



LED BY IWM

PRO PATRIA

Remembering the First World War

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Introduction

In his speech at the Anniversary Dinner of the Chemical Society on Friday 14 March 1913, invited guest H. G. Wells spoke of the public perception of chemistry and his personal awe at what science had the potential to achieve. In the majestic rooms of the Hotel Metropole in London, the renowned novelist spoke of how he had always tried to make the scientific man, the hero. Believing that science was the 'true romance' more than the traditional tales of knights rescuing damsels in distress, he felt that the small band of working chemists were rapidly changing the conditions of human life.

Wells spoke of his belief that while chemists had not made war impossible, they had made it preposterous; as most of Europe had been arming itself with weapons that chemists had been putting into their hands, they had come to realise that these weapons had the potential to destroy everything; the cost of war would far outweigh any benefit.

Preposterous or not, war was declared the following year and among the attendees of the 1913 dinner was 23 year old Eric Rideal. Three years' later, he saw first-hand, the chaos and destruction wrought by war as he worked to supply water to troops on the Somme. Hundreds more members of the Chemical Society and the Institute of Chemistry fought for their country between 1914 and 1918; 82 of those that had died were subsequently commemorated on the First World War memorials that now hang in the premises of the Royal Society of Chemistry in London.



The Chemical Society Memorial

In 1918, shortly after the death of Lieutenant Colonel Edward Harrison, the Chemical Warfare Committee where Harrison had acted as controller formed the Harrison Memorial Committee with the aim of creating a memorial to his life and work. As Harrison had worked primarily as a chemist, the committee approached the Chemical Society to become the home of the completed memorial.

The Chemical Society gratefully accepted the memorial and expressed the desire for all the Society's Fellows who had died in service of their country to also be honoured. To this end, the committee employed the services of sculptor Ernest Gillick to create a fitting tribute; Ernest Gillick was an eminent sculptor of the time and had worked on the façade of the Victoria and Albert Museum as well as the Cenotaph in Glasgow's George Square.

Sir James Walker, President of the Chemical Society, presided over the ceremony to unveil the memorial on 16 November 1922. The Right Honourable, The Earl of Crawford and Balcarres attended the ceremony as a guest to perform the unveiling; during the war, the Earl had served as a private in the Royal Army Medical Corps, a unit closely associated with Harrison.

In his speech, the president told of the nature of the memorial and went on to outline plans for an additional future memorial to Harrison. With the remaining money, the Harrison Memorial Committee were to implement a new award for chemists 'who shall have made the most meritorious original contributions to chemical science during the previous five years'. From 1926 to 2008, the Chemical Society awarded the Harrison Memorial Prize to such deserving chemists; afterwards, the Society merged it with the Meldola Medal & Prize to become the Harrison-Meldola Memorial Prize.

The original location for the memorial was on the main staircase at the front south east corner of Burlington House; in 1967, when the Chemical Society moved in to the east wing, they relocated the memorial to the staircase where it now sits between the Lawrence Lee stained glass windows.

Source:

1. Moore, TS & Philip, JC 1947, The Chemical Society (1841-1941): A Historical Review, The Chemical Society, London.

Original
Location





PRO PATRIA

ANDREA ANGEL	EDWARD F. HARRISON
JOHN P. BATEY	JOHN M. HERON
CHARLES M. BERLEHN	CHARLES C. ILES
ARTHUR J. BREARLEY	R. A. SEYMOUR JONES
BERTRAM H. BUTTLE	MAURICE KEMP-WELCH
NORMAN P. CAMPBELL	HERBERT KING
FREDERIC W. CATON	FRANK S. LONG
CECIL R. CRYMBLE	JAMES MCCONNAN
JOHN L. DAVIES	CYRIL D. MCCOURT
CHARLES W. DICK	RAYMOND W. NICHOLS
JOHN G. M. DUNLOP	LEONARD I. PITT
CHARLES G. E. FARMER	BENJAMIN A. POSFORD
JAMES L. FOUCAR	WILLIAM G. SAUNDERS
EDWARD W. L. FOXELL	ARTHUR E. TATE
IVAN R. GIBBS	CÉCIL H. WALDRON

SOCIETATIS CHEMICAЕ
SOCII VITAM DEDERVNT

Dr Andrea Angel (1877-1917, aged 40)



The only civilian to be included on the memorials, Andrea Angel was born in Bradford in 1877. His maternal grandfather was an Italian refugee who, after ten years' imprisonment in northern Italy, on political grounds, escaped to the UK.

After completing his education at Christ Church Oxford, Dr Angel became a lecturer at Keble College and then Brasenose College; in 1912, his next appointment was as a tutor in chemistry at his former college, Christ Church. Active within the Chemical Society, of which he became a Fellow in 1905, he authored a number of papers for the Society's journal.

War broke out in 1914 and although eager to enlist, the requirement for chemists of his calibre to put their skills to work at home prevented Andrea Angel from doing so. For the next two and a half years, as the world fought, he was hard at work overseeing the production of TNT at the Brunner Mond factory in London's Silvertown.

