues that this anoxæmia produces. Although the pathological process in the two groups is somewhat different, the late effects, from the clinical aspect, are very similar. The chief symptoms complained of are as follows :—

1. *Dyspnœa.*—In severe cases this may be obvious, even when the patient is at rest, but, as a rule, patients only complain of it on exertion, and then it varies very much in degree; some patients are short of breath when walking quite slowly along the level; others can walk slowly on the level, but become short of breath when they quicken their pace or walk uphill. Associated with this dyspnœa there is tachycardia, and the effect of exercise on the pulse rate is so important in estimating the severity of the case, that it requires a detailed description. If a healthy, well-trained man takes exercise, his pulse rate rises, and when he stops the pulse returns after an interval to the pre-exercise rate. After a walk of a mile in 15 minutes, for example, a healthy man's pulse returns to its original rate within a minute after the walk is over. In the case of the "gassed" man the pulse remains quickened for a longer period after the walk, and may take two, three or several minutes to return to its original rate. In general it may be said that the longer this period and the greater the dyspnœa produced by the walk, the greater the patient's disability. Having in this way some standard of the patient's incapacity, the physician is in a position to estimate the effect of his treatment; if he gives the patient the same exercise as a test before and after treatment, and finds that after treatment the exercise causes less dyspnœa and the pulse returns to its original rate more quickly, he has evidence that the patient has improved. The dyspnœa at night has already been described.

2. *Pain.*—Patients frequently complain of pain in the chest; sometimes it is situated behind the sternum and on both sides of it, and is aggravated by coughing or taking a deep breath; in other cases it is precordial, and is brought on by exercise; it is occasionally so intense that it simulates angina pectoris.

3. *Cough.*—This may be due to chronic bronchitis, a condition more often the result of poisoning by mustard gas than by gasses of the suffocative class. Some patients get a varying amount of hæmoptysis, and in such cases the diagnosis is often

a matter of difficulty; the blood may come from ulcers of the bronchi, such as are occasionally caused by mustard gas poisoning; on the other hand, it is quite certain that gas poisoning may light up a quiescent patch of tubercle. In some patients, however, there is no evidence of bronchitis; in these cases the cough is of a dry ringing character, and is due to irritability of the upper air passages.

4. *Nervous Symptoms.*—Many "gassed" patients are neurotic, and this is shown in various ways. Some patients are mentally depressed, and have a fixed idea that they are never going to recover completely; this idea of permanent incapacity often makes the treatment of such patients very difficult. Headache and dizziness are very common symptoms, and in many cases it is impossible to find any organic cause. Photophobia is always present with the conjunctivitis of the acute stage, and may persist long after all inflammation has ceased. Functional aphonia may follow the laryngitis caused by mustard gas. Vomiting very often starts soon after the patient is "gassed," and may continue for months without there being any evidence of alteration in the gastric secretion or motility; after being absent for some time vomiting may recur as the result of some mental shock.

So much, then, for the symptoms. The pathology of the condition is very obscure. Attention has already been called to the presence of polycythæmia. Barcroft and others have shown that this is sometimes associated with acidosis, but we are still in the dark as to the morbid anatomy underlying both conditions. In some cases chronic bronchitis is the outstanding clinical feature, and here the pathology is similar to that of chronic bronchitis from other causes. The number of autopsies on patients dying more than two months after gas poisoning is insufficient for any general conclusion to be drawn, but in some cases fibrosis of the lung and emphysema has been found. Radiographers have described appearances during life suggestive of fibrosis of the lung, but here again the evidence

is not very conclusive. The majority of patients have no physical signs of disease, but closely resemble men suffering from "effort syndrome." Unfortunately the resemblance does not solve our problem, since we know nothing of the essential pathology of "effort syndrome."

Treatment.—The symptoms calling for treatment can be divided into three groups: (1) Inability to stand exertion, or symptoms of "effort syndrome"; (2) Chronic bronchitis; and (3) Functional disturbances.

(1) Inability to stand exertion.—There are only two methods of treating this: (a) graduated exercises, and (b) continuous inhalation of oxygen. The best results are obtained by a combination of the two methods.

(a) Graduated exercises on the lines practised at the military heart hospitals have been extensively used, and at first this was the only method of treatment available; many patients, however, recover completely with this treatment alone. It consists of "training" patients by gradually increasing the amount of exercise they take, and this may be done by making them march for increasing distances, by giving them a graduated system of physical drill, or by making them play games, at first games which involve little muscular exertion, and later more vigorous games. It is important that all patients so treated should be kept under strict medical supervision, otherwise harm may be done by increasing the amount of exercise too rapidly.

(b) Continuous inhalation of oxygen.

The reasons suggesting that benefit might be derived from treatment with oxygen have already been given. It was first carried out in the physiological laboratory at Cambridge, and an account of the first patient treated illustrates very well the results obtained. He was a man aged 47 who was "gassed" in a munition factory about a year before he came to Cambridge. He recovered from his acute symptoms after a few

days, but since that time had suffered from shortness of breath on exertion and attacks of dyspnœa at night; these occurred every night, and sometimes lasted three hours, with the result that he had not had an undisturbed night's sleep for twelve months. Nothing abnormal was found on ordinary clinical examination, but his red cell count was 6·1 millions; after doing a test exercise up and down stairs he became very short of breath, and his pulse did not return to its original rate for 32 minutes. He was kept in an air-tight chamber made of glass and iron of about 800 cubic feet capacity for the greater part of four days and nights. The chamber contained an atmosphere of about 45 per cent. oxygen, and the carbon dioxide and water vapour were removed by passing the air over soda-lime and calcium chloride. The effect of treatment was excellent. He slept on an average eight hours every night, and did not have a single attack of dyspnœa. His response to exercise improved considerably; he was given the same test exercise after treatment, and said he found it much less exhausting. His statement was born out by objective signs, for his dyspnœa was obviously much less, and his pulse returned to its original rate six minutes after the exercise, whereas before treatment it did not return for 32 minutes. His red cell count fell to 5·2 millions.

About thirty patients were treated in this way, and 90 per cent. showed improvement; in most of the patients who were traced this improvement persisted, but in some there was a disappointing relapse.

(2) Chronic Bronchitis.—The treatment of this condition does not differ from that of chronic bronchitis due to other causes.

(3) Functional disturbances.—It is most important to convince the patient that he is going to be completely cured, for the chronic depression from which many of them suffer is a serious obstacle to their recovery. Patients with functional photophobia should be discouraged from using darkened glasses. Functional aphonia must be treated by persuasion and breathing exercises,

or by the application of a strong faradic current to the larynx. Functional vomiting is very difficult to treat; suggestion and washing out the stomach will sometimes effect a cure.

It has only been possible in this short sketch to outline briefly the main features of the late effects of gas poisoning. It must be admitted that the true pathology of the condition is but little understood. Some progress, however, has been made in estimating the degree of disability from which these patients suffer, a very important matter when the question of a pension is under review. The results of treatment, too, are on the whole very satisfactory, for by suitable measures relief can be given in every case, and in many a complete cure effected.

EXPERIENCES OF A CIVILIAN AMONG THE NAVAL MEDICAL SERVICE IN WAR.

By

Sir ALFRED D. FRIPP, K.C.V.O., C.B., M.S., F.R.C.S.

Jack Tar's bed continues to be referred to as a "cot" and his Medical Board as a "survey," but there is little difference between the method of handling the naval and military casualty from the moment he arrives at the hospital train or the base. Before that haven is reached a variety of considerations special to the demands of a sea service have influenced those responsible for his welfare. The object of this article is to record the impressions upon a civilian working during war with the Naval Medical Service afloat.

Before the war broke out, the Medical Director General had been given leave by the Board of Admiralty to engage the services of seven Consultants. Sir Humphry Rolleston was the only physician among them, and he was kept very busy travelling, here there and everywhere, to the various bases used by the Fleet, as well as to the large naval hospitals. Sir Watson Cheyne, Sir William McEwen, Sir George Turner, Sir Lenthal Cheatle, Mr. G. Edmunds and I were the six Consulting Surgeons. To each of these five colleagues was allotted either a large naval hospital or an area on the coast; while I was appointed to the Hospital Ships serving the Grand Fleet and given for my headquarters the Hospital Yacht *Sheelah*, stationed just above the Forth Bridge. The yacht was fitted up for ten officer casualties, with an excellent operating theatre and X-ray apparatus, and a staff consisting of a House Surgeon (a post held successively by three Guy's men —Mr. A. J. McNair, Mr. L. B. Stringer, and Mr. G. L.

Preston), two civilian nurses and an X-ray operator. Lying close by in the harbour there was always at least one Hospital Ship. There was also the Naval Hospital at South Queensferry (early enlarged to upwards of 200 cots), and the railway sidings for accommodating the Naval Ambulance Trains.

The Medical Director General at the outbreak of war was Sir Arthur May, and he quickly brought his fleet of hospital ships up to 12. Half of these were not so fully equipped and staffed, and were given the less dignified title of Hospital Carriers, and disappeared one by one as more perfectly equipped vessels became available. Each Hospital Ship had two or three hundred cots, and a little later extra equipment was added, so that upon emergency double that number could be accommodated and some smaller vessels were added, and were reserved for isolation cases.

It is easy for a Hospital Ship to carry emergency equipment for emergency cases, but not so easy to arrange for the adequate service of a surplus of casualties. The staff is limited and cannot be suddenly augmented. (Similarly upon a fighting ship it is not possible to make good any depletion of the medical staff which may occur during action. At Jutland, for example, 44 per cent. of the medical staff of the *Lion* were hors de combat.) This fleet of Hospital Ships were distributed by the Medical Director General among the several sea forces, and the Commander-in-Chief of each force (the Grand Fleet was, of course, many times larger than any other) disposed through his Principal Medical Officer of the Hospital Ships allotted to him. Sir Robert Hill, the present Medical Director General, was Principal Medical Officer to the Commander-in-Chief of the Grand Fleet throughout the war, and therefore ordered the going and coming of those Hospital Ships with which I was concerned. The general idea was always to have available for the use of each section of the fleet at least one Hospital Ship in each harbour, ready and capable of taking a considerable number of casualties on the return of the fleet after its long or short absence in the North Sea. By the time one Hospital

Ship was full, another, empty, would go into the harbour, and the full one would carry its load to one of the large naval base hospitals, Chatham, Haslar, or Plymouth, or to one of the smaller ones, *e.g.*, South Queensferry or Invergordon, or Deal or Queen Mary's at Southend (for the inception, organisation and staffing of which men and women trained at Guy's were so largely responsible), or to a dock, where a naval ambulance train was in waiting to receive the sick and wounded, and to complete their journey by land. The Hospital Ship thus evacuated was immediately refitted and cleaned during its return journey, and was thus ready for another relay of casualties. Any intention there may originally have been to ship the wounded or sick direct to the base was abandoned, however, as soon as mines and submarines became a menace.

Every service vessel, from the smallest motor launch with its two or three hands to the biggest battle cruiser with its possible thirteen hundred hands—besides the hundreds, nay thousands, of auxiliary craft engaged in this war upon supply, munitioning, and other services of the fighting ships—was liable, of course, to medical as well as surgical casualties, and had to be covered by the Medical Service of the Navy.

Now any and every ship belongs to one or other of the bases to and from which it is constantly working, and the first duty of the responsible medical officer upon its return to harbour is to evacuate any sick men, either to a Hospital Ship or to one of the numerous smaller naval hospitals distributed around the coast.

Anybody who wishes to know the details of the fitting up, administration and activities (governed by the International Red Cross Convention) of the Hospital Ships cannot do better than consult the excellent little book which was written by Surgeon Captain Edward Sutton after he had been in command of the *Drina* and the *Plassy* during three and a quarter years of war. This book is entitled "The Fitting Out and Administration of a Naval Hospital Ship." and is published by Messrs. Simpkin, Marshall, 1918.

Having signalled her requirements in advance, the two things a warship does before anything else on return to harbour are to re-fuel, and to evacuate the sick and wounded, so as to be fit for action again at once. As a matter of fact, it was no uncommon thing after each of the three big battles for the Hospital Drifter and the collier to be alongside the returning warship before she had completed her mooring, and the Medical Officer was on deck with the tally of his cases, and they were all conveyed on to the Hospital Ship and snugly housed in a wonderfully short space of time.

Each cot case, secured in a "carrying-cot," is hoisted into the hold of a Drifter, a small, open, barge-like vessel, which, when full, proceeds from the side of the warship to that of the Hospital Ship, and then each carrying-cot is hoisted up, swung on board, and lowered through wide hatchways, often fitted with lifts, to the wards on the different decks. This transference of the wounded is carried out with the exemplary gentleness and despatch which we all associate with the handyman at his best.

But after a modern battle the wounded who survive to reach the harbour are surprisingly few; even such an action as Jutland, in which 6,014 perished outright (5,550 of them drowned), only provided 674 wounded, and many of them, of course, quite slight cases.

Casualties.

Sir Robert Hill, in his address at the inaugural meeting of the new War Section of the Royal Society of Medicine in November, 1919, gave an interesting retrospect of naval medical conditions, and he authoritatively presented for the first time the casualties at the Battle of Jutland. He said:

"During the period 1795—1849 the Medical Service of the Royal Navy does not appear to have been a popular one, and difficulty must have been experienced in obtaining an adequate number of medical men, except for the ships cruising in home waters. In the days of the old sea battles the Medical Service

laboured under manifold disadvantages as compared with the profession on shore, for sick berth attendants do not appear to have been employed until 35 years after Trafalgar, separate messes for the sick on board seagoing ships did not come into existence until 1804, and probably were not universal until after Trafalgar, the sick being messed in their sleeping-places before then, and the earliest mention of first-aid instruction was in 1855.

It is remarkable how few have made any record of the preparations for reception and treatment of the wounded at sea. The duties of the surgeon, during and after an action, must have been very arduous. He had to undertake all operative work on board his ship, and would consider himself fortunate if an early opportunity presented of sending his patients on shore for further treatment.

In the "Lion."

MacLean and Stephens, Medical Officers in the *Lion* at Jutland, write:—'Nearly all the casualties occurred within the first half-hour. A few cases found their way to the foremost station, but the great majority remained on the mess deck. During the first lull, the medical officers emerged from their stations to make a tour of inspection. The scenes that greeted us beggar description. Most of the wounded had already been dressed temporarily. Tourniquets had been applied in one or two instances, but we were able to remove these later. Hæmorrhage, on the whole, was less than we anticipated. . . . The battle was thrice renewed during the evening, but in the lulls all the wounded were carried to the mess deck. . . . At 7.30 a.m. on June 1st we were informed that it would be safe to bring the wounded up from below. The Vice-Admiral's and Captain's cabins were cleaned, dried and thoroughly ventilated. The Captain's bath-room was rigged as an operating theatre and by 8.45 we began. . . In all 51 cases were dealt with, and a general anæsthetic, chloroform and ether in equal parts, was administered to 28. . . .

Only urgent operations were attempted. Our work was severely handicapped by having 44 per cent. of casualties among the medical officers and sick berth staff.' The *Lion* had 95 killed and 31 wounded, representing 11·87 per cent. of complement.

Tables of the casualties at the Battles of Camperdown, the Nile, and Trafalgar are of interest when compared with a table showing the casualties at the Battle of Jutland :—

BATTLE OF CAMPERDOWN.

Ships.	Complements.	Killed.	Wounded.	Total casualties per cent. of complement.
Russel	584	—	7	1·19
Director	485	—	7	1·44
Montagu	584	3	5	1·36
Veteran	485	4	21	5·15
Monarch	593	36	100	22·93
Powerful	584	10	78	15·06
Monmouth	485	5	22	5·56
Triumph	634	29	55	13·24
Venerable	587	15	62	13·11
Ardent	485	41	107	30·51
Bedford	584	30	41	12·15
Lancaster	485	3	18	4·32
Boldgueux	485	25	78	21·23
Isis	338	2	21	6·80
Totals	—	203	622	—

Total force at Camperdown, 8,221.
Total casualties per cent. of force, 10·03.

BATTLE OF THE NILE.

Goliath	584	21	41	10·61
Zollous	584	1	7	1·36
Orion	584	13	29	7·19
Audacious	584	1	35	6·16
Theseus	584	5	30	5·99
Vanguard	589	30	76	17·99
Minotaur	634	23	64	13·72
Defence	584	4	11	2·56
Bellerophon	584	49	148	33·73
Majestic	584	50	143	33·04
Swiftsure	584	7	22	4·96
Alexander	584	14	58	12·22
Leander	338	0	14	4·14
Totals	—	218	678	—

Total force at the Nile, 7,985.
Total casualties per cent. of force, 11·22.

Battle of Trafalgar.

Ships.	Complements on October 21, 1805	Killed.	Wounded.	Total casualties per cent. of complement.
Victory	815	57	102	19·50
Royal Sovereign	811	47	94	17·38
Britannia	786	10	42	6·61
Téméraire	711	47	76	17·29
Prince	679	—	—	—
Neptune	595	10	34	7·39
Dreadnought	703	7	26	4·69
Tonnant	664	26	50	11·44
Belleisle	556	33	93	22·66
Revenge	610	28	51	12·95
Mars	621	29	69	15·78
Spartiate	599	3	20	3·83
Defiance	582	17	53	12·02
Conqueror	622	3	9	1·92
Defence	568	7	29	6·33
Colossus	617	40	160	32·41
Leviathan	592	4	22	4·39
Achille	605	13	59	11·90
Bellerophon	569	27	123	26·36
Minotaur	586	3	22	4·26
Orion	543	1	23	4·41
Swiftsure	557	9	8	3·05
Ajax	668	2	9	1·64
Thunderer	556	4	12	2·87
Polyphemus	461	2	4	1·30
Africa	475	18	44	13·05
Agamemnon	475	2	8	2·10
Euryalus	273	—	—	—
Naiad	275	—	—	—
Phœbe	294	—	—	—
Sirius	258	—	—	—
Pickle	31	—	—	—
Entreprenante	35	—	—	—
Totals	—	449	1,242	—

Total force at Trafalgar, 17,772.
Total casualties per cent. of force, 9·51.

BATTLE OF JUTLAND.

Names and Class of Ships.	Killed outright or drowned	Total wounded	Total casualties	Complements on May 31, 1916	Total casualties per cent. of complement
BATTLESHIPS:					
Barham	22	46	68	1,124	6·04
Colossus	—	9	9	884	1·01
Marlborough	2	2	4	1,119	0·35
Malaya	33	68	101	1,032	9·78
Valiant	—	1	1	1,063	0·09
Warspite	9	32	41	1,048	3·91
BATTLE CRUISERS;					
Lion	95	51	146	1,229	11·87
Princess Royal ...	19	81	100	1,202	8·31
Tiger	20	46	66	1,281	5·15
Queen Mary	1,258	6	1,264	Ship sunk	—
Invincible	1,026	1	1,027	,, ,,	—
Indefatigable	1,017	—	1,017	,, ,,	—
CRUISERS:					
Defence	902	—	902	,, ,,	—
Warrior	65	36	101	832	12·13
Black Prince	856	—	856	Ship sunk	—
LIGHT CRUISERS:					
Calliope	7	29	36	363	9·91
Caroline	2	—	2	338	0·59
Castor	12	26	38	356	10·67
Chester	29	49	78	424	18·39
Dublin...	3	27	30	460	6·52
Southampton... ...	29	60	89	498	17·87
FLOTILLA LEADERS:					
Broke	47	36	83	200	41·50
Tipperary	184	4	188	Ship sunk	—
DESTROYERS:					
Acasta	6	1	7	—	—
Ardent	78	1	79	Ship sunk	—
Defender	1	2	3	—	—
Fortune	67	2	69	Ship sunk	—
Moorsom	—	1	1	—	—
Nessus	7	7	14	—	—
Nestor	6	8	14	—	—
Nomad	8	4	12	—	—
Obdurate	1	1	2	—	—
Onslaught	5	3	8	—	—
Onslow	2	3	5	—	—
Petard	9	6	15	—	—
Sparrowhawk... ...	6	—	6	—	—
Spitfire	5	20	25	—	—
Shark	85	3	88	Ship sunk	—
Porpoise	2	2	4	—	—
Turbulent	89	—	89	Ship sunk	—
Totals ...	6,014	674	6,688	—	—

Total force, Grand Fleet, about 60,000.
Total casualties per cent. of force, 11·14."

Sir Robert's figures show that the casualties in the British Fleet at Jutland were 11·14 per cent. in a total force of 60,000, and that this percentage is almost identical with the casualties in three other great naval battles:—

Trafalgar, 9·51 per cent. out of 17,500 personnel (about).
Nile, 11·22 per cent. out of 8,000 personnel (about).
Camperdown, 10 per cent. out of 8,000 personnel (about).

But though the big naval actions with which the public became familiar in the Great War were few and far between, and the wounded survivors fewer than had been anticipated, there was a constant and large volume of other work for the hospital ships to do. Day by day every squadron provides accidents, burns, crushes, and fractures, as well as medical cases; and no casualty must be kept upon a fighting ship longer than is absolutely essential for his welfare; he is a nuisance and a handicap, and must be got rid of. Epidemics also at times throw stress upon the Hospital Ships, cropping up especially on those ships which are fresh from dockyard hands, and spreading like wildfire owing to the close quarters of the mess deck and the impossibility of effective isolation. Acute abdomens, too, were sometimes so numerous as to make one wonder whether there must not be some relation between the nerve strain of modern naval warfare and the incidence of such affections as perforating gastric and duodenal ulcers.

I have some memoranda written just after the three North Sea battles which convey a good impression of the nature of the surgical work entailed by a naval action, of the difficulties under which it is done, and of the considerations which are prominent in the minds of the medical staff. These considerations vary considerably from those which dictate the organisation for surgery during and after a land battle.

MEMO A.

"1. The Drifters for conveyance of the wounded were alongside as soon as the returning ships had moored; in fact, they,

like the colliers, were lying in wait close to the berth each ship was to take up.

2. The actual transference of the wounded from the warships to the Drifters was accomplished with great speed and little or no inconvenience, the cots being most considerately and adroitly handled. On arrival alongside the Hospital Ship *Plassy* the cots were swung in smoothly, and, as all four hoists were working simultaneously, this part of the work and lowering them through the hatches to the various Ward Decks was accomplished rapidly.

3. 192 serious cases were thus handled without any detriment, and without any undue stress upon the staff, but their efficient tending entailed very hard work for the next few days."

When in harbour every warship is at a definite "time-notice"—"half-hour notice" in times of liveliness—which means, of course, that full pressure in the boilers must be available within that time, and all landing parties must be within easy recall by signal.