In the evening of Friday 19 January 1917, a fire broke out in one of the upper rooms of the factory; realising that there was no stopping the fire, Dr Angel's priority was to get the workers, largely composed of women and girls, into a place of safety. Fearing that not everyone had managed to escape and knowing that a massive explosion was inevitable, he re-entered the building. At 6.52 pm, a huge explosion ripped through the factory; reports told of the explosion being heard 100 miles away in Southampton and the fires which came after were seen 30 miles away in Guildford.

The explosion was caused by 50 tons of TNT (much of which was loaded onto nearby railway wagons ready to be transported out) being set off by a fire in the 'melt-pot' room; many buildings in the immediate location were instantly obliterated. Large, red hot lumps of metal erupted from the explosion spreading the fire for miles around and causing damage to an estimated 60,000 to 70,000 properties. The financial loss from the damage caused amounted to £2,500,000; the human cost was the loss of the lives of 73 people and injuries to a further 400. Had the fire not occurred so late in the day and at the end of the working week, the number of fatalities and injuries would easily have been significantly worse.

Dr Angel was 40 years old when he died; he left a widow, Mary and two young daughters, Marion and Heather. For his bravery, on 24 March 1917, the Edward Medal was accepted by Mary Angel on behalf of her husband from King George V.

20 NOV 1904

CHEMICAL SOCIETY.
CERTIFICATE OF A CANDIDATE FOR ELECTION.

The attention of the candidate in whose favour this certificate is made out is specially directed to the fact that, if elected, he will be required to sign the following obligation prior to his admission into the Society:-

OBLIGATION—I, the undersigned, do hereby engage that I will endeavour to promote the interests and welfare of the Chemical Society, that I will observe its laws, and to the utmost of my power maintain its dignity, as long as I shall continue a Fellow thereof.

Name in full *Andrea Angel M.A.*

Place of Residence *41 Wellington Square, Oxford*

Qualification or Occupation *M.A. Chemistry, Tutor to the Hon. Collegiate School, Oxford University*

Qualifications *Lect. Substitution and Reactions, Lectures of Christ Church, Oxford, and also Honorary (Chemistry) in the Royal School of Natural Science, 1899. Joint author, with Mr. Henry Overton, of "Observations on the Pharmacology and Poisons of the Decomposition of Normal Cuprous Acetate" when elected a F.C.S. (Trans. 1905) 195. Engaged upon a similar investigation of Cuprous Formate.*

being desirous of admission into the CHEMICAL SOCIETY, we, the undersigned, propose and recommend him as a proper person to become a FELLOW thereof.

Dated this *25th* day of *November* 190*4*.

From Personal Knowledge.	From General Knowledge.
<i>A. F. Armstrong</i>	
<i>R. Horrobin, Treasurer.</i>	
<i>S. H. A. Angel</i>	
<i>W. H. F. F. F.</i>	
<i>J. E. Marshall</i>	

Proposed on *October 19/04*

To be Balloted for on **15 FEB 1905**

Elected **15 FEB 1905** 1905

William A. R. Tolson
President

* Directions for filling up the Certificate are given on the other side. 4003

Source:

1. HBB 1917, 'Obituary Notices: Andrea Angel', Journal of the Chemical Society, Transactions, pp. 321-323.

Captain Arthur Joseph Brearley (1890-1917, aged 27)

Born in Birmingham in 1890, Arthur Brearley graduated from Emmanuel College, Cambridge and later gained employment at Exeter School as senior science master. Upon outbreak of war, he attained the rank of captain in the 1st /7th (Cyclist) Battalion, Devonshire Regiment attached to 'N' Special Company, Royal Engineers. Captain Brearley was killed on 20 June 1917, following the Battle of Messines.

Source:

1. 1918, 'Obituary Notices: Arthur Joseph Brearley',
Journal of the Chemical Society, Transactions, p. 300.

Second Lieutenant Bertram Haward Buttle (1888-1917, aged 29)

A native Londoner, Bertram Buttle received his education at West Ham Polytechnic and the East London College from which he graduated with honours in chemistry in 1907.

He gained a position as science master at Archbishop Holgate's School in York and then at Finsbury Technical College, about which the author of his obituary later wrote:

'When Professor [Raphael] Meldola asked me if I could recommend anyone for a demonstratorship at Finsbury Technical College. Knowing that they both possessed a common characteristic, absolute scientific truthfulness, Buttle seemed the right man and as might have been expected, fully justified the choice.'

During the war, he served in France with the Gas Section of the Royal Engineers. Continuing his service with the Mediterranean Expeditionary Force in the winter of 1915/1916, he later returned to England, obtained a commission the following May and went back to France and Belgium until the autumn of 1917; it was there that he was wounded by an aeroplane bomb and died in hospital an hour later.

Source:

1. Hewitt, JT 1918, 'Obituary Notices: Bertram Haward Buttle',
Journal of the Chemical Society, Transactions, pp. 300-302.

1891 1917

CHEMICAL SOCIETY.
CERTIFICATE OF A CANDIDATE FOR ELECTION.

The attention of the candidate in whose favour this certificate is made out is specially directed to the fact that, if elected, he will be required to sign the following obligation

OBLIGATION.—I, the undersigned, do hereby engage that I will endeavour to promote the interests and welfare of the Chemical Society, that I will observe its laws, and to the utmost of my power maintain its dignity, as long as I shall continue a Fellow thereof.

Name in full Arthur Joseph Brearley

Usual Place of Residence 14 Victoria Terrace, Exeter

Designation or Occupation Senior Science Master

Exeter School, Exeter.

B.A. (Oxford)

Qualification* Art. & Science Part I First Class
Art. & Science Part II Second Class
Science Master Exeter School

Being desirous of admission into the CHEMICAL SOCIETY, we, the undersigned, propose and recommend him as a proper person to become a Fellow thereof.

Dated this 26th day of Oct 1915.

From Personal Knowledge
Dr. J. S. G. Pease
W. J. Sell
Charles Meldola
J. W. Doole
W. H. Mills

From General Knowledge

Proposed on 3rd NOV 1915

To be Balloted for on 4th DEC 1915

Elected 4th DEC 1915 1915

W. H. Pease
President

* Instructions for filling up the Certificate are given on the other side.

27013

1 NOV 1917

CHEMICAL SOCIETY.
CERTIFICATE OF A CANDIDATE FOR ELECTION.

The attention of the candidate in whose favour this certificate is made out is specially directed to the fact that, if elected, he will be required to sign the following obligation

OBLIGATION.—I, the undersigned, do hereby engage that I will endeavour to promote the interests and welfare of the Chemical Society, that I will observe its laws, and to the utmost of my power maintain its dignity, as long as I shall continue a Fellow thereof.

Name in full Bertram Haward Buttle

Usual Place of Residence 63 Clarendon Road, Forest Gate, Lond

Designation or Occupation Science Master, Archbishop Holgate's Sch
York.

W. H. Pease
President

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Reproduced courtesy of North East Medals
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Captain (and Rev.) Norman Phillips Campbell (1886-1917, aged 31)

Born in Chicago in 1886, Norman Campbell spent much of his childhood just across the Canadian border in Montreal. Later, having moved to the UK, he entered Balliol College, Oxford and studied through to his Masters' degree.

From 1908 to 1914, he went to Ceylon (now, Sri Lanka) to take up a post with the Church Missionary Society at Trinity College, Kandy. Whilst there, he was both teacher and social worker to the students as well as undertaking his own research work, an investigation on the rate of crystal growth. On his voyage out to Ceylon, to make good use of the time, he decided to undertake some scientific research and carried out an investigation of the salinity of the Indian Ocean.

When he returned to England, Norman enlisted as a private in the London Scottish and shortly afterwards obtained a commission in the Oxfordshire and Buckinghamshire Light Infantry before transferring to the Royal Engineers 189th Company, Special Brigade when it was formed.

Captain Campbell was wounded in the first gas attack at the Battle of Loos in 1915 but quickly returned to duty, however, on 3 May 1917, he was killed while examining the effect of a projector attack at the Third Battle of the Scarpe. One of his fellow officers, Mr Lockhart, wrote of him:

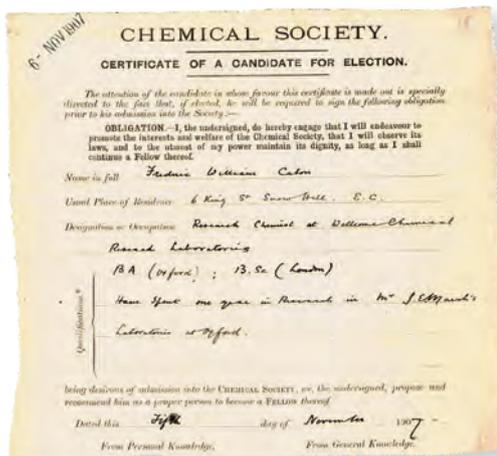
'A burst of machine gun bullets passed right over my head, one of which entered the Captain's shoulder; it must have penetrated to something vital, for he died instantaneously. As the machine guns swept the area incessantly, I was forced to lie prone with the Captain for three hours until darkness fell, and then laid his body in a shell hole, where it is quite sheltered.

I cannot tell you how we miss our dear O.C. The news of his death came as a great shock to the whole company, and the men have been writing of him in their letters home, expressing their deep admiration and respect for him. Captain Campbell was universally recognised as one of the most capable commanders in the Special Brigade, and as one of the bravest and noblest soldiers in the Army.

Personally, I had become deeply attached to him, and in him I have lost one of my best friends out here. In my gloomy moods he never failed to cheer and inspire me. He had such a marvellous influence for good in every direction. Where he won the hearts of men most of all was in his willingness at all times to do the lion's share of work and to be present in person in all moments of danger, to inspire all with courage and calm. He never flinched from responsibility, and in all operations he carried the difficulties on his own broad shoulders. Without him on many occasions we should have been lost, and now that he has gone we miss him very much.'