It had been hoped before the war that Hospital Ships would be able to attend the fleet in action, but experience soon showed that this was impracticable. We had to wait what seemed an interminable time for the first action in the Bight of Heligoland. At last it came, on the 28th August, 1914; but 400 miles from the base, and it was fought at such a high speed that nothing in the nature of a Hospital Ship, even had one happened to be about, could hope to keep in touch with the fighting line, nor could it, even hovering miles away, be anything but an anxiety to the Commander-in-Chief. Each ship had, on this occasion, to carry its own wounded back to port, and it was obvious that this would be the rule in future actions, and that Hospital Ships would really function as "Base Hospital Ships." If occasionally it proved possible to dispatch the casualties in one of the lighter and faster of the fighting craft (*i.e.*, a light cruiser or destroyer), the transhipment of

the casualties in the open sea is, under the best possible conditions tedious, and dangerous from the risk of enemy attack by submarine, and in a heavy sea it is impossible. Further, the decks of the small and swift ships are cramped and cumbered, and it is very difficult to get wounded to or from the cabins, there being no large companions. It therefore came about that such transhipment was hardly ever undertaken unless a ship was sinking, and that Hospital Ships always received the wounded in the calm waters of the harbours, and therefore for them it was not necessary to maintain "Short notice" after the early days; "Six hours' notice" was substituted. The Medical Department owed it to the fine work of the Naval Intelligence Department, under Admiral Sir Reginald Hall, that there was always ample warning of any probable action, and extra beds were arranged in case of overflow—*e.g.*, in Edinburgh Infirmary and many other large civilian hospitals.

With regard to first-aid upon the hundreds of destroyers it early became apparent that some steps must be devised to supply each with more skilled attention than is represented by a seaman or two with a smattering of experience of the sick-bay. Until after the "Battle of the Bight" such a first-aider was the only individual on board these craft (which carry about a hundred men, and are in the thick of every fight) who had had any experience whatever of tending a casualty, so that the wounded, however serious, got, in that battle, no trained attention for upwards of 24 hours. It is impossible for either of the two Medical Officers carried by the two flotilla "Leaders" to leave his ship for casualties occurring upon one of the 14 to 16 destroyers which make up the flotilla. The shortage of qualified men was so great that one could not be spared for each destroyer, so the Medical Department acted upon what proved to be a very happy thought, and appointed sufficient senior but unqualified students as surgeon-probationers. Great credit should be given to the M.D.G. for having recognised so early that there was scope for such officers, and incidentally to the authorities at Guy's for having taken a leading part in supply-

ing them. The plan was a great success; these surgeon-probationers proved efficient and resourceful, and well earned the praise which has been forthcoming from their seniors. In the later stages of the war the class of "almost-qualified" men was exhausted, and reliance had to be placed rather prematurely upon the "just-entered-the-wards" class, hastily put through an intensive course of training at a Naval Base Hospital.

The desirability of vocational selection in order to minimise misfits in industry is coming to the fore nowadays as one of the methods of increasing the efficiency of the population, and along this line of thought it is a matter for serious consideration, in arriving at plans for the mobilisation of our profession in any future emergencies, whether greater use should not be made both of the unqualified medical and dental student and also of the large class of civilians who in peace time are trained and experienced in hospital management.

That there was no bar to the commissioning of unqualified men in the R.A.M.C. is proved by the fact that two at least who had never had any connection whatever with the medical profession were given commissions on the recommendation of the D.G. in the persons of Major Brand, who presided for years over the allocation of wounded officers arriving in London to the various hospitals, and Captain Jeff Cohn, who served on the Staff of the D.G. in France.

Such measures would go far to conserve medical man-power and to prevent that shortage of doctors of which we heard so much during the war.

And now that the smoke has cleared away and the visibility is returning to normal, we shall probably realise that it will be more economical if the transport of sick and wounded is committed in the future to the care of that Service which has to do with ships, viz., to the Navy rather than to the Army (*vide* Second Report of Dardanelles Commission).

Then, as regards the Medical Staff apportioned to the fighting units, each battleship, or battle-cruiser, carried three quali-

fied medical officers, each cruiser two or one according to complement, each destroyer "leader" one. It was suggested during the acute shortage of doctors that no ship should have so many as three, it being urged that for ten to thirteen hundred men in the prime of life and health one doctor is sufficient, especially as he has the opportunity almost daily of evacuating on to a hospital ship any of his ship's company who chance to go sick.

Undoubtedly there was great difficulty in "putting in your time," and medical officers on the fighting ships got "fed up" with "doing nothing" month after month, and were glad of any job—even that of censoring the correspondence of the mess deck. But the Medical Department, with Sir William Norman now at its head, rightly continued to provide personnel upon the assumption that these great engines of war had to be kept constantly ready for instant action, also that the doctor may himself go sick, and that it may be many hours before his substitute can arrive on board. One has only to refer again to the memoranda to realise that the M.D.G. was entirely justified in refusing to countenance any diminution in the medical staff carried by the fighting units of the Fleet.

MEMO. B.

"The patients received by the *Plassy* after Jutland came chiefly from four ships: the *Lion*, the *Princess Royal*, the *Tiger*, and the *Southampton*, each of which had borne a prominent part in the engagement, and had suffered severe casualties. They provided, therefore, a good test of what it is possible for surgery to achieve under conditions of extreme difficulty.

The first really instructive action at sea was the Dogger Bank fight of January, 1915, when British and German "all-big-gun" ships came into contact for the first time. Fire was opened at more than 20,000 yards (about $11\frac{1}{4}$ miles), and the *Blücher* had her engines disabled by British shells fired at 18,000 yards. This result was an eye-opener to all concerned. It meant that the "decisive range"—at which a capital ship

could use her guns with deadly effect—was nearly twice as great as the pre-war estimate, and, consequently, that prevailing tactical ideas based on the 10,000 yard limit had to be readjusted. Another revelation of this encounter was that two or three hits by high-explosive shell might prove fatal to the largest and strongest man-of-war. The *Blücher* was put out of action by two projectiles plunging almost vertically through the deck and exploding among the boilers. On the British side, H.M.S. *Lion* was forced to leave the line after receiving one hit below the armour belt.

In the interval between the Dogger Bank fight and the Battle of Jutland each navy paid marked attention to the development of long-range gunnery, with the result that a great improvement was noticeable in the firing on both sides when the fleets met for the last time on May 31st, 1916. The battle-cruiser part of this action was fought at ranges varying from 17,000 to 24,000 yards ($13\frac{3}{4}$ miles), and, in spite of the great distance, a large percentage of the shells reached their mark. Paradoxical as it may seem, a naval cannonade at long range is liable to be far more dangerous than one at medium range, assuming accurate aim in both cases. For whereas at medium range the trajectory of the projectile is almost horizontal, and a hit, if one is registered, will be against the side of the ship, where the armour is thickest, at very long range the projectile descends at a steep angle, and is therefore liable to strike the deck, where armour is thin, and penetrate to the vitals of the ship, exploding in the machinery or the magazines. Although the precise circumstances will never be known, it is generally agreed that the three battle-cruisers, *Queen Mary, Indefatigable,* and *Invincible,* were destroyed in each case by shells striking the thinly-armoured roof of a barbette, bursting inside, and sending a stream of fire into the magazines below. The German ships were better armoured than ours, and had so many watertight compartments as to be practically unsinkable; but this immunity was purchased by a sacrifice of speed and gunpower. It is now known that the German battle-cruisers re-

ceived more hits than they inflicted, and their thick armour and minute sub-division, though it kept most of them afloat, afforded little protection to the crews. In the *Luetzow,* which sank during the night, there were 620 casualties out of a total complement of 980. The *Seydlitz,* which was battered out of recognition and had to be beached near Wilhelmshaven, had 500 killed and wounded. Other German ships suffered almost as severely."

A German officer rescued from the *Luetzow,* which was sunk, admitted after the armistice that the British shooting at Jutland was magnificent. "The *Luetzow,*" he stated, "was hit twenty-eight times in one hour, all by shells of the largest calibre. Our armour and multiple bulkheads kept us afloat till nightfall, but the havoc among the men was awful. Fires were blazing everywhere, and no sooner had we got the flames subdued in one place than a fresh shell started them in another. When we were not actually hit, the salvos fell so close alongside that torrents of water descended on the ship, sometimes extinguishing fires which we were unable to conquer by other means. At times everything round about us was blotted out by columns of water and the smoke and flame of bursting shell. Other missiles roared overhead, and the air seemed to be full of flying splinters of steel. Though the sea was calm we were rolling heavily, which I attributed partly to the concussion of our own guns, but still more to the hits we were receiving. Once as we lurched over towards the enemy a whole bunch of projectiles struck the deck, passed through it, and exploded down below. After this we had to steam with only one set of engines. None but those with nerves of iron can endure the ordeal of a modern sea-fight. It is too appalling for words. . . ."

Nearly all the officers and men are behind armour, which means that they see nothing of the action, though they endure an appalling din, and nearly all of them work by artificial light.

After an action the surgeons on warships have to work under great difficulties. It being quite impossible to operate during action, the succeeding hours are strenuous in the extreme. With very limited assistance (no female nurses, of course), great deficiency of such essentials as light, hot water, and adequate space, often the sick bay or operating room, or both, cleared out by a shell-burst, the Medical Staff has to improvise. The best place one surgeon could find as a substitute for his destroyed quarters was the stokers' bathroom! Another had the water so deep upon the floor that it was over his high boots! And another found that some of the row of wounded had to be shifted because a list in the ship brought the water a foot deep where they were lying! Yet in spite of all this, and much more, excellent conservative surgery was achieved, and the greatest credit is due to the Naval Surgeons, not only for what they did, but also for the discretion they showed in not doing too much.

MEMO C.

"The work of the Medical Staff on the *Lion* and *Tiger* was evidently extremely well done under circumstances of extraordinary difficulty.

In both ships there was a failure of the electric light, and in one ship a failure of the water supply. Emergency lamps and tins of water had been provided, yet the medical officers were reduced to the use of candles for some of the operations, the emergency lamps having been requisitioned for the darkened passages, which, becoming obstructed by displaced metal of various sorts, provided very difficult 'going' for the wounded and those who were acting as carriers.

There were many cases of asphyxiation, but those that recovered did so quickly. The burns, which for the most part were only extensive in the sense that each patient had multiple lesions (*e.g.*, face and both legs and both forearms), seldom went deep.

(As a result of the experience of the burns received in the Jutland Battle there was a general issue of helmets, gauntlets and seaboots for protection in any future fighting.)

There were very few cases of hæmorrhage among the survivors, but enough to demonstrate that operation for its arrest is almost impossible under the conditions which prevail during an action, and that tourniquet must be relied upon until the severe jolting of the ship from its own heavy guns, and the impact of the enemy's shells had ceased.

The Neil Robertson stretcher was found very useful in the transport of wounded through hatches and narrow passages, along which the bearers had to grope through darkness, smoke and manifold obstructions. One of the Dressing Stations had the misfortune to become the popular urinal for the ship's company, when they found their usual latrine shut off by the closing of a water-tight door.

Experience proves that on a ship of war the dead are liable to be brought to the Dressing Station together with the living casualties. This is probably due in part to the darkness and in part to the ignorance of the untrained bearers. It is somewhat embarrassing to the Medical Staff.

The lurching of the ship was enough to lead to the immersion of one of the wounded after he had been dressed."

The Hospital Ship is in for as busy a time as any C.C.S. for a great many hours after an action, and as she only carries four nursing sisters, and practically all cases, owing to the burns, are going to need frequent dressing, and many of them are very severely shocked, considerable care has to be taken in the selection of the most urgent work. For instance, though the giving of aperients may rank as a minor matter, under such circumstances it is quite easy to over-work your staff if two or three hundred cot cases are given castor oil on the same evening after forty-eight hours or more of neglect during the homeward voyage of their ships.

The length of stay of each patient in the Hospital Ship will vary according to the severity of his wound, and the orders re-

ceived by its medical officer, but the controlling idea is, as on land, to evacuate as soon as possible to the base, and, of course, in a few days many will have become walking cases. The graver cases would reside for long in one of the three large Base Hospitals (Haslar, Chatham, or Plymouth), or if officers, they frequently went to one of the numerous smaller Officers' Hospitals; we, at Guy's, for instance, kept a proportion of the beds in our "Officers' Section" at the disposal of the Naval Medical Department, and received a hearty letter of thanks from the Lords of the Admiralty for the work done there.

MEMO. D, BY THE S.M.O. OF THE *Tiger*.

"GENERAL MEDICAL ARRANGEMENTS.

(a) Forward Distributing Station.

(b) After Distributing Station.

(c) Two ratings trained in First Aid, with a Neil Robertson stretcher, in each turret.

(d) One or two of each of the 5inch gun's crew trained in First Aid, with a Neil Robertson stretcher placed at each end of the 5inch batteries, on both sides. Each turret was supplied with a First Aid bag, and also a hypodermic syringe, Wildey's pattern, attached to left side of breast of responsible officer with a solution of morphia (in a "Jena bottle" also attached to breast near to the syringe), which, when the syringe was filled, gave a dose of $\frac{1}{4}$gr. One of the First Aid ratings was taught how to give a hypodermic injection, but was only allowed to administer it on the orders of the officer of the turret.

The First Aid ratings at the 5inch guns were similarly supplied. (Other Medical Officers only allowed sublingual morphia unless an M.O. was present.)

Forward Distributing Station is situated almost immediately below "B" turret. The ship's armour at the side is 6inches thick at least, varying with the class of ship, and there is a 3inch casing round the Station itself with an armoured door.

Except for its unpleasant proximity to the 13·5 inch magazine it is probably the safest place on the ship.

It is properly fitted with hot and cold water, electric and emergency light, medical store-room and cupboards, operating table, instrument chest, etc.

Prior to the action the whole Station had been sterilized and painted out, and the corticine on the floor covered with shellac varnish. The Station would be better with the addition of a sink, but to supply this would entail cutting through the armour.

Personnel attached:—Staff surgeon, surgeon, fleet paymaster, chaplain, one sick berth steward, two sick berth attendants, two writers, one cook, one officer's steward.

After Distributing Station. This is on the main deck almost under "X" turret, and is simply an open athwartship space. It is protected by the 6inch armour of the ship's side, and is surrounded by officers' cabins, in which the wounded could be laid.

It is fitted with a No. 1 medicine chest, dressing cupboard, hot and cold water, operating table, instrument table, and lotion stand.

Personnel attached:—Surgeon, sick berth steward, two sick berth attendants, two cooks, two officers' stewards, one writer.

Action of the Dogger Bank.

The ship went to action stations at 7.15 a.m., and the Stations were fully rigged, everything that could be foreseen being provided for. About 8 a.m. the ratings were allowed to stand easy. At 9.3 a.m. the first shot was fired, whereupon we all went to Stations and remained there until some time after the action, which lasted three hours, was over.

I had first intended to do each patient that was brought down thoroughly, placing the case on the operating table and going methodically over it and doing what was requisite as one would do it in hospital, but I very soon recognised that

the violent concussion from 'B' turret would make any operative treatment impossible, and accordingly arranged for First Aid treatment only until the action was over.

The wounded commenced to arrive in the Distributing Station within ten minutes of the first casualty, and thereafter there was a steady flow.

About 9.30 a.m. I had considerable difficulty with a dockyard workman who was brought down to me in a fainting condition from fright. He recovered from the faint, but rolled about the deck in an agony of fear, shouting and screaming. As this was threatening the *morale* of my own staff and the ratings employed on the deck round about, I dealt with him by tying him up in a Neil Robertson stretcher, giving him a hypodermic injection, and concealing him in the medical store room.

At 10.50 a.m. I got a telephone message from 'Q' turret asking for a Medical Officer and an ambulance party. I had already decided with the Gunnery Lieutenant that any man who could not help himself must remain in the turrets until the end of the action, as it was impossible to handle men in stretchers through the working chambers, and going upon deck was not to be thought of. An 11·2 shell, exploding in 'Q' turret, had blown two men to bits, and the wounded readily found their way to the dressing stations themselves.

About 11.30 a.m. another 11·2 shell entered the Distributing Office on the upper deck where the bridge messengers, canteen staff, and some stokers (who ought to have been below) were collected. This shell was very destructive, as it blew up the trap hatch in the roof of the Distributing Office which communicated with the gun control tower, killed Captain ———, who was standing on the hatch, seriously wounded Sub-Lieutenant ———, and severely scorched the face of Lieutenant ———, and injured Midshipman ———. It also killed six men, and wounded five, and in the port 6inch gun control killed Boy ———, and injured two boys.

An urgent telephone message was received from the gun control tower, and an ambulance party was sent off in charge of Surgeon ——— to see what could be done.

This party had considerable difficulties, as the lights had all gone, and the alley was wrecked, and the escape up past the Distributing Office, which was the only possible route, was blown to bits and threatened by fire from the Intelligence Office, which was immediately below the Distributing Office. Thanks to the heroism and bravery displayed by the Sick Berth Attendant ———, Boys ——— and ———, all the cases mentioned, except ———, who was discovered after the action was over, were brought down to the Forward Distributing Station.

When they arrived seven were dead, or expired as they were laid on the floor. Their injuries were frightful, heads, chests and limbs being pulped or incinerated. The dead were laid on one side as decently and quickly as possible, covered with a flag, and the wounded attended to. First Aid dressings were applied with the utmost despatch. By the time this was done it was 1.15 p.m., and the action had been over for an hour and a quarter.

I went to the forebridge and asked the captain's permission to open up the sick bay, but he informed me that that would be impossible until we were out of the danger area. So the wounded were made as comfortable as possible, and the dead were separated out and taken to the upper deck.

In the case of the killed the injuries were all of such a frightful nature that death was practically instantaneous.

All cases were suffering severely from shock, which was combated by giving them all $\frac{1}{4}$gr. morphia, hot drinks such as bovril and cocoa, hot bottles, and plenty of blankets. After a little time most of them became quite comfortable and went to sleep. There was a complete absence of moaning or complaints.

About 4 p.m. I got permission to open the sick bay, and on my arrival there found absolutely no damage to the bay,

although there was considerable damage to breakable stores from the concussion of the guns.

The operating theatre was cleaned and rigged, and we got to work, the cases being brought one by one, placed in the theatre, thoroughly overhauled, dressed and cleaned, and put to bed.

The explosion of the T.N.T. in the shells caused a black, oily, sooty deposit on the skin of nearly all these patients. This was readily removed with turpentine, but nothing else seemed to have any effect. Soap and water and spirit were useless.

The 'Neil Robertson' modification of the 'Japanese' stretchers were of great service, and it would have been almost impossible to remove the injured men without them from the more inaccessible parts of the ship."

I cannot recall any bullet wound among the wounded, and have never heard any evidence of poison gas having been used in the shells. Many of the most grievous injuries were inflicted by some fragment of shell or of the ship, or by the patient being blown violently against the walls, or against some prominent machinery. Practically all the wounded were burnt as well, especially, as said before, on the face, back of hands, and front of legs, in addition to their other injuries. The momentary heat of the initial "flash" is probably the most intense; it is equally disabling in the open, and caused many casualties on the light cruisers, and it is reported to have even travelled down a voice tube and burned anyone in the vicinity of the other end of such a tube. The following "flame" persists for seconds, and is due to ignition of cordite. The casing of the electric cables in the passages was often melted throughout a radius of several yards from a shell burst. Often the ship is thrown into darkness by the failure of current. At all times the parts behind armour depend upon artificial light, and the emergency oil lamps and candles cannot possibly be adequate. One notes, too, that the thud caused

by enemy shells stopped by the armour was almost as detrimental to delicate manipulations as the tremor caused by the ship's own big guns, though these were severe enough to break up the porcelain fittings of the lavatories in a big ship which was not struck at all. The water also may fail, so that an emergency supply of metal vessels was filled before action, but these are liable to be upset and smashed.

The *Lion* had such a list after the Dogger Bank action in January, 1915, that the getting of her home at all is always said to rank as a great feat of seamanship: she came some 300 miles, and under speed so greatly reduced that she was an excellent target for the German submarines which were in chase. What would they not have given to have sunk the flagship of our indomitable Battle-Cruiser Squadron? They were only kept off by a large number of our destroyers racing round her in circles at top speed while she slowly made her way home.

All the wounded after the big actions of August, 1914, and January, 1915, and half of the wounded in the battle of Jutland were brought into the Firth of Forth. In its calm home waters the great ships, more or less limping from their battle injuries towards the great Naval Dockyard at Rosyth, made signal in confirmation of their wireless, and the appropriate Hospital Drifters were alongside, and the transference of wounded, already collected on deck, began even before their engines were stopped.

In the early days of the war this great estuary was undefended except by shore batteries, quite ineffective against submarines. Later a series of obstacles was of course contrived. It was a never-to-be-forgotten hour when the wounded and listed *Lion* threaded her way through gates, which could be temporarily opened in these obstacles, and slowly passed her more fortunate partners in the fight of yesterday already lying snugly at their moorings. Sir David Beatty and his staff were on the topmast bridge. It was early on a fine winter's morning, the haze almost shut out

the high land on the north and south banks, but the sun was struggling through with obvious success, and as the flagship laboured slowly to her berth, each ship in the harbour was manned and gave three ringing cheers, and band after band played "Rule Britannia."

The Medical Department of the Admiralty has to its credit many an advance in methods of treatment during the war; to mention one only, we owe to it the popularisation of the so-called "Ambrine," or "paraffin treatment," of burns since introduced and largely employed at Guy's and other civilian hospitals; and while thus keeping an eye upon the wheat, the successive M.D.G.'s had the sense to leave the chaff and not to get obsessed with any of the speculations such as the "Simpson Rays" which found their opportunity in the turmoil of war, nor were they taken in by that incomparable farce known as the "Share Rays," so prematurely boomed in the lay press.

The "Surveys" were efficiently arranged, reasonably carried out, and not too frequently repeated, so that they earned no bad repute. In short, there was a striking exhibition all round of that elasticity and adaptability to altered circumstances which is not too commonly found in Government Departments. The result was a very large measure of confidence in the justice of the authorities, and of contentment with their lot on the part of the temporary medical officers, in spite of the long period of monotonous life on board ship with, perforce, too little to do, and no hope of change in the deadly dull routine of their waiting duty.

Before closing this short account of the points which most impressed a civilian with previous war experience in South Africa, I should like to bear testimony to the consideration shown by the Medical Department of the Navy for the civilians who were temporarily serving under it. Not only were the professional interests of the medical officers consulted, *e.g.*, their natural ambition to present themselves for their final University examinations was facilitated to the utmost, even though it entailed considerable trouble upon Sir Daniel McNabb and the other officials of the personnel branch, but great pains were

taken to allocate to each as far as possible a suitable job, so that after the early weeks of rush and hurry one seldom, if ever, heard of a square peg in a round hole. In matters in which their civilian colleagues could be of use advice was welcomed, without suspicion, and that advice was acted upon, not shelved; the civilian profession was given credit for some of that altruism for which it is famous, and for a willingness to help the State without self-seeking, and was never subjected to any make-belief or "eye-wash" treatment.

The lessons of the past were taken to heart, for instance, that dentists and unqualified medical students could be used with good effect had been demonstrated in the South African War. The importance of an efficient dental service was recognised and provided for in the Navy from the first, and, as we have seen, the most appropriate work was allocated to students. And the lessons of this war were quickly assimilated, so that it was early realised that the painting of a Red Cross on the side of a Hospital ship would not confer immunity from submarine attack any more than it would from minefield.

In peace time each Naval Medical Officer spends such a large part of his time afloat, and away from professional relations or opportunities of any sort, that it is very difficult to fill and to organise an efficient service. During the war the Naval Medical Service may not have been perfect, but at least it evolved leaders who could and did steer it clear of adverse criticism.

Sir Robert Hill, the present M.D.G. of the Navy, expressed the hope in his inaugural address at the Royal Society of Medicine that for the future the new "War Section" would form a liaison between his Service and the civilian profession.

Now the Army Medical Service had already in existence when war broke out a very effective liaison. It was known as "The Advisory Board for Army Medical Services," and it was created by Parliament in 1901 as a result of the Report of the Committee appointed by Mr. Brodrick, then Secretary of State for War, to consider the reorganisation of the Army Medical Ser-

vices. This Board was in active operation for several years, and it has never disappeared from the "Army List," but neither of the D.G.'s considered it desirable to call it together during the war, which was the occasion when it would have been of the greatest value.

It is interesting to observe with what regularity the necessity for a liaison between the service and the civilian branches of our profession, such as the Advisory Board presented, is rediscovered by any Committee that investigates the difficulty of providing adequate medical services for the forces (*vide* Sir James Barrett in "A Vision of the Possible," page 165).

The present D.G. has recognised this necessity, and has revived the function of the Advisory Board for Army Medical Service so that it is again in being, and there must be plenty for it to do. It does not seem too much to say that it is the duty of all who desire the welfare of the fighting forces to work for the perpetuation and strengthening of the revived Board.

Let those who would essay to scheme an extensive State Service for the civilian population remember ere it is too late that the days are past when our profession was content to bow the knee to "authority." These are progressive times, and our profession is rightly rebellious against established routine, and is seeking and finding new methods of treatment where the old ones failed. There is no room for bureaucracy, for it tends to the prevention of progress, nor for obsequiousness and deference

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The report of Mr. Brodrick's Committee re-organised the R.A.M.C. and brought it under an Advisory Board with the D.G., A.M.S., in the chair, the D.D.G. in the Vice-Chair, two civilian surgeons and two civilian physicians, specialists from the R.A.M.C. for Sanitation and Tropical Diseases, the Matron-in-Chief, Q.A.I.M.N.S., and representatives of the War Office and the India Office. Further, it brought the Army Medical School up from Netley to Millbank, and so put it into touch with the Civilian Schools in the Metropolis, it gave the School a new Army Hospital at Millbank, it instituted improved scales of pay, promotion for merit, and study-leave, and removed other disabilities with the result that there was a most encouraging influx of officers of greatly improved class. It also amalgamated the Army Nursing Service and the Indian Nursing Service into the Q.A.I.M.N.S., which worked so splendidly in the Great War. That the credit for all this is often given elsewhere is no disparagement to the lasting value of the work of the first Advisory Board A.M.S.

to rank in the present-day order of scientific advance, and any system attempting to erect a medical service in which promotion and success will depend upon the vote and selection of the seniors will either fail, or will put back medical and surgical progress for many years.

With rank recognised and paid for by the State there will always go a perpetuation of that anti-scientific practice known as "heel-clicking," a sort of mental and moral goose-step, utterly repugnant to the spirit of any progressive profession. It tends—and must always tend—to the deterioration of the scientific sipirt in the commander and the commanded. It is stunting to any individualism and paralysing to any spirit of progress.

Thus the *Times*, in a leader upon "The 'Health' Bill Rejected," comments upon the "Muddle" which results from "clumsy amateur legislators!" and "meddlesome subordinates" and calls the throwing out of the Bill, "A warning to autocratic and domineering Ministers and their departmental heads." "Tricks have been played," it says, and so on. (The *Times*, December 15th, 1920.)

Truth is very often troublesome, but neither the world nor the individual can get on without it. Surely, with the world as it is, truth is more than ever essential to-day to the reinstatement of our nation. Given truth, education, freedom, and health, our Empire will lead the world, but we shall not attain the maximum health of the race by means of a medical service based upon rank and authority and a pension-earning wage. Backed by propaganda and legends and stimuli to "keep on smiling," these may carry us through a few years, but it is not by such methods that we shall ever succeed in "winning the peace."

MOBILE LABORATORIES.

By

Major A. C. H. GRAY, O.B.E., R.A.M.C.

It is interesting to see what countries, other than our own, had done before the Great War to afford mobile laboratory equipment for their field armies as a protection against epidemic disease.

In the Russo-Japanese War (1904-05) the Japanese had no Field Laboratory units, as units, but in one of the Divisions of the Japanese Army at any rate there was considerable bacteriological equipment. Major-General Sir William Macpherson in his Medical and Sanitary Reports on the Russo-Japanese War says "all the Field Hospitals of the 4th Division are supplied, from Divisional funds, with a Leitz microscope and a special bacteriological cabinet." "Early in the campaign the Medical Officer in charge of No. 1 Field Hospital of the 5th Division had improvised a bacteriological equipment for himself; and no doubt there were many other instances of such special equipment in the field." In an appendix to Report No. 22 are given the details of this equipment. The microscope and reagents were packed in one case, the rest of the bacteriological equipment in another; neither of them weighed more than twenty pounds. General Macpherson draws special attention to the completeness, compactness and mobility of all the equipment of the mobile Field Hospital units.

The Russians seem to have gone even further than the Japanese, because, as General Macpherson pointed out to me, they had Mobile Laboratories as independent units. In a report by Major J. M. Home, of the 2nd P.O.W. Gurkhas on Russian

Medical Administration in the Field, we learn that five special Sanitary detachments were formed. Each detachment was to consist of four bacteriological specialists and to be furnished with a laboratory in which the most minute bacteriological investigations could be carried out. These detachments owed their origin to the initiative of the Commander-in-Chief, their object being to prevent epidemic diseases. They were all to be stationed on the railway, south of Harbin. In the event of any doubtful case of epidemic disease occurring, the nearest sanitary detachment would proceed to the spot and carry out the necessary bacteriological investigations. No description of the actual equipment of these sanitary detachments is given, nor is it stated how the equipment was packed or carried.

In the German campaign in South West Africa (1904-06), mobile laboratory outfits do not seem to have been used. Bacteriological and chemical laboratories were provided at each base. A mobile pack-up laboratory equipment was, however, part of the medical equipment of the German Army at this time.

The Turkish Army Medical Service was re-organised in 1910, by Dr. Vollbrecht Bey, Lieut.-Colonel in the Prussian Army Medical Service. In his scheme the Sanitary Officers at Army Headquarters were to be provided with a microscope, a bacteriological case, and a box of chemical reagents, just as in the German Army.

In March, 1911, shortly after mobilisation for manœuvres at San Antonio, Texas, the Chief Surgeon of the United States Army gave orders for the formation of a Mobile Bacteriological unit. Lieutenant G. B. Foster, Medical Corps, United States Army, was in charge, and got together the equipment.* Lieutenant Foster claims that his laboratory was the first of its kind to be operated by the Medical Department of any Army under conditions approximating those of war, but says that the

**Military Surgeon,* Vol. 31, page 408.

Japanese were conducting a similar laboratory at Tientsin about the same time. The entire equipment packed into five chests. The whole weighed 550 pounds, and filled one-third of a wagon. Two tables, four iron buckets, and four hospital tents completed the load. The equipment was subjected to severe tests, and was transported over fifty miles of rough road. The wagon had no springs. The only breakage incurred was one flask. The entire equipment was unpacked and assembled in a hospital tent by two persons within three hours of its arrival in camp. One thousand and forty examinations were made during the four months that this "Manœuvre Division Laboratory" was in operation. In his conclusions Lieutenant Foster lays stress on the necessity of tin containers for glass-stoppered bottles and of special chests for the equipment which should be strong, iron bound, with hinged lids and hasps and uniform in size. He considered the field laboratory not only practicable but in this era of scientific sanitary endeavour a necessity.

The Austrians had Mobile Field Laboratories equipped by the Austrian Red Cross Society. Sixteen of such units with a specially trained staff were available in 1913.* In August, 1915, twenty-one mobile laboratories were said to be in the service of the entire Austrian Army.† It seems, however, that the equipment of their earlier units was not very satisfactory owing to excessive weight. A new type was introduced in 1914, designed by Stabsarzt Professor Dr. R. Doerr and Dr. Josef Winter which was easily transported on two pack animals. There is a good account of it by Colonel J. V. Forrest, A.M.S., in the *R.A.M.C. Journal*.‡ Each laboratory consisted of four chests all of the same size. The weight of each case was no more than 45 kilos, and they were made so that chest A and B, C and D balanced each other. Their construction was very in-

**Das Rote Kreuz*, No. 8, 1913, page 169.

†"Sanitary Service of the Austro-Hungarian Army in Campaign," by Major J. H. Ford, *Military Surgeon*, Vol. 10, page 650.

‡*R.A.M.C. Journal*, Vol. 23, page 651.

genious. The outfits on the two pack animals were independent of each other. Chests C and D contained all that was necessary for microscopic and sero-diagnostic investigations and for preparing saline infusions and would accompany the investigating Medical Officer in the first place. The other pack would only be taken if a more prolonged investigation were anticipated. The equipment included 64 Petri dishes, flasks, pipettes, 200 agglutination tubes, a large sterilizer, disinfecting bath, a case of instruments for operating or animal post-mortems, etc., a large stock of Doerr's dried media, diagnostic sera, special tubes of bile for blood culture, etc., and a small incubator—in fact, a remarkably complete and easily transportable laboratory equipment.

Even from the above short and incomplete account it is evident that other countries have considered some sort of easily transportable Field Laboratory Equipment a necessity. The most recent pattern introduced by the Austrian Red Cross Society seems to me to be particularly good.

Let us now see what has been done in our own Empire.

One must go a long way back into Army Medical history to find the first "Mobile Laboratory Equipment" made for the British Army. I am indebted to my friend, Lieut.-Colonel A. Bruce, of the Army Medical Department of the War Office, for information on the matter. The "Chemical Cabinet" was made for the Army by Messrs. Savory & Moore, and was probably first taken into use about 1875. Colonel Bruce remembers it well. He tells me he passed an examination on its contents in 1879. It was intended for water analysis, and was beautifully made. Each bottle and piece of apparatus fitted exactly into its partition lined with green baize. It was made of polished teak, bound with metal, and fitted into an outer case for transport. It was very heavy, but could be lifted by two men. A new pattern of cabinet was introduced in 1897 of the same general character and dimensions as the old one, the contents, however, were altered and improved.

These cabinets were used both at home and abroad. They went to Egypt with the Army in 1882, and to South Africa in 1899. They were sent out to France in 1914, but I do not think they were used in the Great War. General Hospitals are mobile units in the British Army, and laboratory equipment was prepared for them when our medical equipment was overhauled after the South African War. During the South African War Base Hospitals were provided with microscopes and with laboratory equipment when demanded, but there was no standard equipment. Smaller and more portable "Water Analysis Cases" were made for use in the field.

The first real mobile laboratory appeared in the Southern Sudan, but had no connection with the Army.

In 1906, Dr. Andrew Balfour, Director of the Wellcome Research Laboratories, Khartoum, conceived the idea. At his instigation a two-decked barge was built by the Sudan Government and was fitted out by Mr. Wellcome, with every possible requirement and convenience. Early in 1907, this floating laboratory was ready for use. A full account of it is given in the "Third Report of the Wellcome Research Laboratories 1908," by Dr. C. M. Wenyon. In his report he says "The large laboratory, with its two long benches, water taps and sinks, with water supply from a carbon filter on the upper deck, ample cupboard room for bottles and glass ware, the incubators and ovens, the balances and centrifuge and all other equipment, reminded one more of a laboratory at home than the accommodation one would expect to find on one of the upper tributaries of the Nile in some remote corner of the Sudan. The advantages of such a laboratory with everything at hand, with solid benches on which to stand one's microscope, with a good supply of clean water, will be sufficiently evident to anyone who has tried to work in a dusty tent, with apparatus stowed away in boxes, with the microscope on a rickety table, and with a limited supply of water.

The floating laboratory is, as far as I know, the first of its kind. Though further experience may introduce improvements, those who originated the scheme and those who were far sighted enough to carry it into effect, are to be congratulated as being the first to introduce this mode of scientific investigation." To compare this, the first floating mobile laboratory, with the type of motor mobile laboratory which we used in France, Salonica and Egypt is perhaps hardly fair; the latter had to be strictly limited in size and weight and had to cope with roads of the roughest description, whereas the former could be of generous dimensions and travelled over the comparatively smooth waters of the Nile; yet this the first laboratory of its kind designed fourteen years ago is still in constant use, and has not been surpassed since or perhaps even equalled. No other laboratory has yet been designed which could and did function while actually on the move. Incubators and sterilisers can hardly be kept going with safety in any type of motor laboratory, when travelling over even moderately good roads.

The first suggestion that I can find with regard to field bacteriological equipment for the British Army is in a paper by Lieut.-Colonel R. H. Firth (now Colonel Sir Robert Firth) written in 1909 on "Sanitary Companies—Territorial Force."* In discussing the details of these Sanitary Companies, which are Army Troops, Colonel Firth says that a microscope and a limited bacteriological outfit must form part of their equipment.

The first suggestion of a fitted motor mobile laboratory for use with the British Army in the field was made by Major S. L. Cummins (now Colonel S. L. Cummins), R.A.M.C., in his Parkes Memorial Prize Essay written in 1912.† He says "The early diagnosis of typhoid fever is a matter of blood culture. This requires skill, care and deliberation, but not an elaborate outfit of bacteriological appliances. Our idea is that a mobile laboratory consisting of a closed motor vehicle, containing the

R.A.M.C. Journal, Vol. 13, page 548.

†*R.A.M.C. Journal*, Vol. 20, page 635, and Vol. 21, page 39.

apparatus for preparing media, incubating cultures, and for the necessary microscopic work and other work of isolating bacteria, should be attached to each Division and accompany this formation as a part of the Divisional Headquarters. A specially trained officer with two trained orderlies (one as batman) and a driver (A.S.C.) should constitute the staff. Regimental Medical Officers and Officers Commanding Field Ambulances should be directed to co-operate with this officer by sending to him all suspicious cases for blood culture and such other work as may be necessary. At present his work is allocated to the laboratory at the Advanced Base or Railhead (vide R.A.M.C. Training, Para. 147, iii). Our plea is for a Mobile Laboratory marching and working with the Divisions."

It was soon evident to our Headquarter Medical Staff in the field that a Mobile Laboratory was a necessity. The Great War was not much more than a month old when a telegram was sent to the War Office asking that such a unit should be sent out. The matter was referred to Sir William Leishman, Adviser in Pathology to the War Office, who asked the Director of the Lister Institute, Dr. C. J. Martin, to staff and equip a Motor Laboratory as quickly as possible. The work was soon done. The late Major S. R. Rowland, of the Lister Institute Staff, was appointed to take charge of the laboratory, and it was he who chose the all important vehicle. He had seen a car of the type he wanted at the Motor Show of 1914. It was probably the only vehicle in existence which could have served his purpose, and after an exciting hunt it was found. It was a huge car of enormous weight and power. The body was a luxuriously fitted caravan, with water tank and water closet complete, the roof carried any amount of extra luggage. It originally belonged to Mr. Du Cros. The chassis was, I believe, specially built in the Austin works. The internal dimensions of the body of the van were as follows:—Height 6ft. 7in., length 12ft. 6in., width 6ft. 9in. The car was taken to the Lister Institute Serum Department at Elstree and was there fitted out. Dr. Martin, Dr. Ledingham and Miss H. Chick

all helped Major Rowland in the choice of his equipment. Work bench, autoclave, Koch's steamer, incubators and sterilisers were screwed into their places; the experimental animals in their cages were hoisted on to the roof, and the unit set out for France on October 9th, 1914.

The next Motor Bacteriological Laboratory to go to the front was given to the War Office by an anonymous donor. The car was known as the "Princess Christian Motor Laboratory." I had the privilege of taking it to France. It consisted of a large van shaped body, divided into two compartments, on a 20-30 h.p. Clement Talbot chassis. The internal construction, fittings and equipment were devised and carried out by Messrs. Baird & Tatlock. The work room was 6ft. 6in. by 6ft. The smaller compartment, 6ft. by 2ft. 10in., shut off by sliding doors, housed the incubators and sterilisers, etc. There was an electric fan to aid in ventilation, and a powerful lighting outfit. A good illustrated account of it appeared in the *Lancet* of January 23rd, 1915. The weight with its driver was 3 tons 8 cwt. I think the chassis was carrying more than 30 cwt.; it was a surprise to me how well it went. There was an overhang at the back of four and a-half feet. The weighty contents had to be carefully arranged to get the heavy things well forward and between the wheels. The water tank was emptied before a journey. The generous donor, at my request, added a powerful motor bicycle and box side car to the unit, which much increased its usefulness. The absolute necessity for a light "tender" for Mobile Laboratories was recognised later on, and all were provided with 10 h.p. Singer cars.

A similar laboratory was taken to France by Major J. W. McNee—he started a few days before I did but had only got as far as Havre when the springs of his "bus" flattened out and he had to come back. His unit was subsequently known as No. 3 Mobile Laboratory.

It was soon evident that these last two were over-weighted; such a load spread over such a large area of floor space was

too big for any car that had not been specially made, so, after these first three, all motor laboratories used by us were lorries and not cars. This was an improvement, but the fact that these laboratories were now on solid instead of heavy twin pneumatic tyres made it necessary to pack the contents more securely than before. The late Major Rowland knew a good deal about motor cars, and I remember that he considered a good chassis for a motor laboratory should be long, with as little overhang as possible; that the driver should be seated over the engine to give extra body length, a point which has been adopted in the latest type of motor omnibus; that the width of the body should be increased by building it to overhang the wheels. In his opinion large twin pneumatic tyres were a necessity. With regard to the fittings inside, he considered there should be a definite place for everything, but all apparatus should be capable of easy removal so that if thought desirable it could all be quickly taken out and put into a room, and as quickly put back again; in fact, his plan was to use the van as a large packing case on wheels, but to leave as much free space in it as possible, so that it could be used as a work room when necessary. Major Rowland had got the one motor caravan which fulfilled all the conditions and it had been specially made. To have built others would have probably meant a great delay. The two-ton Daimler lorry chassis was adopted, and proved satisfactory.

By the end of January, 1915, there were then three Mobile Bacteriological and one Hygiene Laboratory in France, this last in charge of Captain M. Coplans, an old Guy's man. I think in the opinion of General Headquarters they were of real value, because in May, 1915, the scale was increased to two Mobile Bacteriological Laboratories per Army, and later on there were even more.

No. 1 Laboratory started work at St. Omer. No. 2 was ordered to Bethune, but soon back to Lillers as Bethune was rather heavily shelled on January 23rd. No. 3 opened out at

Bailleul and soon spread into a convenient building. No. 4, the Hygiene Laboratory, was, I think, at Bailleul too.

How well I remember those early days at Lillers. It was Army Headquarters then and correspondingly important. Major D. L. Harding was in command of the C.C.S. which gave me welcome, and it was he who guided me aright along the unfamiliar paths of War. It was there I first met Captain Adrian Stokes. At the time of the Battle of the Aisne, Captain Stokes had been sent to Paris to buy what bacteriological equipment he could find, and had brought it back to the line in a motor cycle and sidecar—neither of them new. Without any special name to his laboratory, and with very little equipment, Captain Stokes had been doing the work of "mobile bacteriologist" to the whole Expeditionary Force for weeks before even Major Rowland arrived on the scene, and had been doing it thoroughly well. When I arrived he gave up his room to me, and in obedience to orders joined No. 1 Mobile Laboratory at General Headquarters. It was a first floor room in a little side street just opposite the school which formed part of No. 4 C.C.S. It made a good laboratory. My "bus" was in the street below, supplied me with electric light, and was used by my Staff-Sergeant for the preparation of media, etc. At first I used the bus as a laboratory. The body was "jacked up" on to wooden blocks which gave the necessary rigidity for microscopic work, but the position of the vehicle up against the side of a wall did not allow of much daylight getting in. Any other position would have blocked the street. Again, when my Staff-Sergeant was using the sterilisers the steam condensed on the lenses of the microscope—also he had to move about to do his work, and that meant vibration.

Major Rowland used his car as his "microscope room" for some while; all his sterilising and media preparation was done elsewhere.

Captain R. L. Thornley, who came out later in charge of No. 20 Mobile Laboratory, always used the "bus" as his

laboratory, and preferred it to a hut. No. 21 Mobile Laboratory, in charge of Captain Emrys Roberts, came out early in 1916, and was at Bethune. His laboratory was, I think, the most magnificent in France. It was given to the Army by Dr. Lynn Thomas (now Sir John Lynn Thomas), and was very much larger than any of the others. It was a caravan mounted on a large lorry.

We had plenty of work to do in France: quite half the day and sometimes half the night was spent in the open air journeying between the Field Ambulances and Clearing Stations, collecting specimens from "suspected" cases. Messrs. Baird & Tatlock made me a most convenient case containing all the necessary implements for blood culture, etc., with special compartments for sterilised syringes, large tubes of extra thick glass containing the solution of peptone and bile salt, metal spirit lamp, sterile swabs, etc. It was always kept ready, and was in daily use. For making blood cultures in the field I found that large very thick glass test tubes plugged with a sterile rubber bung were the best; no amount of shaking could harm the contents. As soon as I got home to the laboratory the rubber bungs were changed for woollen plugs, and the tubes placed in the incubator. I always carried at least half a dozen all glass syringes of 2 c.c. and 5 c.c. capacity, ready fitted with their needles, each syringe in a large thick test tube well plugged with wool. These were sterilised in the autoclave just as they were, and it was very rarely that one got broken in the process. My Staff-Sergeant's first duty when I came back from the daily round was to clean the syringes, re-sterilise them, and fit up my travelling case with fresh tubes of media, etc. It was then ready for any urgent call. The day's work began with an examination of the previous day's cultures, the reading of the results, and the despatching of numerous telegrams: each positive case of typhoid fever or other serious infectious disease had to be notified by telegram to the O.C. of the Field Ambulance or C.C.S. in which he had been seen, to the A.D.M.S. of the man's Division, to the

D.M.S. of the Army, and finally to General Headquarters. Infectious disease notification forms (A.F. W.3110) had also to be completed in duplicate, and then all details entered in one's own laboratory note-books.

By eleven o'clock a good number of telephone messages and telegrams would have arrived demanding one's presence at various units. The bicycle and sidecar was got out, and the round started. I wonder what the columns of marching men one passed in the narrow roads thought of the little box which went bouncing past attached to the motor bicycle with its anxious looking dusty driver. I think I was generally looked on as a new sort of postman or else was given the credit of burying stray corpses. I found it much better to go to the case myself than to ask for "swabs" or samples to be sent. By the time the "swab" had reached the laboratory it was cold and uninviting, and, with the exception of those from diphtheria suspects, generally quite useless.

I arrived in France just at the beginning of the "cerebro-spinal" scare, and the examination of "contacts" soon became a serious business. I did not mind how many individuals arrived to be examined or how many I went to see; these I could deal with, but bundles of "swabs" taken the day before, or even earlier, came in by post and by motor-cyclist. They were generally relegated to the lysol bowl.