Sources:

1. AFJ 1918, 'Obituary Notices: Norman Phillips Campbell', Journal of the Chemical Society, Transactions, pp. 302-303.
2. Memorial Plaque: Norman Phillips Campbell. [Online]. [Accessed 1 April 2014]. Available from: http://www.northeastmedals.co.uk/foreign_war_medals_miscellaneous/memorial_plaque_norman_phillips_campbell.htm



Second Lieutenant Frederick William Caton (1884-1916, aged 31)

Frederick Caton was highly regarded as a gifted student in the sciences and received many awards and studentships leading to study at institutions such as the Imperial College of Science and Merton College, Oxford. During this period, he also co-authored a number of papers for the Journal of the Chemical Society.

The career that followed saw him employed as a research chemist at the Wellcome Chemical Research Laboratories before moving in to the education sector firstly as a demonstrator of chemistry at the East London College and then senior science master at Taunton School. His final position prior to the war was as the county chemistry master under the Staffordshire County Council.

In 1915, he sought active service in the war and after a period of training, was able to utilise his scientific knowledge with the Royal Engineers. Having become a second lieutenant, Frederick Caton was killed in action on 28 June 1916 during the Battle of the Somme.

Source:

1. Rogerson, H 1917, 'Obituary Notices: Frederick William Caton', Journal of the Chemical Society, Transactions, pp. 312-314.

Lieutenant Cecil Reginald Crymble (1885-1914, aged 29)

Cecil Crymble received his chemistry education at the University of Ireland and the Queen's University, Belfast. He was not only academically gifted but also prominent in the social side of student life becoming president of the Student's Union and helping to found the Queen's University Officers' Training Corps (OTC).

Between 1911 and 1914, he authored a number of papers for the Journal of the Chemical Society, one of which he co-authored with Kenneth Ross who later died during the war and is also remembered on the Chemical Society memorial.

Cecil Crymble joined the Royal Irish Fusiliers and was killed in action by a sniper's bullet at Houplines near Ploegsteert on 20 November 1914, the commanding officer reported:

'Lieutenant Crymble attached to my company was working on a communication trench on the morning of 20th November. The site of the trench was partially concealed from view.

At about 9am, it was reported to me that he and Private Cope of his Company had been hit by a sniper. I went out at once and found Lieutenant Crymble had been hit through the forehead: he was breathing but unconscious. Private Cope had been killed outright. I applied field dressings and sent for medical assistance, and Lieutenant Crymble died at about 9.30am.

Lieutenant Crymble was an exceptionally capable officer and of experience in trench work. Having occupied that particular position for two days, he was well aware of the danger of exposing himself. A man of the Company who was working with them told me that the same bullet hit both Lieutenant Crymble and Private Cope and that, in his opinion, it was a chance shot.

I buried them both that evening on the south side of the Farm indicated on the map attached, marking the graves with wooden crosses inscribed with their names. A tree over the graves I also marked on the south side with a cross cut in the bark'.

Sources:

1. AWS 1915, 'Obituary Notices: Cecil Reginald Crymble', Journal of the Chemical Society, Transactions, pp. 579-581.
2. Inst in the Great War: Lieutenant Cecil Reginald Crymble. [Online] [Accessed 1 April 2014]. Available from: <http://www.instgreatwar.com/page7.htm>

4 OCT 1915

CHEMICAL SOCIETY.
CERTIFICATE OF A CANDIDATE FOR ELECTION.

The attention of the candidate in whose favour this certificate is made-out is specially directed to the fact that, if elected, he will be required to sign the following obligation prior to his admission into the Society—

OBLIGATION.—I, the undersigned, do hereby engage that I will endeavour to promote the interests and welfare of the Chemical Society, that I will observe its laws, and to the utmost of my power maintain its dignity, so long as I shall continue a Fellow thereof.

Name in full John Llewelyn Davies
Usual Place of Residence 1 Rugby Road, Neath,
Designation or Occupation Science Teacher

Qualifications
Natural Science Tripos - University of Cambridge
Part I - 1912 1st Class - Chemistry and Physics
Part II - 1915 2nd Class - Chemistry the only subject.

Being desirous of admission into the CHEMICAL SOCIETY, as the undersigned, propose and recommend him as a proper person to become a Fellow thereof.

Dated this Second day of October 1915.

From Personal Knowledge: E. H. Livingston
W. Hall
H. O. Lord
J. D. Wood
H. J. F. Panton

From General Knowledge:

Proposed on 2 - NOV 1915
 To be Balloted for on 7 - DEC 1915

Elected 1915
R. Phillips
 President.

* Desirous of filling up the Certificate see form on the other side. 5030

Major John Llewelyn Davies (1879-1915, aged 36)

Born in Neath on 10 September 1879, John Llewelyn Davies received his formal education at University College Aberystwyth and Emmanuel College, Cambridge. After leaving university, he held a few teaching positions before being appointed headmaster of Cardiff High School in May 1915.

Soon after the outbreak of war, John Davies obtained a captaincy in the 11th Essex Regiment and was afterwards promoted major. He was killed in action at the Battle of Loos on 25 September 1915.

Source:

- 1916, 'Obituary Notices: John Llewellyn Davies', Journal of the Chemical Society, Transactions, p. 369.