I think it was "swabs" from "doubtful ladies" taken by civil practitioners which required the greatest mental effort. I never returned them with sarcastic comments partly because my French was not good enough and also because I was so afraid of being asked to go and see the case myself. I always hunted through the slides, perhaps with a mental bias towards the positive. In my opinion the "mobile bacteriologist" is best serving his country when journeying about seeing every case and every "contact" himself—if he once begins to sit in his laboratory and merely examine samples taken by others his work will deteriorate and his opinion lose its value.

We all of us, I think, fitted up some sort of apparatus which kept Petri dishes warm on our journeys. Swabs were then

taken on the spot—the plates were spread and put back into their "hot box." It was not necessary to examine all the contacts of a case of cerebro-spinal meningitis, we had permission from Headquarters to make our own selection. The actual cases of disease presented far less difficulty; these we could lumbar puncture, blood culture or otherwise deal with, and one was sure of getting a clear cut result.

Mere records of the number of cases of each disease examined are of little interest. We were all very busy. I think the hunting out of a paratyphoid carrier in the 2nd Royal Sussex Regiment, when in rest at Noeux-les-Mines, gave me the hardest work. The thing had to be done quickly as the regiment was due back in the line. The regiment was well inoculated against typhoid, but luckily, from my point of view, paratyphoid inoculation had not yet been started. The outbreak was definitely Paratyphoid B. I had seen all eleven cases myself, and had got positive blood cultures from many of them. In all the infecting organism presented identical characters in the various sugar media, and with the stock laboratory antisera gave the same results. There was not time to take a blood sample from every soldier in the regiment, so I contented myself with examining all the recent arrivals and all those who had been to hospital sick. There were about ninety of them. A sample of blood was taken from each and carefully labelled. There was not time to put up more than one dilution of each serum against the infecting organism. I chose a dilution of one in a hundred as likely to show something definite, and it did. One man's serum of the ninety examined gave a marked result. I wired to the A.D.M.S. of the Division that night to isolate him and send him to a Field Ambulance. The man's stools were plated, and at the second attempt, after a generous dose of physic, the Paratyphoid organism was found, identical in every respect with that found in the actual cases. Of course, there may have been another carrier amongst those I did not examine, but after the removal of this man there were no more cases in that regiment.

Our work in the field was co-ordinated by Colonel (now Major-General) Sir William Leishman, who visited us at regular intervals. To him we poured out our troubles, and he always gave us a sympathetic hearing. I am sure that my confreres will agree with me in saying that any success we achieved was chiefly due to his inspiration and advice.

Our Consulting Physician too, Colonel (now Major-General) Sir Wilmot Herringham, was deeply interested in us. He often came to my laboratory just as he did to the others, and his ripe experience was always at our disposal and his suggestions were invaluable.

Best of all, because we were daily at their beck and call, our Directors of Medical Service showed they relied on us by giving us plenty to do.

When big things were happening, such as the battles of Neuve Chapelle and Loos, we "downed tools" and gave a hand to the nearest C.C.S. Everyone who could put on a dressing or give an anæsthetic was wanted then, and the "sick" were simply not to be found. Soldiers did not go sick at times like these, but preferred to stick it out however bad they felt.

What of our patients? Were we popular with them? No, that I am afraid could scarcely be expected. The man who sticks a needle into his suffering brother cannot look for popularity, but perhaps later, when convalescence gave life a rosier look, we got credit for doing our best.

My personal experiences with a Mobile Laboratory only lasted until July, 1916. It was then a case of the biter bit, for I contracted Paratyphoid A fever and had to retire to bed. I had been well inoculated against typhoid and also against Paratyphoid B, but not against the third variety. When I at last arose from a bed of sickness, I was, at my own request, given the command of another unit. No. 2 Mobile Laboratory was rather unfortunate in the way of illness. Captain A. L. Urquhart, who joined me early in 1915, first went down with measles of the most virulent description, and then, after bravely

experimenting on his own body with lice from fever patients, got Trench Fever. Captain Urquhart has not yet had the credit he deserved for this, the first experiment. After his recovery he took a Mobile Laboratory to Salonica. There were others, however, who gave all they had. Major Rowland died of cerebro-spinal meningitis caught from the very patients he was trying to help. Captain T. Strain, of No. 6 Hygiene Laboratory, died from an accident when working with dangerous gases at Lillers.

The travelling laboratory has, I think, come to stay. In some form or other it was used by all Armies in the Great War, and it might be used to advantage by Civil Authorities too.

When epidemic disease breaks out and "contacts" have to be examined in large numbers, such examination can only be effectively done at a laboratory. If the expense is not prohibitive, it is surely better to take the laboratory to the "contacts" rather than to move numbers of possibly infected people about the country, and one travelling laboratory might take the place of several permanent ones.

The type of motor laboratory that we used in the Great War seems to me to have been too cumbersome and too heavily equipped. Something after the French Colonial Model which was designed by Dr. Tilmont and fitted out by Messrs. Baird & Tatlock, would, I think, be more generally useful. This type was fitted to a Ford chassis.

If all media were prepared in some central laboratory and distributed to the various field units, most of the heavy equipment in the latter could be dispensed with.

For use in countries where a Ford car could not go, the mobile laboratory would have to be packed for animal transport or even in fifty pound loads if it had to be carried by natives, but it seems to me that large armies could not operate in such countries, and there would be no need to have many of this latter type.

SOME IMPRESSIONS OF A DIVISIONAL SANITARY OFFICER IN FRANCE.

By

C. D. EDWARDS, M.C., M.D.Camb., D.P.H.

That all life is arrested by accumulation of its own waste products is one of the fundamental laws of existence. It applies to all living organisms equally, from the lowest to the highest, from bacteria to man. In the case of the former, vigorous growth only proceeds at the circumference of a colony, while among men healthy development ceases in the overcrowded slums of our great cities. The efforts of sanitarians have, during recent years been specially directed to the solution of this difficulty, and costly schemes have been launched with much expenditure of public money, with the result that the health of our large towns has greatly improved, and compares favourably with that of less crowded areas.

That the importance of these measures was recognised by the lower animals for countless ages before it impressed itself on man is somewhat disturbing to our assumption of superiority, but it is none the less true.

Study of the life and conditions of bees in a hive has shown that an average number of 10,000 of these insects can maintain their health and vigour in an exceedingly confined space, and that during the five coldest months of the year they only on very rare occasions leave the hive. It has been shown that the interior of the hive is at all times kept scrupulously clean, and that even after many weeks of close confinement there is com-

plete absence of fæcal matter, and that healthy bees never defæcate in or in the immediate neighbourhood of their hives. The presence of fæces in the hive or on the alighting board is a sure indication that serious disease has already overtaken the inmates. In the same way it has been demonstrated that beavers, during the long winter and its necessary confinement, keep the interior of their limited quarters in a thoroughly sanitary condition.

"It's a foolish bird that fouls its own nest," is an old proverb that indirectly reflects honour on the scavenging instinct of the parent birds, who manage in the few short intervals they snatch from the labour of ministering to their offsprings' voracious appetites to remove the natural results of such a generous dietary. Instances of the superiority of the lower animals over man in matters of sanitation might be multiplied indefinitely, and lead one to the somewhat mournful reflection that the human race is probably more deficient in natural sanitary instinct than any other members of the animal kingdom.

This is borne out by the fact that one of the earliest records we have of an effective sanitary measure, contained in the Mosaic law, was a direct adaptation of the manner in which dogs and cats had disposed of their excreta for countless generations. With the natural increase of the world's population, and the consequent overcrowding in the most favourable portions, it is obvious that those races that are most sanitary, are the races that are going to survive. This is well illustrated in the history of the Jews, who, in spite of their numerical inferiority and constant persecution, are still a power to be reckoned with, and have the proud distinction of being the first people with a simple but effective code of sanitary laws. One is struck by the wisdom displayed in the framing of these simple laws for the disposal of fæces, washing of hands before feeding, and abstention from pig-meat, for it is by their very simplicity, which should always be the aim of the sanitarian, that they have retained their hold over the Jewish race for nearly 4,000 years.

The effect of civilisation with its elaborate systems of conservancy has merely served, in the case of the average citizen, to dull the natural sanitary instinct and produce a state of atrophy through disuse. This attitude is well described by Lelean in "Sanitation in War," as limiting the acquaintance of an ordinary household with conservancy methods to the daily pulling of a handle, and the weekly listening to the opinion of the dustman regarding the dryness of his job. In warfare there is a sudden revulsion to primitive conditions, and the very perfection of the sanitary measures enjoyed by a community becomes a snare and a delusion when its citizens have suddenly to dispose of their own waste products, and to evolve such other methods for the preservation of health as their altered circumstances admit. It is, therefore, no matter for surprise that in previous wars the mortality from disease, and what we now consider to be preventible disease, has far exceeded that from wounds.

In the American Civil War, 1861—1866, of 431,237 men engaged, there were 75,368 cases of typhoid (175 per 1,000), and 27,056 deaths (57·78 per 1,000). In the Franco-German War of 1870 the German army of 815,000 had 73,396 cases of typhoid and 6,965 deaths, and 35,652 cases of dysentery with 2,380 deaths.

In the war with Spain the Americans had 192 cases of typhoid per 1,000, and in the German expedition against the Herreras (1905-1907) out of a force of 18,116 there were 3,146 cases of typhoid. In the Boer War we had 57,000 cases of typhoid with over 8,000 deaths, and 38,000 cases of dysentery with 1,342 deaths in an army of an average strength of about 250,000. The deaths from disease were 22,450 and the number of those killed by the enemy was 8,590.

In our wars of the last thirty years the deaths from disease have been nearly five times as many as those from wounds, and for every man killed by the enemy there were forty admissions to hospital for disease. In the Boer War disease alone accounted for a loss of 86,000 in dead and invalids.

If to the death roll due to the increased deadliness of lethal weapons employed in the latest Great War had been added the previous mortality due to disease, the havoc produced would have been too horrible to contemplate.

To the Japanese in their war with Russia is credit due for the first really successful attempts to reduce the scourge of disease in warfare. For some years our military authorities had recognised the gravity of the problem, and much excellent work had been done among troops on a peace footing. It was, however, evident that the conditions during peace and war were so diverse that the best laid schemes were liable to break down. When in 1914 the Great War was upon us, a war that was recognised to be a life and death struggle, and one in which we should require all our strength of manhood, it was early seen that the previous arrangements for the preservation of a satisfactory sanitary condition in warfare were inadequate. Something analogous to the provisions made in civil life, and which had so greatly reduced the death rate of our large cities, was obviously required. It was with this idea in view that Divisional Sanitary Sections were inaugurated and a training centre established in Chelsea by the London Territorial Forces.

The first intention was apparently that the Commanding Officers of Sanitary Sections should be medical men with a special qualification in Public Health, but the supply was found to be unequal to the demand, and a large proportion of these officers were chosen from the ranks of sanitary engineers, architects, surveyors, etc. It is with no wish to depreciate the very valuable work that has been done by Commanding Officers of Sanitary Sections without a previous medical training, that I here record my opinion that these officers should always be medical men with the D.P.H. The matters with which they have to deal are so essentially medical, the problems, especially with regard to infectious disease, so technical, and the demand for instruction in the preservation of health to the troops under their care so insistent, that I am unable to believe that anyone without a previous and very thorough training in these subjects can fail to be at a serious disadvantage.

The Sanitary Section consists of four N.C.O.'s and twenty-one men. These are drawn from Sanitary Inspectors, men engaged in any sanitary work, carpenters, tinsmiths, plumbers, clerks, etc. Their duties are theoretically merely inspectional and instructional, and they are not supposed to perform any constructional work outside their own unit; in practice I believe that every Sanitary Section, worthy of the name, has done much constructional work for units that were unable to do it for themselves, and especially for those in the trenches and forward areas. One soon, however, recognised that certain units expected too much of the Sanitary Section, and were too ready to shift the duties of their own sanitary squads on to their shoulders. This tendency had to be strongly resisted, as it would have seriously interfered with the main object of Sanitary Sections, namely, Inspection. For the same reason I felt it necessary to protest very forcibly against employing the members of my Section in Divisional baths. The supply of Divisional baths is the duty of the Quartermaster Staff, and has nothing to do with the R.A.M.C. I was always ready to advise and help in the construction and running of the baths, and planned and supervised the erection of a large number in various parts of France, but I am glad to say that my obstinacy was successful in rescuing my section from the fate of more than one Sanitary Section, and of becoming merely a Divisional Bathing Section. In the early days of the Somme offensive in July, 1916, in which my Division did such great things and suffered so severely, when there was little work possible for a Sanitary Section except to lend a hand, I am proud to say that my Section erected excellent baths in Albert, and for several days worked from 5 o'clock in the morning till 10 o'clock at night bathing the worn-out troops as they were relieved, hot-ironing their clothes, supplying them with a fresh change of underclothes and disinfecting their verminous garments. On one day alone they dealt with close on 3,000 men. These duties were carried on for several weeks after the Division had retired to its hard-earned rest, and it was only when conditions

had returned to a more normal state, and I found the work of inspection deteriorating, that it became necessary to protest.

Having in view the small numerical strength of a Sanitary Section and the important duties it had to perform, namely, inspection of the whole of a Divisional area, varying from a few square miles to as much as a hundred square miles, and troops varying in numbers from 20,000 to 40,000 or more, it soon became evident that strict economy of the resources at one's disposal must be exercised to obtain the full value. It should be recognised that the various duties concerned in the running of a section, such as cooking, sanitation, clerical work, officer's servant, workshop, etc., absorbed a large part of the strength, and it was generally found that there were at the most sixteen left for the purpose of inspection. I therefore found it necessary to divide the area occupied by the Division into ten or twelve parts, making one of the members of the Section responsible for each sub-division. Each man was provided with a map of the portion he was responsible for, and had to send in a daily report of the condition of all units visited by him. In this way I was able to keep an eye on the work done by the N.C.O.'s and men under my command, and to become at once acquainted with any unsatisfactory conditions in the Divisional area, that required a personal visit. Moreover, by frequently paying surprise visits to the different units one was able to test the accuracy of the reports handed in, and soon learned to know the men, who were reliable or the reverse.

Sanitary Sections, as previously mentioned, were an entirely new departure, and like all new brooms raised a considerable amount of dust. It was one's duty, as a very junior officer, and the duty of one's N.C.O.'s and men to visit and inspect, at any time, the hallowed precincts occupied by the various units, and if necessary to criticise the sanitary arrangements and other matters that concerned the health of the troops. To every Englishman, and from experience I am inclined to think equally so to every Scotchman, "his home is his castle," and for the time being the billet, or camp, or trench, occupied by a unit *was* its

home, and until he recognised the necessity and usefulness of inspectional visits, the O.C. of that unit looked on them as an unpardonable intrusion. I well remember numerous battles-royal with a peppery old Scotch Colonel in command of a battalion of his countrymen, which afterwards earned immortal fame on the Somme and on many other battlefields. To put it mildly his ideas and those of his adjutant on sanitary matters differed very widely from my own, and both in England before embarkation, and in the early days of 1916 after arriving in France, led to a hurricane of winged words on more than one occasion, which made me as a junior officer, who was unable to reply with adequate force, recognise the invariable wisdom of my old hospital motto. Knowing that my objections were backed up by Routine and Divisional Orders, I remained adamant, and when my suggestions met with a flat refusal, or were merely ignored, I had the unpleasant duty on several occasions to report adversely to Divisional Headquarters as a last but never-failing resort. To his honour be it noted that he never bore me any ill-will, and this very gallant officer afterwards became one of my best friends.

Of all the qualities necessary for the equipment of a Sanitary Officer the most desirable is that of Tactfulness. He may be possessed of zeal capable of removing mountains, but without tact he will be "as a sparrow on the house-tops," and "his enemies will reproach him all the day" long. The first thing that one has to recognise is that every C.O. is responsible for the sanitary condition of the area occupied by his unit, and that every good C.O., and most of them are good, has fixed ideas of his own on this matter.

These views may be different from your own and may be obviously wrong, and in this case it is up to you to gain his confidence, and direct his energies in the right way. Never, except in very rare cases, that cannot otherwise be dealt with, condemn without a hearing, or without first offering advice. The vast majority of C.O.'s know the importance of preserving the health of their units and are only too ready to give assistance

if they see that your efforts are to help and not merely criticise. It is necessary to appreciate the difficulties of preserving a satisfactory sanitary condition during warfare, especially in forward areas, and to remember that a C.O. sometimes has other things than sanitation to worry about.

After nearly two and a half years' experience as a Divisional Sanitary Officer I can look back with extreme pleasure to the practically invariable courtesy of the officers of all ranks with whom I came in contact. It was a very rare occasion for me to be in my own mess for lunch, as the distances one had to traverse were too great, and the time wasted in retracing one's steps too precious, but one was always sure of a welcome at Battalion or Company Headquarters, whether in billets or trenches, and I regard the insight gained on those many very merry meetings as invaluable. It was then that one obtained the intimate knowledge of the officers of the Division that made one's work so easy and such a delight.

I believe that this feeling of esprit de corps is of extreme value in the work that falls to the lot of a Sanitary Officer, and that my misgivings were shared by a large number of Divisional Sanitary Officers when in February, 1917, Sanitary Sections were torn from their Divisions, were allotted to areas, and placed under Corps Administration. My experience of this regime was short, and distinctly unpleasant, and it was with a feeling of great relief when in April, 1917, I was enabled to return to my old Division, and was again appointed Divisional Sanitary Officer with power to form a new Section from such material as could be spared. That Sanitary Officers of areas under Corps Administration are desirable I do not question, but that they can replace Divisional Sanitary Officers or hope to fulfil their duties efficiently, I fail to understand. After all, the health of the Division is of primary importance, and I maintain that no Sanitary Officer can adequately perform his Inspectional duties, who is not intimately acquainted with the units he has to supervise.

In the case of an attack on the enemy, and a subsequent advance, I believe that a Divisional Sanitary Officer with a Divisional Sanitary Section is especially necessary. The troops have been subjected to a severe strain, possibly for days; they are exhausted and particularly liable to disease; sanitary requirements must perforce take a secondary position in their minds; water supplies are of uncertain value and may have been tampered with by the enemy; the dead, both of men and horses, require satisfactory burial, and the condition of insanitary chaos, such as no one, who has not witnessed the effects of a modern intensive bombardment, can appreciate, quickly bringing into one of at least comparative order. Some regimental M.O.'s may be trusted to initiate measures for the protection of their units under the most difficult circumstances, others, through inexperience, or lack of energy, or simply from overwork and strain imposed on them by care of the wounded, often in very exposed positions, seem unable to turn their attention to these matters. It is at such a time that a Sanitary Officer, who thoroughly knows his Division, and the capabilities of the M.O.'s of the various units can be of especial value to render advice when asked, help when required, and pressure where necessary. He moves with his Division, and at once tests water supplies, marking those that are fit for drinking purposes with their degree of purity, and condemning those that are unsatisfactory, and reports to Divisional Headquarters on particularly insanitary conditions, suggesting the amount of labour and material required to remedy them. The prevention of the spread of disease at such a time depends on the taking of measures that are simple, effective, and immediate; delay from the inertia of organisation, or the complexity of elaborate sanitary contrivances must entail a considerable amount of sporadic disease, which at any time may become epidemic.

I believe that both these causes of delay are inherent in the system of Sanitary Officers of Areas, for it is difficult for such a Sanitary Officer to suddenly shift his area and become mobile, and it is equally difficult for him to abandon the more ambitious

devices, that are both possible and advisable in permanent areas, for those that are necessarily makeshifts and whose chief merits consist in speed of execution, and simplicity combined with efficiency. In addition to these disadvantages, and I regard this as of paramount importance, the Sanitary Officer of an Area is unlikely to be acquainted with the units, with which he has to deal, and at a time when they are overworked, and in a frame of mind least tolerant of interference from a stranger. Where Sanitary Officers of Areas would appear to be particularly required is at important points on the lines of communication, and in those localities behind the firing line called "rest areas," whither tired Divisions repair at very infrequent intervals to recuperate and prepare themselves for another long spell in the forward zone. The special requirements of rest areas are comfortable, clean, and healthy billets, good sanitary provision, pure and ample water supplies, and well-equipped and easily accessible baths capable of dealing with all the troops and giving them a reasonable opportunity of being deloused in the short time at their disposal. My experience of these so-called "rest areas" has been that they rarely fulfil any of these requirements, and that the weary troops have to turn to and set their house in order. Billets are often dirty and uncared for, sanitary appliances are insufficient, water supplies are ill-protected, and baths are badly arranged and defective. The consequence of this want of preparation is that time is wasted, and much of the benefit that would have been derived is lost, especially when, as has so frequently occurred, Divisions have been brought back for two or three weeks well-earned rest and have had to be sent back to the firing line in as many days. An efficient Area Sanitary Officer would make it his business to see that these rest areas were in reality places where the war-worn troops could be recreated with as little labour as possible to themselves.

The ordinary sanitary duties and chlorination of drinking water for a unit are carried out by the Sanitary Squads and water duty men of that unit, the numbers in each case being

laid down by army regulations in accordance with the full strength. It would appear to be quite obvious that the sanitary duties and the purification of drinking water should be kept quite separate; it was, however, frequently my experience, especially in the smaller units and those of recent formation, to find the same N.C.O.'s and men discharging both duties. Another cause of trouble was the practice of choosing the N.C.O.'s and men for these very important duties from the ranks of those, who were physically or mentally, and often both physically and mentally unfit for responsible work of any kind. Soon after joining my Division, and while still in England, I received orders from the A.D.M.S. to give a course of instruction to sanitary squads and water duty men, and afterwards to examine them and report on their proficiency. In this way one early came into touch with the various sanitary squads and water duty men, and was able to weed out the incapables, and insist on the full complement. Whenever the Division was in an area for a sufficient length of time a sanitary school was organised and sanitary squads and water duty men were given a course of lectures and instruction in practical work. It was always my aim to impress on them the supreme importance of the duties they were engaged in, and to rouse their enthusiasm.