78 000 1918

CHEMICAL SOCIETY.
CERTIFICATE OF A CANDIDATE FOR ELECTION.

The attention of the candidate in whose favour this certificate is made-out is specially directed to the fact that, if elected, he will be required to sign the following obligation prior to his admission into the Society—

OBLIGATION.—I, the undersigned, do hereby engage that I will endeavour to promote the interests and welfare of the Chemical Society, that I will observe its laws, and to the utmost of my power maintain its dignity, so long as I shall continue a Fellow thereof.

Name in full Charles William Dick
Usual Place of Residence 8 Vicarage Road, Innesbury, Rochdale, Lanc.
Designation or Occupation Chemist, with Messrs Currier & Armes, Ltd
Hydriene Works, Cliffe, near Chatham.

Qualifications
B Sc. London 1914
1st Class Natural Science Tripos AI, Cambridge.

Being desirous of admission into the CHEMICAL SOCIETY, as the undersigned, propose and recommend him as a proper person to become a Fellow thereof.

Dated this Seventeenth day of December 1916.

From Personal Knowledge: C. W. Woodcock
E. F. Allington
George Blackley
C. R. Hoyle
Samuel Woodcock

From General Knowledge:

Proposed on 21 1916
 To be Balloted for on 19 1916

Elected 1916
Alexander Holt
 President.

* Desirous of filling up the Certificate see form on the other side. 5030

Lieutenant Charles William Dick (1895-1918, aged 23)

Born on 10 May 1895, son of James and Margaret Dick, Charles Dick received his education at Trinity Hall, Cambridge having gained an open science scholarship. He completed his BSc in 1914 and after two years' residence, postponed further study to become a chemist at Messrs Curtiss' and Harvey's explosives works at Cliffe, near Chatham.

In April 1918, Charles Dick joined the Meteorological Section of the Royal Naval Volunteer Reserve and after training took an appointment as meteorological officer at Felixstowe Air Station. After the creation of the Royal Air Force on 1 April 1918, Lieutenant Dick was transferred there that August.

Later that year, he became fatally ill with pneumonia and died on 9 November 1918 in the military hospital in Felixstowe; he was subsequently buried in Edinburgh.

Source:

- JED 1919, 'Obituary Notices: Charles William Dick', Journal of the Chemical Society, Transactions, pp. 408-409.

Second Lieutenant John Gunning Moore Dunlop (1885-1914, aged 28)

John Dunlop was born in Holywood near Belfast in 1885, son of Archibald Dunlop, MD. He first studied at Queens University Belfast then went on to Gonville and Caius College in Cambridge. At Gonville, he went on to become a demonstrator in chemistry and also published numerous articles in the Journal of the Chemical Society from the research he undertook.

Being one of the secretaries of the University Chemical Club, he took a keen interest in the social side of university life; having also taken an interest in military work, for the last few years at university, he spent nearly all his vacations with the Ulster Volunteers. At the outbreak of war, John Dunlop took a commission in the 2nd Royal Dublin Fusiliers (his younger brother George later followed him in to the same regiment) and was soon fighting at the Front.

One of the first battles of the First World War and one that the 2nd Dublin's took part in was the Battle of Mons in Belgium. Initially reported missing, it was to be more than 2 months before confirmation came that Second Lieutenant Dunlop had fallen. The news was conveyed by Sir Alan Johnstone via the American Consul in Berlin on 12 November, it stated that Dunlop had been killed in action near Clary on 27 August 1914. 350 men and officers were cut off in this particular retreat; only 50 had succeeded in fighting their way through the enemy back to their division. In all, British losses were 7,812 that day. The communication from Sir Alan went on to say:

'He was buried in Clary cemetery by Monsieur l'Abbe Beyaent, Rev. Vicar, Clary, Nord, France, along with fifty-five of his comrades. Captain Davy, RAMC, who is now a prisoner of war here, was present at the funeral and himself erected a small wooden cross over Second Lieutenant Dunlop's grave.'

His body would lie in this cemetery, which was held by the Germans, for the next four years until the ground was recaptured and his body reburied in Honnechy British Cemetery, near Le Cateau.

Sources:

1. TBW 1915, 'Obituary Notices: John Gunning Moore Dunlop', Journal of the Chemical Society, Transactions, p. 582.
2. The Great War Forum. [Online]. [Accessed 1 April 2014]. Available from <http://1914-1918.invisionzone.com/forums/index.php?showtopic=23674&st=600>

20 OCT 1906

CHEMICAL SOCIETY.
CERTIFICATE OF A CANDIDATE FOR ELECTION.

The attention of the candidate in whose favour this certificate is made out is specially directed to the fact that, if elected, he will be required to sign the following obligation prior to his admission into the Society:

OBIGATION—I, the undersigned, do hereby engage that I will endeavour to promote the interests and welfare of the Chemical Society, that I will observe its laws, and to the utmost of my power maintain its dignity, so long as I shall continue a Fellow thereof.