The sanitary man is often looked upon somewhat askance by his fellows, especially as he is excused certain parades and obligations that would interfere with his work, but probably more particularly because he receives an extra 4d. per day for his unsavoury duties. This attitude is well expressed in the experience of the zealous sanitary man, who while removing buckets from the latrines to a suitable spot for burial of their contents was met by a squad of his comrades: one of the latter raising the cry, "What did you do in the Great War, Daddy?" was echoed by a ribald chorus of "Carried ——." I well remember in my early days as Divisional Sanitary Officer how often, when one visited a unit and introduced oneself to the Adjutant, he would in his cheery, helpful way, say, "Oh, yes, you have come to see the latrines! Here they are!!!" and this

with such an air of finality as to impress one with the opinion that he considered one's jurisdiction began and ended in these temples of Hygeia. I was, therefore, very soon able to sympathise with the feelings of the unfortunate sanitary man mentioned above, and to appreciate the necessity of arousing in all engaged in these duties a feeling of pride and emulation. By frequently meeting these men in classes, and listening to their troubles, one was able to gain their confidence, and often to adjust unfair conditions that lessened the value of their work. Labours of sanitary and water duty men are too important, and, if carried out properly, too onerous to admit of the attendance at all the ordinary parades, while the carrying of the full equipment of an infantry man when engaged in their duties is an impossibility. Moreover, the "going over the top" during raids, or at any time except on occasions of dire necessity, leads to the loss of men, who have been carefully trained in special duties, are necessary for preserving the health of the unit, and cannot be replaced at a moment's notice. All of the above disabilities are provided for by special regulations, which are not, however, always complied with. One fully recognises the troubles of a Commanding Officer whose unit is reduced to half strength or even lower, and who is at his wits end to know where to turn for men to perform the various combatant duties allotted to him, and it is not always easy to persuade him that the work of the sanitary and water duty men is unusually important at such a time of stress. Difficulties of this description rarely occurred with officers of experience, but when owing to the heavy casualties, and the constant call for more officers for our rapidly increasing armies, mere boys were often placed in positions of great responsibility, it was not surprising that the demands of sanitation were occasionally sacrificed in the endeavour to maintain the combatant strength.

After the Somme offensive, when the Division was in course of reconstruction, and numbers of young officers were coming over to fill the places of those who had fallen, I received instructions to give lectures on sanitation to all newly-arrived

Company Officers and Non-commissioned Officers. Later I had the privilege of giving a course of lectures at the Corps School to the Medical Officers of my own Division, and of one Australian and one New Zealand Division. It was with some trepidation that I faced members of my own profession to discourse on matters of which they probably had preconceived ideas, but with them, as with the company officers, I always found a most attentive audience, and learned much from discussing their difficulties with them. Classes of this description would appear to be invaluable as a means of spreading the general interest in sanitary aims and methods, and bringing the Sanitary Officers into touch with those who are responsible for the health of their units.

The brilliant results achieved in the prevention of disease during the Great War are without doubt mainly attributable to the diffusion of sanitary knowledge combined with a system of organised inspection. Immense as are the effects of anti-typhoid inoculation in affording protection from the chief scourge of modern warfare, it must be recognised that that protection is only relative, and that without efficient sanitary provision the incidence of diseases of the typhoid group would unquestionably have been serious.

The prevalence of diseases of this description among the uninoculated was nearly six times as great as among the inoculated ; while the admissions per thousand for these diseases in the Boer War were 87 times as great, and in the German army in the Franco-Prussian War over 53 times as great as in the British Expeditionary Force in France and Belgium. After giving full credit to the restraining influence of anti-typhoid inoculation in the prevention of epidemics and the consequent reduction of the amount of infective material to which the susceptible were exposed, it is difficult to believe that such a marked reduction could have occurred through this agency alone, and a very large balance of the credit must stand to the account of the general sanitary measures.

To form a true estimate of the value of improved sanitation in the reduction of disease it is necessary to examine the statistics regarding bacillary dysentery, which in recent wars has shared a numerical importance only slightly inferior to that of the typhoid group. For this disease no protection was provided except that embraced in the maintenance of a pure water supply and careful sanitary precautions, yet the results achieved were almost as striking as in the case of typhoid. In the Boer War the admissions for dysentery per 1,000 were forty times as great as in the British Expeditionary Force in France and Belgium, and in the Franco-Prussian War the admissions were twenty-five times as great. The statistics of the incidence of dysentery in the British Expeditionary Force in France and Belgium for the different years are exceedingly suggestive, and are as follows:—

1914	0·05	per	1,000 strength.
1915	0·03	,,	,,
1916	4·09	,,	,,
1917	3·76	,,	,,
1918	0·79	,,	,,

It will be observed that during 1915 when our armies were practically stationary and efficient sanitary supervision was possible the admission rate for dysentery became almost negligible, but that during 1916 and 1917, when our armies were engaged in active operations, followed by local advances and insecure tenure of occupied territory when effective sanitary measures were almost impossible, the admission rate for dysentery suddenly increased more than a hundredfold. In gauging the importance of the great reduction of cases of dysentery in the British Expeditionary Force as compared with previous wars it is necessary to remember that the presence of this disease in any appreciable amount is invariably accompanied by a far higher percentage of cases of diarrhœa, which though insufficiently severe to be classified as dysentery considerably reduces the strength of the units attacked, and is therefore a factor of supreme importance in warfare.

On more than one occasion I have heard it suggested that it it unfair to draw conclusions regarding the prevalence of disease during the Boer War, as the conditions were so different from those obtaining in France and Belgium. Personally I am of the opinion that had careful sanitary provision not been made the results would have been far more serious than they were in South Africa. In the first fifteen months of the war the French armies had 95,809 cases of typhoid with 11,680 deaths, and it was only by adopting a more thorough system of inoculation and improving their methods of water supply and general sanitation that disaster was averted.

It should be remembered that our new armies were drawn from a population that for years had been guarded by an almost perfect sanitary system, that they lacked the protection afforded by the discipline of regular troops, and the immunity from intestinal diseases acquired by those living under less perfect sanitary conditions. They were suddenly dumped into a country where sanitary provision was conspicuous by its absence, where intestinal diseases were very prevalent, and carriers abundant. In Havre, where so many of them first set foot in France, the recorded annual mortality from typhoid was 115 per 100,000, and this would probably be considerably higher were notification compulsory. The fact that we were fighting in a friendly country naturally led to a much freer intercourse with the inhabitants, and greatly increased the danger of contact with carriers, especially among the children. My experience of water supplies is that they all gave evidence of fæcal contamination, and anyone who has enjoyed the shelter of an ordinary billet in France or Belgium will agree with me that this was apparently the object aimed at in the faulty construction of well and privy and their mutual proximity.

I call to mind one well in which the loose masonry that surrounded it was all that separated it from the badly constructed privy, and numberless others where a few feet of soil of more than questionable purity formed the only protection from the same danger. A sanitary officer in search of a

domestic privy soon learned that he was on a hot scent when he had found the well. Another apparently inevitable law in the construction of wells in the farmhouses of France and Belgium, which were the usual billets selected, was that they should be sunk not more than 10 or 15 feet from the midden, which occupied the greater part of the central courtyard and received all the manure, slops, and household refuse for at least 12 months before being removed to fertilize the land. These middens served the double purpose of giving a distinctive flavour to the water supply, and forming an excellent breeding ground and nursery for myriads of that chummy little household pet—the domestic fly.

The country generally had for years been under intensive cultivation, which in other words meant that the land had been treated with organic matter to very nearly the full extent of its nitrifying capacity, and required very little additional fouling to produce overstrain. Moreover, the practice of spreading the contents of privies and cesspits over the gardens, often in the immediate vicinity of ill-protected wells, was a constant source of danger, especially as the subsoil water in the north of France and Belgium, from which the drinking supplies were usually drawn, was rarely more than two or three feet below the surface.

In a country of the above description it was necessary to concentrate our armies to such an extent that overcrowding habitually occurred to at least five times the amount permissible in the worst quarters of our great towns. Over and above this, the troops were frequently exposed to wet and cold under conditions that made it impossible to provide any remedy, while fatigue and the harrowing effect of constant shell fire in muddy trenches, only relieved by short spells of rest in ill-lighted, damp, and airless dug-outs, and the irritation and sleeplessness produced by vermin were sufficient to reduce the resisting power of the hardiest to the inroads of disease.

Such considerations, I maintain, were calculated to produce a nightmare of the worst description for any responsible sanitarian, and the results achieved under conditions so unpromising reflect the greatest credit both on the system and on all those officers, non-commissioned officers and men who early recognised the supreme importance of efficient sanitation, and by loyal co-operation, often in circumstances of extreme difficulty, made such results possible.

REMINISCENCES OF A PRISONER OF WAR IN TURKEY.

By

C. E. M. JONES, Captain R.A.M.C.(T.).

On April 29th, 1916, the garrison of Kut-el-Amara, at the end of a siege which began on December 5th, 1915, surrendered to the Turks. It had been obvious for some time that the food supply would not hold out beyond a certain date, and the daily ration, which had been gradually diminishing, during the last three weeks of the siege, had consisted of four ounces of bread and twelve ounces of horse or mule. When the last of the grain was finished, the end came. At the end of the siege about 30 men per day were dying of starvation, and the garrison were weakened from lack of food and diseases such as dysentery, malaria, and scurvy. We moved up-stream to Shamrau, where the main Turkish camp was situated, and on the journey up, a Turkish medical officer, a Pasha, requested our Regimental M.O.'s to select those men who were specially weak or ill in order that extra food should be given them. We found, however, on arriving at our destination in the evening that no food of any sort had been provided for anyone. The next morning, after urgent representations had been made, three Turkish army biscuits were issued per man. These biscuits are fearfully and wonderfully made; they are circular in shape, about three inches in diameter, and half an inch thick; as hard as rock, and about as palatable, and required to be stamped on, or hit with a hammer, to be broken. Never-

theless, they were eagerly devoured by the troops, who were ravenous. The eating of these biscuits was followed by very unpleasant results: when soaked in water they swell to about twice their size; this fact, and the fact that they were mostly mouldy, caused most men who ate them to develop a troublesome enteritis. About this time, also, we had several deaths from what very closely resembled cholera, if it was not actually. Men would be seized with abdominal pain, diarrhœa, and muscular cramp, and would be dead in a few hours. The Turks, being absolutely unable to feed us, gave permission for our people down stream to send a boat up with food, etc., for us: and canteen and mess stores, tinned milk, etc., arrived. In the joy of once again eating a really satisfying meal we temporarily forgot our sorrows. The result of returning suddenly to ordinary diet was, as had been foretold, that a good many men developed jaundice, but everyone agreed that it was worth it! After a few days we were told that the officers would be separated from the men and would proceed by boat to Bagdad, whereas the men would march. Representations having been made to the Turkish Commandant that the men were weak from lack of food, and from disease, and were consequently quite unfit to undertake a long march in tropical heat, an order was given for Regimental M.O.'s to select any cases that they considered unfit to march in order that they might be examined by a Turkish doctor. The sick were paraded, and a sorry sight they were! The inspection by the Turkish doctor was characteristic of Ottoman methods; he selected a very small number for transportation by boat, and said that the remainder would march. On being remonstrated with, and being told that the men were weak and quite unfit to undertake the march, he replied that starvation is not a pathological condition, and scores of men weakened by lack of food, and debilitated by malaria and dysentery, and even men with legs swollen from Beri-Beri, were compelled to start on a march which, for such, could have but one ending. As to who was responsible for ordering the men to start on this march, I don't know, but this

he must have known, that such men were being made to march about 500 miles, in tropical heat, through country where water was often scant and brackish, and where the most primitive arrangements only were possible for feeding them. Such a march under these conditions would have tried the fittest troops, and in the case of the Kut garrison it was simply sending scores of men to certain death. Shortly after the men had started on their march, the officers and their servants left for Bagdad by boat in two parties, each consisting of about 100 officers and an equal number of servants. On board our boat we found about half a dozen Germans, junior officers and warrant officers, and one could not help remarking that the German and Turkish officers held aloof from each other. I found this to be the case wherever I happened to be ; the Germans and Turks hated each other so cordially that I often marvelled that they held together as long as they did.

On reaching Bagdad we disembarked at what was formerly the British Consulate, and used at that time as a Turkish Hospital. The officers were here fallen-in in order of seniority, and then marched through the streets to the Cavalry Barracks. The most noticeable thing in connection with our march through Bagdad was, that although the streets were thronged with spectators, they remained absolutely silent, and made no hostile demonstration whatever. This may have been due possibly to an order from the Turkish authorities, but more probably owing to the fact that a very large section of the inhabitants were anglophile.

We remained two days in the Cavalry Barracks at Bagdad. We were informed that we should be limited to 45 lbs. of kit each, so we proceeded to try and sell any superfluous clothing, etc., to the various Jews and Armenians who came into the barracks. These gentry were out for something for nothing, and it was amusing, even if somewhat undignified, the way in which we haggled over the prices. We had, however, practically no money, and a long trek ahead of us, so could not afford to miss any opportunity of turning an honest penny! We had

not then realised that practically every Turkish officer is also a merchant, if opportunity offers, and always on the look-out to buy and sell at a profit. A Turkish lieutenant came in and asked to be introduced to a British cavalry officer; when one was produced the Turk informed him that he had been anxious for a long time to meet a British cavalryman, and asked him if he would sell him his spurs for sixpence. he was quite disappointed when the offer was refused.

We were eventually given some money by the Turkish authorities, the amount varying according to rank. A captain was given 10 lira, four in gold and six in paper. A lira is 100 piastres, and is worth 16s. 8d., theoretically. One adds the word theoretically because the paper lira was only worth one-fifth of the gold lira, as we found to our cost, and the Arabs would not usually accept paper money at all.

On leaving Bagdad we proceeded by rail to Samara, which was then the railhead, distant about 80 miles from Bagdad. Here we remained for another two days before starting on our trek of about 350 miles across the desert. Each officer was given a mule or donkey, and we had no other transport, and our servants were given no transport. We worked in pairs; one donkey carried the kits of two officers and their servants, and the other was ridden. The trek took us about three weeks. After the lapse of three years much of the detail remains only as a confused memory, but the heat, the lack of water, and its often indifferent quality when obtainable, the difficulty in buying food, and the fact that one had not recovered from the effects of the siege and was not fit, all contributed to make this trek one of the most unpleasant "stunts" I have ever been on, and if those days were unpleasant for us, what must have been the lot of the rank and file, who were unprovided with transport and marched every yard of the distance; who were, to all intents and purposes, penniless, and for whom no adequate arrangements for food had been made; and who were often subjected to barbarous treatment by their guards. The condition of the survivors at the end of the march on their

arrival at Ras-el-Ain gave one some small idea of what they had been through.

After about ten days we reached Mosul, where we remained two days in the barracks. We were allowed to go out for our meals to two restaurants. At our first meal we went straight through the "à la carte" menu, and drank coloured mineral waters out of real tumblers. At Mosul we were each given a post card and told we might write home. We eagerly availed ourselves of this privilege, though we felt doubtful as to whether our cards would ever reach England; as a matter of fact they did, and these cards, received in England on July 14th, were the first communications which our friends had received from us since the previous December.

We made the journey from Mosul to Ras-el-Ain in nine days, a distance of about 150 miles, and the whole trek had occupied us about three weeks. Everyone was thankful that we had once more reached the railway. At Ras-el-Ain we met three or four German officers, and learned from them of the death of Lord Kitchener, and the battle of the Skagerrak. That afternoon a message came from the Turkish Commandant at Ras-el-Ain saying that he wished to see all the medical officers. Ten of us in all went to his quarters, and to our horror learned that we were to be kept there for the purpose of looking after about 3,000 Indian troops who were coming to work on the railway. Our feelings, on hearing that we were to remain in this loathsome spot, can be imagined! However, nothing could be done, and the next morning we saw the rest of our party go off by train; it was a big wrench saying good-bye to many good friends, and we left the station feeling thoroughly miserable. Ras-el-Ain was little more than a large Arab village, the houses being made of mud; it had one main street, which was almost nine inches deep in dust; its sole redeeming feature was its water supply, which came from two or three springs, and there was a really delightful pool in which we bathed every morning and evening.

We were at first quartered in a dilapidated marquee, but we complained to the Commandant that we could not stand the heat, which was very great, and we were promised a house. After some days' delay we were given new quarters. Four of us and our servants were given two rooms in a house occupied by an old man and his wife and children. The house was built of mud, and consisted of three rooms built along one of the walls of a compound about twenty yards square. The man and his family objected strongly to our presence when we appeared on the scene, but, finding that we were there by the Commandant's orders, he quieted down, and eventually became quite friendly. Our room was about 15 feet by 8 feet and about 8 feet high, and was totally devoid of anything in the shape of furniture. The four of us occupied this room, and the second room was utilised as a kitchen and for our servants. In this salubrious spot we spent four of the most awful months of our lives; we had nothing to do, practically nothing to read, and nothing to look forward to except our next meal and our bathing. Food was not easy to obtain always and the heat was very trying; the Commandant was a perfect beast, half a Turk and half a Kurd; altogether not a very desirable spot. Fortunately we were able to buy tobacco.

We could do nothing in the way of treating the sick Indian troops, as the building which was euphemistically called the Turkish hospital boasted practically no drugs. One morning there were 60 men suffering from diarrhœa, and the total drugs available for the whole 60 consisted of 15 grains of Bismuth, $\frac{1}{4}$ gr. per man, and when that was finished there would be no more. To add to our joys we all got ill with sand-fly fever, and we had all been troubled with a sort of chronic enteritis for months.

A little temporary excitement was occasionally provided, when all ten of us were sent for to go to the Commandant's office; this happened several times, and it usually meant that we were required to go and examine someone who was sick. This was often some Turkish official who was doing his best to plead

sickness as an excuse to be sent away from Ras-el-Ain. We pointed out that it was hardly necessary for ten of us to see the patient, but to no effect. One day, however, we were all sent for, and on our arrival at the office we found the temporary Commandant cutting up ten small squares of paper; he marked three of these squares, and folded all the squares of paper, and held them in his hand. We each drew a piece of paper, and I and two others drew the three marked squares. We were then informed that we three were to go to the Amanus mountains to look after the British prisoners of war who had had a lot of sickness. We knew nothing of the Amanus mountains, but were convinced that they could not be worse than Ras-el-Ain, and we were delighted to be off. We left the next day. After travelling for three days we arrived at Bagtche, in the Amanus district, the latter part of the journey being on the small-gauge railway. Just before reaching Bagtche we passed through the tunnel which was bored through the mountain at Airan. This tunnel is about 2,500 metres long but it took us four hours to get through it, as work was still going on and blasting was in progress. Our train consisted of small open trucks, and the brakesmen on the waggons carried acetyline lamps. When the blasting took place we felt pressure on the drums of our ears, and all the lamps were blown out by the explosion.

At Bagtche we found some Englishmen still left, but the majority had recently been sent away, owing to the great amount of sickness. I should explain that Bagtche was one of several stations of the Bagdad Railway Construction Company. This company was a German civilian undertaking; when war broke out the railway extended from Constantinople as far south as Bozanti, where the Taurus Mountains stopped it. In the Taurus and Amanus districts there was no line, which recommenced at Islahié, a few hours' run from Aleppo, and ran as far as Ras-el-Ain. Tunnelling operations in the Taurus and Amanus had commenced about two years before the war, and the work continued whilst the war was in progress, and prisoners

of war were sent to work on the line. Both the Taurus and Amanus districts are very malarial in the summer, and at Bagtche the men had suffered a great deal from malaria and dysentery, and in the course of three months about 200 had died, I was told.

At Bagtche we remained two days, and then I continued my journey, having been told I was to go to Belemedik, in the Taurus; my two companions remained at Bagtche. After about three days' travelling by rail and motor lorry, the latter over about 30 miles of vile roads, I reach Belemedik on the 29th October, 1916; here I found Major P., of the I.M.S., whom I had last seen as he passed through Ras-el-Ain. There were also a number of British prisoners of war from Gallipoli and Mesopotamia. Belemedik was the Headquarter Section of this locality, and was the most civilised spot I had seen for a long time. The buildings were practically all of the wood bungalow type and of European design. I was quite courteously received by the Turkish Commandant, a colonel, and by the second engineer of the company. The next morning I was taken by the Commandant to the hospital and presented to the German doctor in charge; here I was given the first cigar I had smoked for months! It was decided that I should be sent to Hadjkiri, the out-lying section of the division of which Belemedik was the headquarters, and I was instructed to report myself to the engineer and the Armenian doctor, on my arrival, the next day. Major P., who lived in the hospital, took me down to the quarters occupied by the British, where I made the acquaintance of the senior non-commissioned officer of the camp, who was a naval petty-officer, and some others who happened to be in at the time. My clothing at this time was neither plentiful nor in good repair, and I took the opportunity of purchasing a shirt at the company store. Petty-officer S. also presented me with some woollen underclothing which had been sent out in some parcels of naval comforts, and this was most acceptable. The next day I started off on my journey to Hadjkiri, distant about nine miles, over the mountains.

I rode a small pony, my valise was carried by another, and my escort, a gendarme, rode a mule, The road across the mountains was uneven and stony, but the scenery was very picturesque and a pleasant contrast to the dead level plain at Ras-el-Ain; but I was destined to become very sick of these mountains! I passed through two of the sections, and met some more British, and finally reached Hadjkiri, where I was fated to spend the next two years and two months of my existence. It struck me as being a thoroughly dreary spot, and my hopes, which had risen somewhat on seeing Belemedik, fell. My guide took me to the engineer's house, and we ultimately discovered him near by; he was dressed in blue overalls and a German peaked cap—rather a contrast to the more elegantly attired individual I had seen at Belemedik. I was taken to my room, which proved to be in the same bungalow as the Commandant, and on my arrival there the Commandant was still in possession, and was lying on his bed. He was a lieutenant, probably an ex-ranker, but quite civil. He removed his furniture and I was left in an empty room with my valise. It was about 4 p.m. and I had eaten nothing since breakfast, so I proceeded to go out in search of the hospital and a possible tea. I met a woman who addressed me in English, and asked me if I was the English doctor, and informed me that she was the Armenian doctor's cousin. I was taken to the hospital, a somewhat fearsome structure, and was given some tea, during the consumption of which I was introduced to various Armenian hospital officials, such as pharmacist, ward orderlies, secretary, etc. All these greeted me cordially, but I afterwards found them, for the most part, very undesirable gentry. Whilst I was interviewing these creatures the Armenian doctor arrived, and expressed himself as delighted to see me. He was a youngish man, quite good-mannered, but like most Armenians I have met, I found him very two-faced. He had a fair knowledge of medicine, but was utterly ignorant of surgery. The news of my arrival had been noised abroad, and a naval chief petty-officer, who was the Senior N.C.O. of the

British at Hadjkiri, came to see me. I went with him to the barracks, and saw the men, about 50 in number, and nearly all looking weak and ill from malaria; the majority of them had done practically no work for about three months. A servant was found for me, a New Zealander, Private G.; he was one of the best fellows in the world, and his kindness to me I shall always remember. The hospital at this time was a small building containing about 14 beds; this number was quite inadequate, and there were also two wooden buildings, stables, which were converted into an extension of the hospital. In the hospital proper two patients slept in one bed, and they slept in their ordinary, day-clothes; the feeding might have been worse, but it might also have been better, and by complaining to the Armenian doctor we got it much improved.