Name in full Charles George Edgar Farmer
Usual Place of Residence 16 Herbert Street, London, S.W.
Designation or Occupation undergraduate at New College, Oxford

Qualifications Student

Being desirous of admission into the CHEMICAL SOCIETY, on the undersigned, propose and recommend him as a proper person to become a Fellow thereof.

Dated this five day of October 1906

From Personal Knowledge <u>T. C. Porter</u> <u>J. B. Knowles</u> <u>A. Richardson</u>	From General Knowledge <u>J. H. Sturges</u> <u>N. W. Sargent</u> <u>Andrea Angel</u>
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Proposed on 1 MAY 1906

To be Balloted for on 6 OCT 1906

Elected 6 OCT 1906

R. Meldola
President

* Directions for filling up the Certificate are given on the other side. 51201

Lieutenant Charles George Edgar Farmer (1885-1916, aged 30)

Charles Farmer was born in Chelsea, London on 28 November 1885, son of Charles and Emily Farmer. In 1898, he went to Eton and in his final year was one of the two keepers of the fives, playing in the cricket eleven against Winchester and Harrow; he was later selected to play for the Marylebone Cricket Club. From Eton he went on to study chemistry at New College, Oxford. Elected as a Fellow of the Chemical Society in 1906; one of the counter signatories of his application was Andrea Angel who also died during the war and is commemorated on the Chemical Society war memorial.

On leaving New College, he entered the Inner Temple and after spending six months there, he went into patent work in Lincoln's Inn. Having become involved in some important patent cases, he had a very promising career ahead of him. However, in 1915 he felt it his duty to join the army and so obtained a commission in the King's Royal Rifles; promoted to the rank of lieutenant, he went to the Front in April 1916 as bombing officer to the 7th Battalion. He was killed in action at the Battle of Delville Wood during the Somme Offensive on 18 August 1916.

Lieutenant Farmer had married Angela Ewart in 1914; they had a daughter, Pamela, born shortly before his death in 1916.

Source:

- 1917, 'Obituary Notices: Charles George Edgar Farmer', Journal of the Chemical Society, Transactions, pp. 314-315.

26 FEB 1906

CHEMICAL SOCIETY.
CERTIFICATE OF A CANDIDATE FOR ELECTION.

The attention of the candidate in whose favour this certificate is made out is specially directed to the fact that, if elected, he will be required to sign the following obligation prior to his admission into the Society:

OBIGATION—I, the undersigned, do hereby engage that I will endeavour to promote the interests and welfare of the Chemical Society, that I will observe its laws, and to the utmost of my power maintain its dignity, so long as I shall continue a Fellow thereof.

Name in full James Louis Foucar
Usual Place of Residence 27 St John's Hill, Whitechapel, London, E.C.
Designation or Occupation Student

Qualifications Bachelor of Science, London University. Honours in Chemistry, graduated for Honours in Experimental Physics & Geology, in usual school of science in general, & particularly in particular.

Being desirous of admission into the CHEMICAL SOCIETY, on the undersigned, propose and recommend him as a proper person to become a Fellow thereof.

Dated this one day of February 1906

From Personal Knowledge <u>Andrew Russell</u> <u>Edwin Forster</u> <u>W. H. Perkin</u> <u>Amundson</u> <u>Alan H. Kemp</u> <u>Richard G. W. Norrish</u>	From General Knowledge <u>R. Meldola</u>
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Proposed on 1 FEB 1906

To be Balloted for on 3 MAY 1906

Elected 3 MAY 1906

R. Meldola
President

* Directions for filling up the Certificate are given on the other side. 51202

Major James Louis Foucar (1882-1915, aged 32)

Born in London in 1882, James Foucar was educated at the University of London. As well as excelling in chemistry, he was also a student of experimental physics and geology. His 'Certificate for Election to the Chemical Society' stated that he was 'an earnest student of science in general and of chemistry in particular'. Having authored a book on sulphuric acid (published posthumously), he worked at the Beckton Gas Works before his scientific researches took him to Italy.

He was still in Italy when war was declared and so he immediately returned to England and joined the 'The Rangers', London Regiment. Within a few months the Rangers went to the Front where Major Foucar served during some of the most deadly engagements. On 8 May, after the Second Battle of Ypres, he was reported missing then believed killed, all the other officers being either killed, wounded, or missing.

Source:

- 1916, 'Obituary Notices: James Louis Foucar', Journal of the Chemical Society, Transactions, pp. 369-370.

Captain Edward William Lanchester Foxell (1884-1917, aged 32)

Edward Foxell, born on 7 July 1884 was the son of the Reverend William and Annie Jane Foxell; Reverend Foxell was the minor canon of Canterbury Cathedral in 1891 later moving on to St. Swithin's Rectory, Cannon St., London.

Graduating in science at University College London (UCL) under Sir William Ramsay (Ramsay also being a counter signatory for his fellowship to the Chemical Society), Edward Foxell later became demonstrator in chemistry at UCL. In 1907, he was appointed a master in the Science School and junior house master in Christ's Hospital.

In December 1914, he was gazetted captain in The Buffs (East Kent Regiment) attached to the 3rd Army Gas School. During service at the Front, Captain Foxell fell ill with trench-fever and died in France of appendicitis on 11 June 1917.