The Armenian pharmacist was also in charge of the feeding arrangements; he was paid 9 piastres per head per day for the patients' food. This money was paid by the company; he spent about 3 or 4 piastres per head per day, and kept the rest for himself. He and the Armenian doctor also sold a certain amount of drugs, which were sent out by the headquarter hospital at Belemedik. I found that one reason why the British were so sick with malaria was that often no quinine was obtainable at the hospital, and a man who was feeling rotten with an attack of malaria did not feel very inclined to walk half a mile to the hospital only to find that there was no quinine. The quinine pills which the Pharmacist made were also probably at least 50 per cent. flour. I therefore obtained a kilogram of quinine from Belemedik, and gave it out to Chief Petty-Officer A., telling him to issue it out morning and evening to any sick man. This plan, together with the issuing of some tonic in the same way, produced a marked improvement at the end of a fortnight As C.P.-O. A. put it: "The men are a lot better, sir; a fortnight ago the barrack was as silent as the grave in the evening, nobody wanting to talk, whereas last night I actually heard two men arguing!" About a fortnight after my arrival, all the men, with the exception of

half-a-dozen, were sent away to a prisoner of war camp at Afion--Kara-Hissar, being considered unfit for work with the company.

In the spring of 1917 a new hospital was built, and a nursing sister, recently arrived from Germany, came out to take charge of it. There was an immediate improvement in every way directly the control was taken out of the hands of the Armenian doctor and pharmacist; the sick were cleaner, better fed, and obtained an adequate amount of drugs; and the capable administration of this sister undoubtedly saved many lives. The Company managed to obtain a good supply of drugs etc., from Germany, which was fortunate for us, as the Turks had practically none. Some months later we began to receive consignments of certain medicines and medical comforts, which were despatched by a committee of ladies working at Hove. These medical comforts, consisting of condensed milk, Glaxo, Ovaltine, Bovril, Oxo, Brand's Essence, etc., were of very great value to the sick, who greatly appreciated the kindness of those who had worked so well on their behalf. The number of workmen in Hadjkiri section was about 3,000, and there were about 70 beds in the hospital, which were usually full, except in the months of April and May, which were the healthiest months of the year. July, August, and September produced many sick, this being the malarial season; and there was also a good deal of dysentery. When the weather became colder, in November and December, and the Greek, Armenian, and Turkish workmen consequently gave up washing themselves and became covered with lice, then typhus would begin and last more or less until the weather again became warmer in March or April. We had about 30 cases of typhus my first winter there, with a mortality of about 20 per cent., and at the headquarter section the number of cases was much greater. The following winter the usual epidemic was almost avoided owing to all the workmen being compelled to go through a bath once a week, and their clothing and bedding was stoved at the same time. Undoubtedly malaria was the greatest scourge, and

many cases were of the malignant type. I found that the intravenous injection of 7 grains of quinine gave the best results; many of the malarial cases developed nephritis, but this usually cleared up with quinine and suitable diet.

Fourteen languages were spoken in Hadjkiri, so it was not always easy to converse with the patients, but we most of us knew a little Turkish, so managed somehow. One's chief trouble was the appalling monotony of one's existence. My work occupied about two hours per day and the remainder of the time had to be be passed somehow. During practically the whole of my time at Hadjkiri there were only six British there. The Senior N.C.O., a sergeant in the Australian Light Horse, and incidentally a gentleman, was a charming fellow, but unfortunately he was working all day in the blacksmith's shop at the works near the mouth of the tunnel. However, in the evenings he would sometimes come to my room, with my servant, and we would smoke and drink tea, and I would translate the Turkish paper, printed in French. We were, of course, allowed no newspapers from England, and had to rely on the Turkish and German papers. These were, naturally, hopelessly inaccurate, but one could glean some sort of general information from them. At other times I would go down to the men's barrack, where a kindly welcome was always given me. About once a month I would go and visit Major P. at Belemedik, and we usually spent the evening chatting with a few of the Senior N.C.O.'s, discussing the latest war news, and wondering when we were going to get out of Turkey. Occasionally one or two captured British officers from the Palestine Front would pass through, and we sometimes had an opportunity of chatting with them and learning the latest news that they could give us.

And so the months rolled on. In September, 1918, we were following Allenby's advance in Palestine with intense interest, and we also managed to get news of our great advance in France. Our hopes rose daily, and when Germany and her satellites asked for an armistice we felt that the end of our troubles was in sight. During October we saw every day trains

pass through loaded with Germans and Turks from Palestine, and early in November, when we heard that Turkey had signed the armistice, we felt we were free men again and the British, French, Italian, Russian, and Serbian flags were hoisted over their respective barracks. The time between the signing of the armistice and our departure on December 7th seemed to us terribly long, but everything is said to come to him who waits, and when we eventually received orders to leave, we departed in high spirits and Union Jacks flying from every waggon on the train. We travelled by rail to Mersina, where a boat awaited us, and we embarked, thankful once more to set foot on British soil. We were landed at Port Said, and after waiting for ten days in a Rest Camp we sailed from Port Said on December 23th for Taranto, travelled up through Italy and France to Calais, and landed at Dover on January 9th, 1919.

So ended our captivity in Turkey!

A PRISONERS-OF-WAR LIBRARY

BEING THE

HISTORY OF THE BRITISH OFFICERS' LIBRARY, STRALSUND, GERMANY.

BY

MAJOR LUXMOORE NEWCOMBE,
Sub-Librarian, University College, London.

AND

LIEUT. JOHN H. E. WINSTON,
Late Wills Librarian, Guy's Hospital.

IT may be of interest to Librarians who have not had the privilege of being guests of the Ex-Emperor of Germany at one of his Homes of Rest for British Officers to have a few details of the foundation and development of a Library in a Prisoners-of-War Camp.

It is very difficult to convey to the mind of anyone who has not lived in a Prisoners-of-War Camp any idea of the numerous difficulties with which one had to contend in organising a library or any other branch of Camp life. For the first three months of our captivity, before we received our food parcels from England, we were practically starved, and everyone was so extraordinarily weak that very often the walk of some three hundred yards from our Barrack to the Library was sufficient to incapacitate us for the rest of the day. We found that two hours' work daily was as much as we could do. This in itself made progress very slow.

Both the writers of this article were captured on the Chemin des Dames on May 27th, 1918. A fortnight later we reached a temporary camp at Rastatt, where there were some four hundred British and several hundred French officers.

Apart from eating the very small quantity of excessively unappetising food which we were given by the German Government, there was very little to be done all day. We had no facilities for doing any kind of work or playing any games, so that time hung very heavily on our hands. Everyone felt the need of something to read—even if that something was only a copy of the Army List or Bradshaw's Railway Guide. Unfortunately, the only available reading material was a few volumes of the Tauchnitz Edition, which were on sale at the Camp Canteen. Had these few books been some of the best of the many excellent volumes published in the Tauchnitz Edition they would have been very welcome, but unfortunately they were, almost without exception, a collection of the worst and most uninteresting works in the whole series. Added to that drawback the Canteen price was excessive, being 3 Marks 50 for a volume published at 1 Mark 60. As very few of us had any money—any we originally had having been borrowed by Brother Fritz on our capture—it was difficult to buy these books.

It was soon apparent that there was a great need for some kind of organised library; at the same time it was obvious that it was no use attempting to start one until we reached a permanent camp, Rastatt being only a distributing station where everyone was liable to depart at a few hours' notice for another camp.

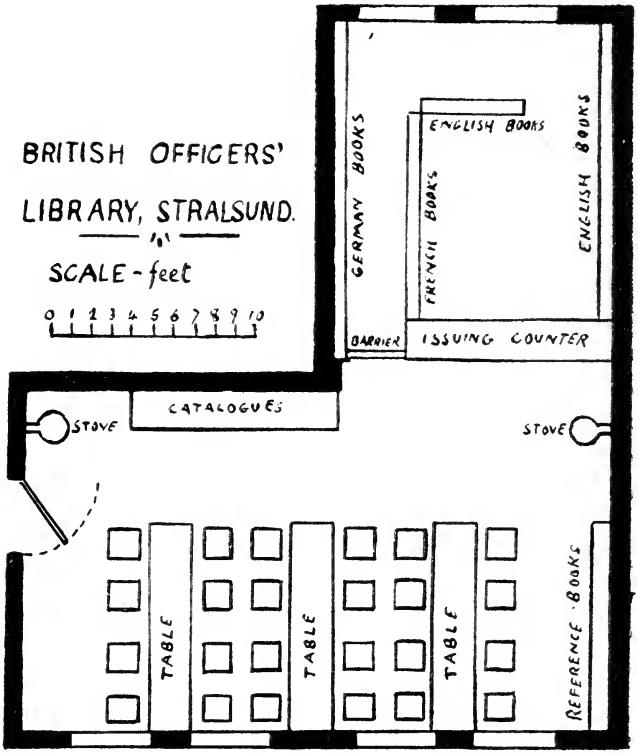
The only possible way for officers to obtain a variety of literature was by exchanging with one another the few books they had been able to purchase at the Canteen. This did not prove a very satisfactory method. The books, all of which were unbound, soon became very dilapidated and had a habit of losing some of their pages, usually towards the end of the book, so that the wretched reader did not discover their absence

until he had read the bulk of it. Many of the books were in two or more volumes, but you were a lucky man if you ever saw more than one volume of a work!

On June 27th we formed part of a batch of four hundred officers who were removed to a new permanent camp on the Island of Dänholm, near Stralsund. Here everything was put on a business basis, and various committees were formed. The Library Committee consisted of a Chairman, a Secretary and Treasurer (Major Newcombe), a Librarian (Lieut. Winston), and a representative from each Barrack in the Camp. Later the President of the Education Committee and an Officer who took charge of the Binding Department were added. In time there were eighteen members on the Committee. As this was rather a large body, a Sub-Committee was formed to purchase books and superintend the minor details in connection with the Library. This Sub-Committee consisted of the Chairman, the Secretary, the Librarian, the President of the Education Committee, and one other member.

Our preliminary difficulties were numerous. In the first place we had considerable trouble in inducing the German authorities to allot us a room for the Library, but eventually they gave us a room which had formerly been a canteen—care being taken to remove all the beer before the Library Committee entered it! This room was an ideal one for the purpose. It contained a large bay, which we used as a book store and circulating department, the remainder of the room being set aside as a reading room. When we took over the room it contained five long tables and a sufficient quantity of chairs and forms. We used the forms for making bookcases for some of the larger books. The German authorities promised to let us have thirty small bookcases, a promise which cheered us up immensely. But, alas, it was only after repeated worrying that we actually received any of these cases. Eventually we obtained eleven, which, after all, was a considerably better result than in the case of most of the German promises! The following plan gives an idea of the general arrangement of the room.

We had some difficulty in arranging suitable hours for the Library to be open. During most of the afternoon the room was wanted by the Education Committee for some of their classes. Then the hours of meals had to be studied in order to allow the members on duty to obtain their small portion of cabbage soup, which formed the main article of our diet. As the meals were worked in three shifts they took up a considerable portion of the day.



It soon became evident that the hours of circulation would have to be increased, as day after day for the first week or two of the Library's existence there were long queues of more or less—mostly less—patient members waiting to exchange books. As the days became shorter this difficulty was increased

as after dark about half the officers were not allowed to go across to that part of the Camp where the Library was situated, so that it was impossible to open the Library in the evenings. This considerably reduced the hours of circulation.

The opening of the Library was delayed for over a fortnight on account of the Camp Commandant ordering all officers to be "deloused" whether they required that treatment or not. The inhabitants of each Barrack went in turn to the Delousing Station on the other side of the Island, where the delousing process took three days. This necessitated having to wait until the last Barrack had been done before we could call in the books then in the Camp. The books so called in formed the nucleus of our Library.

The Library was finally opened on July 24th, 1918, with a membership of 467, and a stock of 993 books, of which 528 were English, 217 French, and 248 German. Of this total all the foreign works and 90 of the English books were lent to the Library by the German Authorities. These volumes had formed part of a Camp Library collected by Russian Officers who were prisoners of war on our Island in the earlier days of the War. Of the remainder of the English books, 60 had been presented by the Berlin Y.M.C.A., and the balance had been given by Officers in the Camp, principally as part payment of their entrance fees. Although a Library of 528 English volumes sounds quite a respectable one, so many of the books were odd volumes or had pages missing, or if they happened to have escaped these drawbacks their subject matter was often of a very trashy description, that the actual readable material was lamentably small.

A few days before the Library was due to open we bumped up against an unexpected trouble by some of the German Guard marching into the room, pitching us out, locking the door, and taking away the only key we had. It took us a couple of days to get this key back again. We balanced our account on this point by finding another key of the room, which, we regret to say, we stole without the slightest hesita-

tion or qualms of conscience! A sad example of the depths to which a Librarian may sink under certain circumstances.

The rules of the Library were as follows:—

1. *Membership.*—Only members of the Library are allowed to use the Library Room.

2. *Subscription.*—The subscription is Fifty Pfennigs a month, payable on the 1st of each month. An entrance fee of Two Marks will be paid. Each member on joining will contribute one book to the Library or pay a further entrance fee of Two Marks.

3. *Borrowing.*—Only one (in September the word "English" was added here) volume may be borrowed at a time; works of more than one volume which entail the reading of each volume consecutively will be counted as one volume. (At the end of September when the number of volumes in the Library enabled us to do so the following paragraph was added). In addition to the English volume one foreign book may be borrowed.

4. *Return of Books.*—Books must be returned within the following times from the date of borrowing: English books, 7 days; foreign books, 14 days. If, on the expiration of the above period, the book is not wanted by any other member, it may be renewed for a further period of 7 or 14 days. (At the end of September members were allowed to retain English books also for a period of 14 days).

5. *Fines.*—Any member failing to return a book on or before the date due for its return will be fined:—10 Pfennigs per day up to a total of seven days; 1 Mark per day after the seventh day. (The latter part of this rule was rescinded at the end of September, when the larger stock of books in the Library made it less important that books should be returned quickly).

6. *Exchange of Books.*—All books must be exchanged through the Library, and not passed from one member to another. Books may be exchanged at the following hours:—Weekdays, 9.15 a.m. to 10.15 a.m. and 7 p.m. to 8 p.m.; Sundays, 2 p.m. to 3 p.m. The Library is open for reading at the following hours:—Weekdays, 9.15 a.m. to 12 noon and 7 p.m. to 8 p.m.; Sundays, 2 p.m. to 5 p.m. (Later, for various reasons, these hours had to be altered as follows:—Weekdays, circulation and reference, 9.15 a.m. to 11.15 a.m. and 2 p.m. to 4 p.m., reference only, 6 p.m. to 7.45 p.m.; Sundays, circulation and reference, 2 p.m. to 4 p.m.).

7. *Waiting List.*—Any member wishing to reserve a book which is already in circulation may do so by entering details in the Waiting List Book. (This rule had to be cancelled almost immediately, as it was found to be unworkable owing to the very limited number of books in the Library. Within a week the majority of the books in the Library appeared in the Waiting List!).

8. *Suggestions.*—A Suggestion Book is kept in the Library. Any member wishing to recommend a book for purchase will write full particulars in the Suggestion Book. When making suggestions it should be remembered that, with very few exceptions, only books published in Germany (e.g., the Tauchnitz Edition) are obtainable. Any suggestions for the improvement or general working of the Library should be made in the Suggestion Book.

9. *Reference Library.*—Certain works of reference are not allowed out of the Library, but may be consulted in the Library by any member.

10. *Access to Books.*—No member may have access to any of the bookcases containing fiction. The bookcases containing works of reference and educational works are open for members wishing to consult the books.

Although we should have liked to catalogue the Library on the card index system, we had to be content with the material at our disposal, which consisted of quarto exercise books, each containing 120 pages. We allotted four of these books to the Author Catalogue of English books, one each to the Catalogues of French and German books, and one each to the Subject and Shelf Catalogues.

Our cataloguing rules were as simple as possible, each book being catalogued under the author's surname, full Christian name when possible, short title, place of publication, date, and press mark. Cross-references were made when necessary.

Later on, after some difficulty, we were able to obtain cataloguing cards on which the titles of all the English books were copied. These cards were used in the following manner.

We made a number of small wooden trays, each capable of holding about 200 cards. These trays were lettered on the outside to show what cards each contained. We made also a tray long enough to contain a thousand cards.

The method adopted was that when a member wished to borrow a book he consulted the small boxes which contained all the cards—in alphabetical order—of all the books actually in the Library at the time. From these boxes he took out the card for the book he wanted and gave it to one of the assistants on duty. The press mark being on the card, the assistant was

at once able to go to the shelf and hand the book to the member, who gave it to another assistant to enter on the borrower's sheet, at the same time returning the book he had out. The first assistant then put the card into the long tray—or did so later if he was too busy at the time—which contained the cards for all the books at that time in circulation, arranged in numerical order according to press marks.

The advantages of this system were the saving of a considerable amount of time to both members and assistants. The member wasted no time in compiling a list of books and finding them all out, and the assistant had not to look for endless books which were in circulation. The member knew that if he found a card in one of the small boxes the book was in the Library. The one drawback to this system was that members would take cards out of the small trays and put them back in the wrong places, thus necessitating constant resorting of the cards. When a book was returned the corresponding card was transferred from the long tray to the appropriate small one.

The Borrowers' Register was made out of a number of quarto exercise books, the pages of which we cut out, thus forming a rough loose-leaf register. At the top of each sheet we had the name, rank and initials, Barrack and room number, and the Library number of the member to whom the particular sheet belonged. Each side of the sheet was ruled into two parts of four columns each. These columns were headed as follows:—(1) Date of Issue, (2) Press-mark, (3) Date of Return, (4) Fines. When a book was issued to a member the assistant marked off the returned book, if any, collected any fine due, and entered the date of issue and the press-mark of the book which was being taken out. The borrowers' sheets were kept in alphabetical order in rough folders consisting of the covers of the exercise books from which we had taken the sheets, each letter having a separate folder. Before returned books were replaced on the shelves their cards were sorted into the appropriate small tray.

We had four sets of press-marks: the English books being numbered from 1 onwards consecutively, the French books being marked F.1 etc., the German G.1 etc., and the Reference R.1 etc. At first these press-marks were written inside the covers of bound books and on the outside of unbound books. Later when we were able to obtain some small labels, we also put a press-marked label on the back of each book. The gum used for fixing these labels cost us 6s. 6d. for a small bottle! To facilitate the rapid finding of books we allotted one shelf to every 50 books. We could easily do this, as most of the books were small and a great many were always in circulation. As we were unable to procure a stamp for the books the name of the Library was written on the title page of each.

After we had put the Library into working order we handed over the Circulation Department to members of the Committee, who took duty in pairs. Although it would have simplified matters to have had two officers permanently on duty this was impossible owing to educational classes and other affairs in the Camp. Having relieved ourselves of the minor duties in connection with the Circulation Department, we were free to devote our time to cataloguing and superintending the general routine of the Library.

Although all the officers who took duty in the Library were very keen and energetic, we found that even in a small Library, such as this, the entire lack of any practical library training was a serious drawback. It took us quite a long time to impress upon some of them the importance of putting books back in the same place. Many of the assistants had an unpleasant habit of issuing odd volumes of a work, much to the annoyance of a member who had waited patiently in a long queue to obtain a book, which he found on reaching his Barrack was Volume 3 only of the work he wanted—or even of a work he did not want. Some of the assistants had a very vague idea as to the class of book they were issuing. For instance, there was the case of a man who asked for

"any good novel," and was given an antiquated book entitled "How to keep house on a pound a week"; a most excellent book no doubt, but not much use to a man who wanted a novel in a Prisoners-of-War Camp where grocers, butchers, and bakers shops were non-existent. Then there was the case of the rather solemn man who asked for one of the British classics, and was given Elinor Glyn's "Three Weeks"; whereas the man who probably would have appreciated the latter work was sent on his way rejoicing with a copy of Robertson's Sermons!

We endeavoured to improve the standard of the literature in the Library by introducing more books by standard authors and works of an educational character, at the same time casting out some of the trashy novels presented in the early days of the Library, when we were only too glad to extend the heartiest of welcomes to anything that had ever seen a printer's press.

We obtained through the Prisoners-of-War Book Scheme many hundred volumes of an educational and technical nature. These books were issued on permanent loan to men pursuing their professional studies. Many of these volumes were the principal text books on the various subjects and their value to the Camp as a whole cannot be over-estimated. The greatest praise is due to Sir Alfred Davies and the other promoters of this Scheme, which was practically the only available source of supply open to men wishing to continue or commence their professional studies. Most of the books were used in conjunction with the many excellent classes organised by our Camp Education Committee.

In addition to these books we obtained some 150 grammars of various European languages, which were supplied at a very low figure by the Berlin Y.M.C.A. It is interesting to note that the German authorities would not allow us to obtain any Russian grammars, as they said that no doubt after the war England would have a good deal of commercial intercourse with Russia and they did not want to encourage the study of the language by prisoners-of-war!

Our greatest difficulty—we had many!—was the acquisition of books. Practically the only books we could purchase were those published in the Tauchnitz Edition. As we have already stated, we started with a total of 993 volumes in the Library, which number we endeavoured to augment as rapidly as possible. We asked every officer in the Camp to present to the Library any books he might receive from time to time, and we ordered 200 volumes of the Tauchnitz Edition through a German bookseller who visited the Camp for orders. We had to pay 5 marks per volume for these. There was also a civilian clerk in the Camp from whom we purchased 159 volumes for 262 marks.

It is a matter of interest to note that when we went to pay the clerk for these books he refused to take cash, imploring us to let him have food instead as soon as our food parcels arrived. The fact that a man in his position, with a wife and children to support, was willing to sacrifice so large a sum as £13 for an uncertain amount of food at some indefinite date in the future shows how greatly the Germans were in need of food at that time.

In addition to these books we obtained two splendid donations, one of 500 volumes of the Tauchnitz Edition from the Danish Red Cross and one of 255 similar volumes from the Berlin Y.M.C.A., as well as many more German and French books on loan from the German authorities. We later received a few books from the Camp Library.

In these and other smaller ways we gradually increased our Library until when it was disbanded on the 20th of November it contained 1,893 English books, 311 French books, and 372 German books.

As so many of the volumes in the Library were in paper covers, many of which were in a sad state of dilapidation on their first appearance in the Library, it was soon evident that unless we could bind books on a fairly large scale our Library would soon disappear in waste paper. Fortunately we had in the Camp an English orderly who was a book-binder by

trade, and who would have been exceedingly useful to us had we been able to obtain the necessary material to enable him to carry out the work. We were allotted a very small room as a bindery, and were given sufficient apparatus to enable us to bind the small books we had; the only other things we needed were cloth, boards, thread and cord, none of which articles we were able to obtain. Whenever we asked the Commandant to assist us in obtaining these materials—for which we were, of course, willing to pay—we were always met by the stock answer "That we were unable to obtain them owing to the efficiency of our own blockade," a cheering if not altogether satisfactory explanation. After a time we were able to obtain 200 metres of black thread and a small quantity of boards and cloth. String from our food parcels made a fairly satisfactory substitute for cord, so that one way and another we were able to tackle a few of the worst cases of binding casualties.

As soon as we had sufficient books in the Library we were able to admit the orderlies, of whom there were some 250, as members. They were given the same facilities as the officers, but were charged no entrance fee or subscription, although they were subject to the usual fines for the non-return of books. Another important development was the regular weekly service of books to British officers and orderlies in the hospitals in Stralsund. An average of about 50 books were exchanged weekly amongst the patients in the four military hospitals. Arrangements were made with the German authorities for these books to be sent by the orderlies who had to call at the hospitals once a week.