Source:

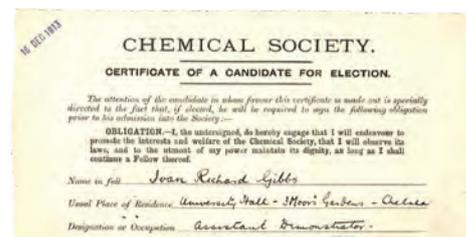
1. 1918, 'Obituary Notices: Edward William Lanchester Foxell', Journal of the Chemical Society, Transactions, p. 303.

Captain Ivan Richard Gibbs (1891-1915, aged 24)

As an undergraduate at Jesus College, Oxford, Ivan Gibbs was an active organiser of the college athletics and an enthusiastic member of the Oxford University Officers Training Corps. Prior to the war, he was assistant demonstrator in chemistry at Imperial College whilst collaborating on research on the migration of para-halogen atoms in phenols.

At the outbreak of war, he volunteered for active service and took a temporary commission as a second lieutenant in the Gloucestershire Regiment, posted to the 10th Battalion. With his battalion, Captain Gibbs entered the front line trenches of Bethune on 19 August 1915.

When the Battle of Loos began on 25 September 1915, the battalion was ordered to break through the German first, second and third lines with their specific objective being the village of Hulloch. The attack was delivered at 6.30am following an artillery and gas bombardment; the officers and men attacking over 400 yards of No Man's Land. Immediately in front of the battalion were the remains of a small copse called Bois Carree where enemy observation and machine guns posts had been deployed. As the battalion crossed this area, which had not been neutralised, they suffered badly from enemy fire. The battalion's war diary reported:



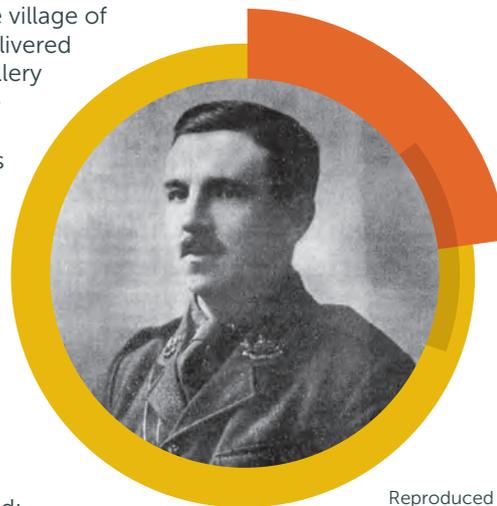
'The officers fell, as the position of their bodies showed, leading their men, and 16 out of 21 officers were lost.'

Ivan Gibbs was buried alongside eight other officers in a battlefield grave near Bois Carree. After the war, their bodies were moved to the St Mary's Advanced Dressing Station Cemetery, Haisnes, Pas de Calais, France.

Captain Gibbs' brother Edgar was also killed on active service in December 1917.

Source:

1. Chapman, DL 1916, 'Obituary Notices: Ivan Richard Gibbs', Journal of the Chemical Society, Transactions, p. 370.



Reproduced courtesy
of Jimmy James
(www.remembering.org.uk)

Lieutenant Colonel Edward Frank Harrison (1869-1918, aged 49)

Edward Harrison was born in Camberwell, London in 1869, son of William and Susannah Harrison. At the age of 15, he was apprenticed to a pharmaceutical chemist and five years later gained the Bell scholarship of the Pharmaceutical Society where he was awarded medals and certificates in chemistry, botany, and materia medica. After working on the teaching staff at the School of the Pharmaceutical Society, he headed to Newcastle-on-Tyne where he worked at Messrs Brady & Martin before going to Dartford to head the analytical department of Messrs Burroughs, Wellcome & Co.

Having established a practice as a consulting chemist at 57 Chancery Lane in 1906, Harrison went on to become an analyst at the British Medical Association; there, he carried out the analysis of a large variety of proprietary articles. In the Parliamentary inquiry that followed these disclosures, Harrison was an important witness and made a lasting impression on the Select Committee. The full value of this work to public health and public economy had yet to be realised and his process for estimating the diastatic strength of malts would later come in to general use.

As soon as war broke out, Harrison was eager to join the forces; after being refused several times on the grounds of age (he was 45), he became a special constable and a volunteer in the Inns of Court Reserve Corps.

He eventually succeeded in joining as a private in the Sportsmen's Battalion of the Royal Fusiliers and was afterwards transferred from there when 'men with training in chemistry' were in demand for service with the Royal Engineers.

He was about to proceed to France when Colonel Sir William Horrocks, head of the Anti-Gas Service, secured his assistance; he received a commission as lieutenant on the general list and became engaged in anti-gas problems. From the spring of 1915 until November 1916, Harrison was engaged in research work in the anti-gas laboratories at the Royal Army Medical College, Millbank. His work there was primarily on the improvement of the anti-gas helmet and the devising of the large and small box respirators. During numerous experiments, Harrison risked his own well-being by wearing the helmet in gases for which suitable quantitative control tests had not yet been devised. He is said to have been responsible for organising the supply to British and Allied Armies of nearly fifty million respirators to protect the troops against gas attacks.