All the books before being handed over to the Library were censored by the Camp Censor. Fortunately this censoring was more or less eye-wash, as several books trickled through containing sentiments of anything but a pro-German nature.

Early in October the Germans adopted the most offensive practice of stripping the binding off all books that came into the Camp. The reason for this was that a book had been dis-

covered containing maps and German notes of considerable value concealed in the binding. These of course had been sent with the object of assisting officers to escape. Fortunately we persuaded the Commandant not to adopt this malicious practice in the case of books for the Library.

We will conclude our remarks with a brief statement of the financial side of the Library. The assets consisted of the original entrance fee of 4 marks, or 2 marks in the case of those members who gave a book as well. The monthly subscription was 50 pfennigs, but this was suspended from October onwards. The only other source of income was from fines. The available funds were allocated as follows:—25 per cent. to books of an educational character, 25 per cent. to English classics, and 50 per cent. to modern fiction and to the expenses of administration.

Apart from the purchase of books the main items of expenditure were 20 marks a month to the orderly who cleaned the Library, 20 marks a month to the orderly who assisted in the Bookbinding Department, books for catalogues and borrowers' register, 3,000 cataloguing cards of a very inferior quality at the exhorbitant price of £5 15s., and 18s. 6d. for a miserable broom which had evidently never heard of either Mr. George R. Sims or Mr. Edwards.

The following is a copy of the last balance sheet:—

BALANCE SHEET.

Income.		Expenditure.	
Entrance Fees and Subscriptions	3118 00	Purchase of Books ...	1262 00
Fines	121 05	Carriage on Books ...	31 25
		Books for Catalogues, &c., and Stationery ...	74 95
		Cards for Catalogue ...	115 90
		Sweeping Brush ...	18 50
		Library & Bookbinding Orderlies	160 00
		Balance presented to Y.M.C.A.	1576 45
Marks ...	3239 05	Marks ...	3239 05

We considered it necessary to keep a fairly large balance in hand to meet any possible demands for compensation for damage done to the reference books lent by the German authorities. Fortunately, owing to the Armistice and the chaos existing when we left the Camp, they did not demand any damages. The balance was therefore brought back and handed to the National Council of the Y.M.C.A. as a mark of appreciation for the many books they had given to the Library.

When the Library was closed on November 20th, 1918, it contained 2,576 volumes, apart from those issued to members under the Prisoners-of-War Book Scheme, and had a membership of 1,174. These volumes, except those lent by the German authorities, were distributed among the members when the Library was closed.

And that was the end of what was in all probability, the largest Library of its kind in the world.

THE WAR AND GUY'S NURSING SERVICE.

By

Miss F. A. SHELDON.

In presenting a brief account of the effect of the War of 1914 to 1918 upon the Matron's Department, a simple statement of the events as they occurred during those memorable years will show that the problems to be solved in a large London training school were very real and far reaching. Material embarrassment was delayed for some time, but the outbreak of war brought immediate loss of personnel which continued until the armistice, and involved the Matron in, perhaps, the greatest of her difficulties.

From August, 1914, many of the Sisters and the nurses from the Private Staff and District joined up; their places had to be filled and the training of the Probationers and the management of the wards maintained, all of which became an increasingly serious matter, continuing to the present date owing to post-war conditions.

The splendid list of Guy's women published in this volume, who worked at home and abroad, speaks of the individual desire for service and the support given by the Hospital towards its achievement. The Assistant Matron and the Sisters held demonstrations of practical nursing for all men who wished to attend, and at this time the Matron's Office was busy with interviews and arranging for courses of training, from three weeks to three months, for ladies who applied in large numbers either

to attend daily or to be resident. Nearly all these workers were extremely good and intellectually keen and courteously amenable to Hospital regulations, but they naturally wanted "intensive" instruction in nursing and treatment, and had not realised that so many hours in the wards are spent in quiet routine work. A visitor who came to see one of these ladies was disappointed to find that operations did not "go on all night." Several of these workers opened their homes later as private hospitals, and showed their appreciation by choosing their staff from Guy's.

The regular nursing staffs of the Naval and Military services were, of course, infinitesimal compared with the numbers required, and the War Office applied to the civil hospitals for trained women, suitability and health to be guaranteed, and this brought to those working in the Matron's Office still more arduous work. Many Guy's parties were gathered together, and eventually seen off at Victoria Station.

Miss Haughton had for some time represented the Civil Hospitals upon the Nursing Board of the Q.A.I.M.N.S., and this position now entailed very lengthy attendances at Whitehall. This valuable service was acknowledged later when in 1917 the Royal Red Cross was bestowed upon Miss Haughton.

The most superficial knowledge of the nursing world would connect the Crimean War and the name of Florence Nightingale, the Lady of the Lamp, who brought light and healing to disease and pain unspeakable. We hope that future generations will connect the year 1916 of the European War with another great advance in our Profession, that is, the founding of the College of Nursing. The increasing roll of army nurses and the activities of the Red Cross Society in opening hospitals at home and abroad led to the discomforting discovery that the nursing profession was entirely disorganised, with no central authority, standard, or even register. Each hospital was a law unto itself and was virtually unconcerned with the professional and economic life of the nurse when she left its walls.

We owe to The Hon. Sir Arthur Stanley, G.B.E., C.B., a deep debt of gratitude, for as he became aware of this condition he conferred with Dame Sarah Swift (Matron of Guy's from 1901 to 1909) and Sir Cooper Perry, and they were joined by several leading matrons and other interested persons. As the result of an incredible amount of thought and labour there will be seen this year the foundation of a College Building fit to house a noble profession, on a site adjacent to The Royal Society of Medicine, Wimpole Street.

This is not the place to detail all that the College stands for, but its beginnings were in the war, and Guy's men and women should be proud of the fact that Dame Sarah Swift, R.R.C., Miss Haughton, R.R.C., and our present Matron, Miss Margaret Hogg, and Sir Cooper Perry have had a distinguished share in its building. Miss Margaret Hogg, C.B.E., and Sir Cooper Perry are at present serving on the Council and many Committees of the College.

The year 1917 brought many difficulties to the Ward Sisters. The Residents were often doing double duties, and the depleted ranks of dressers added to the Sisters' responsibilities. Guy's has never been really short of probationers, but as so many girls naturally joined in war nursing, it became difficult to entirely maintain our usual standard. The scrubbers and ward maids rapidly disappeared to take highly-paid government work, and the shortage of equipment, especially of glass and china, made itself felt. In the closing of many Convalescent Homes the Sisters lost the pleasure and satisfaction of adding to the health and recovery of their patients. In the Matron's Department the rise in the price of uniform, bed-linen and blankets, and all materials used in the laundry became an increasingly serious consideration, and, indeed, it became difficult to run the laundry as so many of the workers left for better paid posts. Another great trial was the food rationing, which was not accepted without a good deal of criticism by both staff and patients. However, many people in England failed to perceive any connection between shortage of bread, meat, and sugar and a European War.

The nursing and organisation of the Officers' Section were a great triumph, the extra cooking required being undertaken in the ward and by the Hospital kitchen staff. Several voluntary workers added greatly to the comfort of the patients by assisting with their meals and taking charge of books and flowers. All workers in the Section received the appreciative thanks of the Naval and Military Authorities, and the Royal Red Cross was bestowed upon Miss L. G. Sheild, the Ward Sister.

The Massage and Electrical Departments developed tremendously during the war in response to the increased demand for treatment, and the Guy's Massage School stands second to none in the kingdom. The work of the Private Nurses during the war was carried on with real difficulty and often hardship. Restricted travelling, the shortage of cabs or taxis, coal, light, and food, and in many houses the entire absence of even daily domestic help, was a heavy addition to their professional work. The influenza epidemics were real tragedies. Many Guy's nurses, however, remained to carry on this specially useful branch of public service and earned the gratitude of their patients. The Nursing Profession has in common with the whole world to face the strange perplexities of post-war conditions. Many of the old ideals appear to have vanished, and great faith and courage are required to link the spiritual and material for the mutual benefit and help of the nurse of the immediate future and her patient.

Modern conditions ask for all organisation of training with a reasonable economic outlook for the future, and for the first time in its history the nursing profession is faced with these most righteous demands. The difficulty is world-wide, and women now are not taking up nursing as a career. It is unthinkable, however, that the spirit to serve and succour has disappeared; it only awaits the opportunity to flow through new channels.

THE 2ND LONDON GENERAL HOSPITAL.

By

F. J. STEWARD, M.S., F.R.C.S.

THE 2nd London General Hospital was one of the four Territorial Base Hospitals in London which were called into being on the outbreak of the War.

The preliminary arrangements as to the formation of these hospitals were made, and *à la suite* officers were commissioned long before the war, in fact at the end of 1908. The *à la suite* officers of the 2nd London General were drawn from the staffs of Guy's, the London, and St. Thomas's Hospitals, the members of the Guy's Staff being Drs. W. Hale-White, G. Newton Pitt, L. E. Shaw, and J. Fawcett, and Messrs. C. J. Symonds, W. A. Lane, F. J. Steward, C. H. Fagge, and R. P. Rowlands.

Two days after the declaration of War with Germany the members of the *à la suite* staff were summoned to meet the C.O. at St. Mark's College, Chelsea, which, together with the adjoining L.C.C. Schools, were the buildings taken over for the establishment of the Hospital, and within a very short space of time the equipment of the Hospital was carried out, and all arrangements made for the reception of patients, the first convoy of wounded from France being received at the hospital on the 29th September, 1914.

From this time until March 31st, 1919, when the last patient left, the work of the hospital was continuous, the number of patients received reaching the total of 40,039, of these, 4,058 were officers, and 35,981 non-commissioned officers and men.

It is not necessary to dwell upon the working of the Hospital, which differed but little from other Hospitals of the same class, nor upon the many difficulties—some of them unavoidable, but many avoidable—under which the work was carried on, as this note is principally concerned with the placing on record of the names of the large contingent of Guy's men who worked at the Hospital.

The 2nd London General had, however, one special feature, which was its Ophthalmic Department. From the first a large proportion of the cases of wounds involving the eyes or eyesight were sent to the Hospital, and an ever-increasing number of beds were allotted to the Ophthalmic Department, reaching at one time a total of 500. Altogether 4,503 eye cases were admitted to the Hospital, including 1,008 men blinded in the war.

There was also a large Ophthalmic Out-Patient Department to which men were sent from a large number of camps and hospitals in and around London, for testing eyesight, recording vision, working out errors of refraction, ordering glasses, fitting artificial glass eyes, etc., the total number of out-patients seen (not including second and subsequent attendances) being 11,081.

At first Mr. A. W. Ormond had sole charge of the Ophthalmic Department, but as the work increased he was assisted by a number of eye specialists, four of whom were Guy's men—H. Lee, G. Maxted, H. C. Rook, and H. Sharpe.

The members of the Guy's Staff who served on the *à la suite* staff of the 2nd London General Hospital were as follows:—Sir William Hale-White was in charge of the Medical Division throughout the war, whilst Drs. and Messrs. G. Newton Pitt, J. Fawcett, A. W. Ormond, F. J. Steward, and R. P. Rowlands also served during the whole period, and Sir Charters Symonds, Sir W. A. Lane, and Messrs. C. H. Fagge and E. C. Hughes served for short periods early in the war. Further, Mr. R. Wynne Rouw did dental work at the Hospital in an honorary capacity, Dr. C. E. Iredell had charge of the Electro-therapeutic

Department, Dr. G. W. Goodhart was in charge of the Bacteriological and Pathological Departments, Dr. H. F. Lancaster was an anæsthetist to the Hospital, and the following Guy's men also served at the Hospital at various times (some as civilians and some as officers in the R.A.M.C.)—R. W. Cushing, P. L. Du Vergé, F. D. S. Jackson, H. Lee, A. Magill, G. Maxted, L. Milton, C. E. Petley, B. Ramirez, W. Robinson, H. Sharpe, N. A. D. Sharp, and A. N. Taymour.

WORK IN THE BACTERIOLOGICAL DEPARTMENT, 1914—1919.

By

JOHN W. H. EYRE.

It would be an exceedingly difficult matter to compile a complete and precise account of the various activities of the Guy's Hospital Bacteriological Department throughout the course of the European War, and it is hardly less difficult to present even a brief synopsis for the simple reason that the obvious historian, the Head of the Department, was the only qualified member of its staff who was continuously employed throughout the whole of that period—indeed, for more than half the time, for a total period of two years and three months, to be exact—he was without qualified assistance of any kind. In this connection, however, tribute must be paid to the unremitting and whole-hearted service rendered by the Head Laboratory Attendant, who was likewise on duty throughout the whole of that period, without whose expert assistance few of the extensive investigations that were undertaken could have been initiated, much less completed.

In the following pages, however, I have endeavoured to give an outline of the work that was carried out during the period from the declaration of war on August 4th, 1914, to the declaration of peace, June 28th, 1919.

Personnel of the Department.

The declaration of war caught the Department in the midst of the holiday rota. The Head of the Department was ostensibly off duty for the entire month of August, although, in point of fact, his absence was limited to fourteen days. The Junior Assistant, Mr. Skene Keith, a keen Territorial, was in Training Camp with the 4th Queen's West Surrey Regiment, and was promptly embodied. Dr. Lucey, the Senior Assistant, volunteered at once, received a commission in the R.A.M.C. and reported for duty at the end of August. From this point onwards the Department was consistently understaffed; the Director was repeatedly declared by the Committee of Reference to be indispensable, and so perforce remained on duty continuously for the duration. During the remainder of the time no less than six medical men and one medical woman were associated with him in the Laboratory for various short periods, ranging from two to seven months, and only during one period, from January to May in 1917, were any two present together. The needs of the Army were so great that so soon as a man had had a few months training in the Laboratory he was promptly called up and placed in charge of a Bacteriological Laboratory elsewhere. From August, 1914, to January, 1915, was one of those periods when no assistance was available. Mr. Sampson then came on, and from January to May was trained in the Laboratory. In May he was commissioned, first of all in the Naval Medical Service and subsequently in the South African Medical Corps, for Laboratory work. Then occurred another break from the beginning of June, 1915, until the end of April, 1916, but for much of this period very valuable assistance was rendered by Dr. A. Watson Munro (Physician to Sydney Hospital), who became an Honorary Temporary Assistant in the Department. Mr. Burnside was appointed Assistant Bacteriologist in May, 1916, and remained working in the Laboratory until the end of August, 1916, when he also received a commission in the Naval Medical Service. Mr. Knott succeeded him in November, 1916, and remained in

the Laboratory until May, 1917, when he, too, entered the Naval Medical Service.

In January, 1917, an experiment was tried of appointing a lady Medical, who, however, only remained on duty until the end of May of the same year, when she joined the Connaught Hospital at Aldershot as Pathologist. The next appointment was made in February, 1918, when Mr. Bamber came on and remained for the two months, February and March, before joining the R.A.M.C.. In May, 1918, Mr. Grace was appointed as Senior Assistant Bacteriologist, and in October of the same year Mr. Ralph was appointed to the Junior post. Mr. Grace retained his position until the end of March, 1919, when he was appointed Laboratory Director to the Clinical Research Association, and Mr. Knott, demobilised from the Navy, returned to the post of Senior Assistant. In September, 1919, soon after the declaration of peace, Mr. Ralph resigned, and Mr. Keith, now demobilised from the R.A.M.C., to which he had been transferred, was appointed to the Junior post.

It will thus be seen that the assistance rendered to the Director by qualified men during the period of the war was of the very slightest, none of them holding the post sufficiently long to be really adequately trained, so that, throughout their tenure of office they needed constant tuition and supervision, and, to put it plainly, except for the presence of a qualified medical man in the Laboratory during the absence of the Director, the occupancy of Assistant Posts involved increased work.

The staff of Laboratory Attendants was fortunately efficient and adequate for the greater part of the war period. Mr. J. C. Turner, the chief attendant, with fourteen years' experience, was a tower of strength, and without his assistance it would have been well nigh impossible to carry on the work of the Department. Fortunately—owing to the work the Laboratory was carrying out for the A.M.D.—it was found possible to obtain an "indispensable" badge for him, and he remained on duty continuously throughout the war, and I would again

take the opportunity of expressing, in no measured terms, my appreciation of the loyalty and energy he displayed during this strenuous and trying period. Mr. Sugden, the second attendant, was also similarly badged on medical grounds, but towards the end of 1916, was secured by the Lambeth Infirmary as Head Attendant of its newly-instituted laboratories; he was succeeded by Ottewill, who only became eligible for military service about the time of the Armistice, and who consequently still holds the post. Mayo, the third attendant, was transferred in April, 1916, to the Laboratories of the Seamen's Hospital at Greenwich, and was subsequently called up. Miss Pincott, who was trained in the Laboratories, gave valuable assistance also from the beginning of 1915 up to the early part of 1918, when she took up V.A.D. work. Other Laboratory boys were Lockyer, Shepherd, and Clark, the last named of whom is now the third attendant. All stuck nobly to their work in the Laboratory, cheerfully working overtime when necessary and always rendering every assistance in their power. The clerical work during the war was carried out successively by Miss Cowell until the middle of 1915, when she was succeeded by Miss Wilson for the following year, who in turn gave place to Miss Clark, who was on duty up to the end of 1918, and was then succeeded by Miss Peretz, who is still responsible for this work.

Laboratories.

In August, 1914, the Bacteriological Department was still housed in Petersham Building in the quarters it had occupied since 1892. The construction of new laboratories had, however, already been commenced in January, 1914, the plans having been previously passed by the Governors. By July little more than the shell of the new building had been completed, but in anticipation of the completion of the laboratories by the end of the year, all the equipment had been ordered, was well in hand, and a large order for glass-ware of all kinds, estimated to cover the consumption of about five years, had been ordered direct

from works in Jena. This glass-ware was duly invoiced to the Hospital in July, 1914, but beyond one large crate containing fluted funnels, which came through at the end of July, failed to leave Hamburg.

The constructional work was pushed on with vigour during the early days of the war. All the ordinary equipment, made in England, was received, and the new laboratories were occupied at the beginning of February, 1915. (A full description of the laboratories appeared in the sixty-eighth volume of the "Guy's Hospital Reports," pp. 145—165.) The space thus available was severely tested during the following years, but proved equal to all the demands made upon it.

Hospital Routine Work.

The routine bacteriological work for the Hospital, which had steadily increased from the institution of the Department in 1893, when eight specimens were investigated, to 1913, when the number of specimens dealt with totalled 6,681, suffered a slight diminution during the last five months of 1914, but in spite of this the specimens for the entire year reached the respectable number of 6,839. In 1915 and 1916 the numbers were well maintained, such fall as took place being chiefly attributable to the scarcity of clinical clerks and dressers upon whom devolves the duty of collecting specimens. In 1917, however, the London County Council undertook the administration of the Local Government Board scheme for the treatment of Venereal Disease, and Guy's became a recognised Clinic. All the laboratory investigations entailed under this scheme were provided for by the Bacteriological Department, and a notable and immediate rise took place in the number of specimens examined in the Laboratory, as will be seen from the accompanying table. It may, therefore, be considered that the volume of purely civilian work carried out by the Bacteriological Department underwent no diminution, but quite the contrary, during the war period.

Hospital Specimens by Quarters.

Year.	1st Qr.	2nd Qr.	3rd Qr.	4th Qr.	Total.
1914	1905	1985	1621	1328	6839
1915	1670	1335	1287	1328	5620
1916	1359	1305	1310	1278	5252
1917	1964	2039	1937	2018	7958
1918	2131	2420	2133	2112	8796
1919	2492	2853	2837	2952	11134
Compared with 1913	1598	1552	1790	1741	6681

War Work.

Although, as already mentioned, the declaration of war found many of the Departmental Staff actually on holiday, a letter was at once addressed to the Army Medical Department of the War Office placing the Laboratories, in part, or as a complete Unit, and the services of the entire personnel, individually or collectively, at its disposal. This step was taken with the sanction and approval of the Superintendent and Governors. With characteristic War Office courtesy, no reply was vouchsafed to this offer.

The difficulties, administrative and otherwise, which confronted the Hospital and School Authorities in the early months of the war, when everyone was eager and anxious to volunteer for active service, rendered it difficult to do other than merely carry on the routine work of the Department, but in October another offer was made to the Army Medical Department, as it became clear at this point to all thinking individuals, that the war was not likely to terminate quickly, and if adequate pathological and bacteriological assistance was to be given to the wounded who were returned to this country, it would be well to devise some scheme which would take advantage of existing laboratories

and existing facilities in order to cope with the work. But, again, not even an acknowledgement of the offer was made by the War Office Authorities.

By December 30th the completion of the new Laboratories was in sight. The amount of available accommodation was considerable, and it would have been possible to accommodate four, five, or even half-a-dozen Army Pathologists and provide them with all necessary equipment, etc., had the Military Authorities desired to take advantage of our offer. Consequently, a letter was again addressed to the Army Medical Department in slightly different terms from those of the former ones, and to this a reply was received from the D.G., thanking the Director of the Department for the Hospital's offer, and asking him to repeat the offer to the D.D.M.S. of the London District, who might be in a position to accept it. This was at once done, but in spite of the glaring and obvious insufficiency of bacteriological accommodation and the scarcity of previously trained pathologists, the D.D.M.S. replied on the 5th January, 1915, that he could not accept the offer as all the hospitals were so fully supplied with bacteriological and pathological experts that under the circumstances no suitable work could be found in the London District Command for the Guy's Bacteriological Department.

This decision was accepted as final, and no further offers were made to the Army Authorities.

During the early months of 1915 typhoid and para-typhoid became prevalent in the Expeditionary Force in France, and owing to an Army Order, which stipulated that every case of typhoid before being discharged from hospital should give a negative result quâ B. typhosus on the examination of stools and urine, a vast amount of work was poured into the laboratories attached to the General Hospitals in the London District, so much, in fact, as to swamp all other investigations.

Towards the end of April the pressure on the Military Laboratories, as might have been anticipated, became acute, and Sir Shirley Murphy, who was attached to the D.D.M.S. as Chief

Sanitary Adviser, rang up the Director of the Department at Guy's and asked whether he was willing to repeat his offer of assistance, particularly in connection with the typhoid investigations. The answer was naturally in the affirmative, and arrangements were at once made to deal with typhoid material.

Typhoid, Para-Typhoid and Dysentery Investigations.

An interview with the D.D.M.S. of the London District Command followed, when it was explained that it was essential to obtain three "negative" results after examination of the excreta for specific organisms, from every convalescent before the man could be returned to his unit for active service; this number of "negatives" was increased to six by an Army Order in January, 1916. The Department was asked to supply details as to how many specimens could be dealt with, the probable cost of material, and other administrative details in connection with the work.

Fortunately some years previously I had been commissioned by the Asylums Committee of the London County Council to investigate the incidence of typhoid and dysentery in certain of the London County Council Asylums, and had then devoted a considerable amount of time to comparing the various methods for dealing with those excreta in which the specific organisms are most readily found. Finally, a routine method had been standardised based upon plate cultures on a modification of the Conradi-Drigalski medium, termed Guy's nutrose agar, which enabled specimens to be dealt with satisfactorily and rapidly, and had been in use in our Department since 1906. On this experience we expressed our willingness to handle specimens of excreta from typhoids, etc., and contacts to any number up to 1,000 per quarter, and we stated that the cost would not exceed 2s. per specimen, this figure to include all materials, labour, stationery, etc., the Director, of course, giving his services in a purely honorary capacity; this cost was quoted to the A.M.D. in spite of the fact that Dulcitol, one of the

essential sugars in the differentiation of the members of the typhoid group was missing from the market, and the War Office was scouring England for supplies at any price. (Incidentally, it may be mentioned that owing to some research work that had been carried on by Mr. Rogerson in the Chemical Department, there were ample supplies of Dulcitol in the Guy's Laboratory, and after retaining all that we were likely to need for our own work, no matter what stress was thrown upon us, we were able to allow the War Office to purchase 100 grms. for a few pounds.) Our offer was immediately accepted, the Director of the Department became a War Office Contractor, and preparations were made for dealing with the work.

Printed forms were prepared to be filled up by the Medical Officers in Charge, giving the necessary details for identification, etc., for the specimens from each patient. Wooden boxes were made to contain all specimens to be sent to Guy's from the various hospitals, and the whole of the routine detail for dealing with large numbers of specimens was carefully worked out.

On enquiry it was stated that, of the London General Hospitals, No. 1 was able to cope with most of the specimens that it received, No. 2 was hardly able to deal with any, No. 3 could only deal with a portion, and No. 4 with none at all.

The Pathologists in Charge at these various Hospitals were notified as to the manner in which the specimens should be sent, and everything appeared to be in trim, when a peremptory wire, followed by several telephone messages from the office of the D.D.M.S. put a stop to all work. It appeared that in spite of the assurance that the inclusive cost per specimen would not exceed 2s., that Official feared that the printing bill for the specimen forms and the cost of carrying boxes would form an additional item to that sanctioned by the War Office, of which he himself would probably have to bear the cost. A certain length of time elapsed before this misunderstanding was cleared up, and it was somewhere about May, 1915, that the first specimens arrived, and it was not until July that

the specimens really arrived in numbers sufficiently large to cause any serious inconvenience in the Laboratory. But from June, 1915, until December, 1916, a total of 1,172 specimens for examination for the presence of B. typhosus was received from No. 1 General Hospital, 2,093 from No. 2, 2,781 from No. 3, and 1,385 from No. 4, together with similar specimens from other Hospitals distributed over the quarters of these two years, as shown in the following table.

SPECIMENS FOR TYPHOID AND PARA-TYPHOID.

	1915				1916			
QUARTERS	1st	2nd	3rd	4th	1st	2nd	3rd	4th
No. 1 General ...	—	880	140	26	126	—	—	—
„ 2 „ ...	—	—	308	741	470	265	94	215
„ 3 „ ...	—	—	1	280	2418	82	—	—
„ 4 „ ...	—	—	332	627	426	—	—	—
City of London M.H.	—	—	214	395	15	10	25	211
Fulham M.H. ...	—	—	22	200	6	3	—	—
Hammersmith ...	—	—	—	—	—	5	—	—
Sandown Park ...	—	—	—	—	—	102	—	—
Metropolitan ...	—	—	—	—	—	—	—	5
Inns of Court O.T.C.	—	—	—	—	—	6	—	—
		880	1017	2269	3461	473	119	431
		4166			4484			

This work undertaken by the Director of the Department, acting in an honorary capacity, was continued on these lines until November, 1915, when I was appointed as a Civilian Pathologist in the London District Command and continued to serve in this capacity up to the end of the September quarter, 1918.

As soon as the typhoid work was well in hand at Guy's (May, 1915), Sir Walter Fletcher, of the Medical Research Committee, asked whether we would be willing to make comparative tests, in dealing with the material at our disposal, of two methods for each of which was claimed superiority over other methods then in vogue for the isolation and differentiation of typhoid and para-typhoid bacilli, viz., Professor Dreyer's method of exposing inseminated plates to the rays from a silver arc lamp and Dr. Carl Browning's method of preliminary enrichment of the excreta in a telluric acid and brilliant green medium. This I agreed to do, and the Medical Research Committee on its part agreed to defray the cost of the instalment of the silver arc lamp and all laboratory costs incurred in the investigation, also the cost of a further Laboratory Assistant up to a sum not exceeding £50. The Electrical Branch of the Guy's Hospital Works Department was at once instructed to prepare the silver arc lamp. Unfortunately, shortly after this Dr. Fletcher was incapacitated for several months by a severe attack of pneumonia, so that his original intentions were never carried out, and the expenses of the investigation were borne in part by a grant from the Desvigny Research Fund, but chiefly by the Director of the Bacteriological Department. Further assistance was arranged for, and in a very short time the arc lamp was completed and installed at a total cost of £18, and the triplication of the examination of the typhoid specimens was at once proceeded with. By triplication I mean the study of suspected excreta by three separate and distinct methods:—Dreyer's silver arc lamp method, Browning's brilliant green, and my own routine Nutrose Plate method. After some months' work, the silver arc lamp was discarded as useless, and later on it was decided that the brilliant green method possessed no outstanding advantages over the nutrose plate method.

Indeed, the result of all these observations confirmed the opinion previously formed that there is no royal road to the isolation of pathogenic bacteria. The isolation of any specific organism from pathological material can only be successfully

carried out by careful and precise methods combined with long experience of the particular method employed; and when a worker has made a careful comparative study of a number of methods devised to attain a particular end and selected and adopted one of them for routine work, that method will give, in his hands, results equally successful with those produced by another equally competent worker employing a totally different method.

The results obtained in this particular investigation were of considerable interest, since out of the 1,100 convalescents and contacts, material from less than 5 per cent. of them was found on examination to "carry" the specific organism of the disease from which the patient had originally suffered.

In connection with these investigations it may be recalled that at the end of 1916 or the beginning of 1917 the Army Medical Department recognised that the addition of paratyphoid A. and paratyphoid B. to the typhoid vaccine was unlikely to interfere with the efficiency of this last-named. Thereafter a vaccine "T.A.B." was issued containing 1,000 million typhoid B. and 750 millions of each paratyphoid A. and paratyphoid B. as one mixture, and instructions were issued that a first injection of half a cc. of this mixed vaccine was to be followed by a second injection of 1 cc. eight to ten days later, wherever possible. Where two doses were impossible, then a single dose of 1 cc. was to be given. With the introduction of this vaccine, paratyphoid disappeared from the army in the field, just as typhoid had done in the earlier days with the typhoid vaccine.

Prompted by an appreciation of the experimental basis of Castellani's work with the quintuple vaccine (in which the typhoid and the two paratyphoids were mixed with cholera vibrios and the micrococcus melitensis), it may be mentioned that from the very first days of the institution of the R.F.C. Hospital in May, 1915, T.A.B. vaccine was invariably employed for such officers of the R.F.C. as were inoculated there, so

that the triple prophylactic was in vogue in this particular Corps for eighteen months to two years before their colleagues in other branches were similarly protected.

Cerebro-Spinal Fever.

At the end of April, whilst the question of examination of material for the presence of typhoid bacilli was still under discussion, Col. Reece enquired whether we would be willing to participate in the examination of contacts of cerebro-spinal fever cases. On receiving an answer in the affirmative I was asked to proceed to the German prisoners' internment camp at Stratford, to investigate a batch of prisoners who had recently been brought in from Southampton. I at once collected the necessary kit and proceeded to Ritchie's factory, but on arrival, owing to some misunderstanding, was informed that all the prisoners had already been examined. On my return to London it transpired that none of the prisoners had been examined, and the following day Col. Reece called for me at the Hospital and accompanied me to the Internment Camp, when I collected post-nasal swabbings from about 100 of the prisoners, and R.A.M.C. officers specially detailed from Woolwich dealt with the remainder. Of these contacts it is interesting to note that the percentage of positive meningococcus carriers was nil, and in the remaining five or six hundred investigated by the R.A.M.C. Pathologists less than one per cent. carriers were detected. It is somewhat remarkable in view of the importance attached to the "carrier" by the Army Medical Department at that time that no really reliable history which would stand the test of strict enquiry has ever been recorded of direct contagion in connection with this disease; and it is of further interest to recollect that in the early days of the present century, somewhere in 1902, we had no less than nine cases of so-called spotted fever in contiguous beds in Mary Ward (in the midst of ordinary medical cases) many of which were fatal and all very severe, without any spread of infection to other patients in the ward, or to any

of the medical or nursing staffs or to students. The only instances that have come to my knowledge where direct contagion might have been inferred have been multiple cases occurring in, for example, a single army hut, but here again the evidence is not above criticism since the onset of the disease in these multiple cases has only varied by a few hours.

The bacteriological examination of the post-nasal space in acute cerebro-spinal meningitis occurring in the civilian population during the war period yielded a negative result in practically 50 per cent. of the cases I examined, and although I am perfectly aware that it has been stated that as high a percentage as 50 or 60 positive meningococcus carriers occurs in contacts and that meningococci are almost invariably found in the post-nasal space of acute cases, I find considerable difficulty in accepting such figures as accurately representing the true position. Moreover it must be remembered that these high percentages were recorded mainly in the early days of the war, and then largely by junior pathologists with limited experience of bacteriological investigations in general and with little more than a passing acquaintance with the meningococcus itself, derived from a short course of instruction in the Central Cerebro-Spinal Laboratory. That there is at any rate a substratum of truth in this criticism is obvious from the way in which the carrier percentage dropped as the years went on and the general body of workers acquired experience and the equally noticeable diminution in the volume of evidence put forward as to the danger of contacts in this particular disease.

For my own part I have not the least doubt that, like pneumonia, typhoid and other specific infective diseases, cerebro-spinal meningitis is primarily a septicæmia, in the course of which the meningococcus becomes localised to the tissue of election, namely, the cerebro-spinal membranes, and just as the pneumococcus is frequently, but not invariably, present in the post-nasal space in cases of lobar pneumonia, so the meningococcus is occasionally present there in cases of spotted fever.

Red Cross Auxiliary and Private Hospitals in the London District.

With the disappearance of typhoid and paratyphoid from what may be termed urgent investigations in connection with patients arriving at the London District Command, I was requested by the D.D.M.S. to act as Pathologist to a number of Red Cross Auxiliary and Private Hospitals within the area, and during 1916, 1917, and 1918 I acted in this capacity to several of them, and from the third quarter of 1917 prepared such autogenous vaccines as were needed for the purpose of treatment in such hospitals. The amount of work thus entailed was not very great and the distribution of the specimens will be seen from the following table :—

Hospital.	1915		1916		1917		1918		Total.	
	Spec.	Vac.	Spec.	Vac.	Spec.	Vac.	Spec.	Vac.	Spec.	Vac.
No. 2 General	249	5	115	0	218	3	182	1	764	9
Various Small Hospitals	19	0	17	5	3	0	—		39	5
Oakenshaw	0	1	3	0	—		—		3	1
Berkhamstead	0	2	—		—		—		0	2
Park Lane	7	4	—		—		—		7	4
P. S. Hospital	1	0	—		—		—		1	0
War Office, No. 5 ...	—		1	0	6	0	—		7	0
War Office, No. 11 ...	—		1	0	3	0	—		4	9
Lady Carnarvon's ...	—		1	0	—		—		1	0
O.T.C., Inns of Court ...	—		14	6	—		—		14	6
R.A.M.C. Hospitals ...	—		2	0	—		—		2	0
Birkett	—		—		1	0	30	2	31	2
Countess Lytton's ...	—		—		22	1	29	0	51	1
Lady Inchcape's ..	—		—		3	0	10	2	13	2
Lady Montgarret's ...	—		—		2	1	1	1	3	2
Mandeville	—		—		19	1	1	0	20	1
Military Orthopædic ...	—		—		10	2	43	9	53	11
Portman	—		—		4	0	5	2	9	2
Southwark Military ...	—		—		68	11	50	27	118	38
Cadogan Square	—		—		1	0	—		1	0
Eccleston	—		—		3	0	—		3	0
Mrs. Georges'	—		—		1	0	—		1	0
Grosvenor	—		—		1	0	—		1	0
Millbank	—		—		1	2	—		1	2
Park Street	—		—		3	0	—		3	0
Portland Place, 83 ...	—		—		1	1	—		1	1
Prince of Wales'... ...	—		—		11	1	—		11	1
Princess Club	—		—		1	1	—		1	1
R.N.A.S. Hospitals ...	—		—		3	1	—		3	1
Campbell	—		—		—		1	1	1	1
Fishmongers' Hall ...	—		—		—		3	1	3	1
Latchmere	—		—		—		1	0	1	0
Meynell	—		—		—		1	1	1	1
Swedish Quarantine ...	—		—		—		95	0	95	0
Totals ...	275	12	151	11	385	25	452	47	1267	95

The total cost of investigations for the entire period during which assistance was rendered to the London District Command, and which comprised the investigation of 9,900 specimens and the preparation of 95 vacines, that is, from the beginning of the second quarter of 1915 to the end of the third quarter of 1918, amounted to £1,012 11s. This sum covered all outgoings in the way of laboratory material, glassware, stationery, postages, and all sundries, together with payment for overtime work of the Laboratory Staff, which at one time or another comprised twelve separate individuals, the work itself being carried out without the routine bacteriological work of the Hospital and its contained "Officers' Section" being in any way curtailed or neglected.

Still within the London District area other activities were indulged in.

From its inception in 1915 I acted as Honorary Bacteriologist to the Coulter Hospital in Grosvenor Square, defraying all expenses incidental to the work. But early in 1918 the expense became too heavy for me to bear, and I was reluctantly compelled to resign this post at the end of the second quarter of 1918. Similarly from its inception I also acted as Honorary Bacteriologist to H.M. Queen Mary's Royal Naval Hospital at Southend, defraying all its incidental expenses with the exception of those incidental to the transport of specimens, until June, 1918, after which date I continued the work as part of the routine of the Department, and Queen Mary's Hospital refunded the cost of materials directly to Guy's. The total number of specimens examined at each of these institutions is shown in the next table.

R.F.C. Hospitals.

Early in 1915, Mrs. Paynter, a patient who had derived considerable benefit from vaccine treatment was transferred to the care of Dr. Atkin Swan at a time when her gratitude required some tangible outlet; and as a result of numerous

discussions with him she herself provided a considerable sum of money and collected a still larger sum amongst her friends and acquaintances. With the money thus available certain beds were provided in Netley House Nursing Home for the accommodation of Officers of the Flying Corps in need of Medical, Surgical, or Vaccine treatment. Committees were formed and funds were rapidly acquired and No. 37, Dorset Square became the Headquarters of the Royal Flying Corps Hospital. With the phenominal expansion of the Corps and the increased need for further hospital accommodation, No. 35, Bryanston Square was placed at the disposal of the Committee of the Hospital by Lady Tredegar, and when this, in turn, became too small, No. 32, Eaton Square was acquired in addition. Captain Tremayne next offered his house at Helinger, in Cornwall, as a Convalescent Home for cases transferred from the Flying Corps Hospital. Shirley Park Golf Club was next absorbed, and by the end of the war the Grosvenor Hotel at Swanage had also been utilised as a Convalescent establishment. To all of these institutions I was attached as the Consulting Physician Bacteriologist, until the dissolution of the Hospitals at the end of 1919.

American Women's Hospital and American Red Cross.

On March 21st, 1917, the American Women's Hospital for Officers, London, was formally opened by the American Ambassador and Mrs. Page. Immediately previously to this I had received an invitation to join the Consulting Staff of the Hospital as Honorary Bacteriologist, which I accepted. I retained this post until January, 1918, when all the American War Enterprises in France and Great Britain were co-ordinated under the American Red Cross, and the control of the American Women's Hospital passed to the American Red Cross Commissioner for Great Britain, who requested me to continue to act as its Honorary Pathologist while under his administration. This I did, but on September 1st, 1918, the Hospital was transferred

to the United States Army Medical Service. It was then attached to the United States Base Hospital, No. 29, at Tottenham, the Medical and Surgical Officers of which then assumed control, but as the nearest United States Army Laboratory was at Winchester, I continued to assist the Authorities by carrying out such pathological and bacteriological work as was required until the Hospital was closed down in June, 1919. Throughout, all expenses were defrayed by the American Women's Relief Fund and the American Red Cross respectively.

The tale of specimens from these four sources is shown in tabular form :—

Hospital.	1915		1916		1917		1918		1919		Total.	
	Spec.	Vac.	Spec.	Vac.	Spec.	Vac.	Spec.	Vac.	Spec.	Vac.	Spec.	Vac.
Coulter	32	11	169	39	150	31	43	9	—		394	90
H.M. Queen Mary's (R.N.)	26	7	149	49	393	24	323	26	88	5	979	111
R,A.F. Hospitals ...	15	6	82	47	235	54	183	47	148	43	663	197
American Red Cross	—		—		61	5	105	17	32	0	198	22
Totals ...	73	24	400	135	839	114	654	99	268	48	2234	420

Joint Women's V.A.D.

At the request of the Joint Women's V.A.D. Department (of the Territorial Force Association, the British Red Cross Society, and the Order of St. John of Jerusalem) the training of V.A.D. workers as laboratory assistants was instituted, Miss Warner, who was in charge of this section of the Red Cross work, and subsequently Miss Griffiths, drafting the volunteers to us, usually three at a time, for a three months' course of laboratory training. This work was continued as necessity arose during the next year and a half, and although many were found totally unsuitable for laboratory work and were returned to the Joint Committee, during that time the Hospital passed through its Laboratories to various other jobs, at home and abroad, many

excellent workers, of whom the following V.A.D.'s may be specially mentioned :—

Mrs. Cecilia Bishop, and the Misses L. Carr Cook, T. Irwin, Margaret Leeke, Alice Oakland, E. M. Thomas, and Grace Wylie.

Special Investigations.

To avoid any monotony from routine work other and special investigations were undertaken at various times at the request of A.M.D.2. Thus in the early months of 1917, Colonel, then Major, Herbert French reported to the D.G. that numerous cases of an unusual type of lung infection characterised by bronchitis associated with purulent expectoration and deep cyanosis were occurring in the Aldershot Command, and requested assistance for a bacteriological investigation in connection with this disease. This was followed by an interview with the D.G., Sir Alfred Keogh, as a result of which I was instructed to report for duty to the D.D.M.S. of the Aldershot Command. The subsequent investigations showed that the cases of purulent bronchitis to which Colonel French had drawn attention were due to infection by Pfeiffer's bacillus associated with the pneumococcus, and formed the advance guard of an epidemic of influenza which ravaged the entire world during this and the next two years, repeating in its features, even to the "shock" paragraphs in the daily papers, the previous big epidemic of 1889 and 1890, an epidemic which stands out as my earliest professional recollection.

As a result of the work carried out in this direction (which was fully described in a paper by Drs. Abrahams, Hallows, Colonel French and myself in the *Lancet*, September 8th, 1917), I was requested in the following year to assist the New Zealand Headquarters Medical Staff to investigate an outbreak of measles, attended by a serious mortality, which occurred in the N.Z.E.F. on Salisbury Plain during the winter of 1917—18. From this time onwards I acted as Consulting Pathological Adviser to

the N.Z. Headquarters' Medical Staff. This proved to be a series of cases of measles complicated by a purulent bronchitis, identical with those previously investigated in Aldershot, except that here B. influenzæ was associated with hæmolytic strains of streptococci instead of pneumococci. As the result of my investigations I was entrusted—together with Captain E. Cronin Lowe—in February, 1918, with the duty of preparing a prophylactic vaccine for use throughout the N.Z.E.F. in England and France. This work we at once proceeded to put in hand, and prophylactic vaccination was commenced in the N.Z.E.F. in March, 1918.

This was at first tested on a nominal roll of 1,000 men, the initial reactions carefully watched and the subsequent behaviour of the inoculated individuals in the presence of the big "wave" of influenza in the following summer noted. The results were recorded in an article by Captain Lowe and myself in the *Lancet*, October 18th, 1918, and amply justified the wholesale vaccination of the N.Z.E.F. which was instituted about the middle of October, 1918, the result of this prophylactic measure being subsequently also recorded in the *Lancet*, April 5th, 1919.

The prophylactic vaccine itself was prepared in the Bacteriological Department of Guy's Hospital, and the rank and file of the N.Z.E.F., to the extent of some 64,000, received one or two prophylactic inoculations, whilst an enforced control to a number of 16,000 received no inoculation. The results were distinctly satisfactory, and the experience thus gained justified one in supporting the proposal to adopt prophylactic vaccination against influenza at a War Office Conference convened by the D.G. in October, 1918, as a result of which an Army Order was issued stipulating the size and dosage for prophylactic vaccination.

In order that this measure might be carried out without delay, several laboratories were invited to co-operate in the preparation of a large quantity of prophylactic vaccine at short notice. In response to this request the Bacteriological De-

partment at Guy's was able to place nearly half a million doses of prophylactic vaccine at the disposal of the Army Medical Department of the War Office inside seven days, without in any way disturbing our routine work, and smaller quantities to the Admiralty Medical Department and other bodies.

Just before this, however, two transports containing reinforcements for the N.Z.E.F. arrived at Plymouth with a large number of serious cases of purulent bronchitis and giving a history of an appalling number of deaths on the voyage. At the request of the New Zealand authorities I proceeded, with Captain Lowe, to Salisbury Plain and then on to Plymouth to enquire into this remarkable mortality.

The history of the outbreak was very interesting, in that it appeared the transports containing the N.Z.E.F. reinforcements were met off the West Coast of Africa by a British Convoy and the Captains of the N.Z.Transports, together with Wireless Operators, were invited on board a British Cruiser for the purpose of a conference and to receive instructions as to the route to be followed on approaching this country in order to escape the submarine menace. Several fatal cases of influenza had occurred on board the cruiser, and 48 hours after the conference the Captain of one of the N.Z. Transports and his Wireless Operator were down with influenza, and from that moment onwards the disease ravaged throughout the Transports, so that at one time hardly a soul on board could be regarded as sound and healthy.

As a part of my association with the N.Z. Medical Staff, I from time to time received into my laboratory members of the N.Z.M.S. for instruction in bacteriological investigations. Some of them only remained a very short time, whilst others, like Captain Robertson, worked in the Laboratory for some months.

War Office Trench Fever Committee.

In April, 1918, I was invited to join the War Office Committee on Trench Fever, and from this date up to the beginning

of 1920, attended the almost weekly meetings of this Committee in addition to performing a number of experiments in connection with Trench Fever in the Bacteriological Department at Guy's.

As is now common knowledge, the English Committee, almost simultaneously with the American Red Cross Committee, which was investigating the same disease, proved that its transmission was due to the ordinary body louse, and worked out the incubation, period, etc., but, like its American colleague, quite failed to implicate any specific micro-organism, so that the etiological causa sausants still remains an unknown quantity.

The amount of work that was done in connection with experimental Trench Fever at the New Hospital, Hampstead, was truly colossal, and exemplified to the full the value of highly-trained and expert team work when the investigation of any particular disease is needed to be carried through in a minimum time.