The impact of the war was to personally strike Edward Harrison and his wife Edith, when on 30 July 1916, their 19 year old son Noel Stuart Harrison was killed during the Somme Offensive.

In January 1917, Harrison was promoted to lieutenant colonel and then assistant controller of chemical warfare that November. Shortly before his death, his succession to Major General Thuillier as controller of chemical warfare had been settled and in a few days he would have attained the rank of brigadier general.



Lieutenant Colonel Harrison died on 4 November 1918 (a week before the Armistice) from pneumonia as a consequence of influenza, arguably as a result of the experiments he executed to perfect the respirators that saved so many. Amongst the honours he had been awarded were: Commander of the Order of St Michael and St George, Distinguished Service Order, Officer of the Legion of Honour (France) and Officer of the Order of Saint Maurice and Saint Lazarus (Italy).

The funeral of Colonel Harrison took place at Brompton Cemetery in London with full military honours; the first part of the service had been conducted at the Memorial Chapel of the Queen Alexandra Military Hospital, Millbank.

Sources:

1. AS & HSR 1919, 'Obituary Notice: Edward Frank Harrison', *Journal of the Chemical Society, Transactions*, pp. 562-565.
2. 1918, 'Obituary: Lieut.-Colonel Edward Frank Harrison', *Proceedings of the Institute of Chemistry of Great Britain and Ireland*, pp. 25-26.

20 1907 1907

CHEMICAL SOCIETY.
CERTIFICATE OF A CANDIDATE FOR ELECTION.

The attention of the candidate is drawn to the fact that, if elected, he will be required to sign the following obligation prior to his admission into the Society—

OBLIGATION.—I, the undersigned, do hereby engage that I will endeavor to promote the interests and welfare of the Chemical Society, that I will observe its laws, and to the utmost of my power maintain its dignity, so long as I shall continue a Fellow thereof.

Name in full: John Maxwell Heron

Usual Place of Residence: North Street, Southwark, Surrey

Designation or Occupation: Advocate & Chemist

Qualifications*
Chemist, 5 Magna Prae Cantabrigiae & Co
Mathematician, Southwark, Surrey
7 years assistant to John Heron 110, Park Street
last 3 years Chemist & Magna Prae & Co, Southwark

Being desirous of admission into the CHEMICAL SOCIETY, on the undersigned, propose and recommend him as a proper person to become a Fellow thereof.

Dated this Twenty fifth day of November 1907

From Personal Knowledge. From General Knowledge.

Francis Nixon
 Leonard Joseph Thomas
 John Heron
 Chas Geo Matthews
 Joseph Harrison

Proposed on: DEC 1907

To be Held for on: JAN 1908

Held: 20 FEB 1908 1908

W. G. Harrison
 President

* Directions for filling up the Certificate are given on the other side.

Major John Parker Maxwell Heron (1879-1917, aged 38)

Born in Burton-on-Trent on 19 January 1879, John Heron and his family eventually moved to London and lived in the Wimbledon and Stockwell areas. As well as sharing his name, John Heron's father was also an analytical chemist and a Fellow of the Chemical Society; for seven years, father and son worked together in Fenchurch Street, London. In 1909, he married Annie Crozier and they went to live in Manningtree, Essex; the following year, they had a daughter, Rose.

Major Heron joined the Corps of Royal Engineers and having served during the Gallipoli campaign was killed in action on 26 March 1917 during the First Battle of Gaza.

10 1914 1914

CHEMICAL SOCIETY.
CERTIFICATE OF A CANDIDATE FOR ELECTION.

The attention of the candidate is drawn to the fact that, if elected, he will be required to sign the following obligation prior to his admission into the Society—

OBLIGATION.—I, the undersigned, do hereby engage that I will endeavor to promote the interests and welfare of the Chemical Society, that I will observe its laws, and to the utmost of my power maintain its dignity, so long as I shall continue a Fellow thereof.

Name in full: Charles Cochrane Iles

Usual Place of Residence: Royal Sussex County Hospital Brighton

Designation or Occupation: Assistant to the "Ralli Memorial"
Pathological and Research Laboratories
M.D. (Cambr), D.S.M. (Ireland), D.M. (Liverpool)

Qualifications*
Student of Analytical Chemistry in connection with
Public Health Work and, in above laborer's
association with Clinical and Physiological Chemistry

Being desirous of admission into the CHEMICAL SOCIETY, on the undersigned, propose and recommend him as a proper person to become a Fellow thereof.

Dated this Sixth day of August 1914

From Personal Knowledge. From General Knowledge.

B. M. Galt, Royal Sussex County Hospital Brighton
 W. H. Galt, 122, Kingsway, Brighton
 William Sage

A. C. Cochrane
 Assistant to the
 Ralli Memorial
 Pathological and
 Research Laboratories
 22, St. James's Place, London

Proposed on: 4-8-1914

To be Held for on: 4-8-1914

Held: 3-8-1914 1914

W. G. Harrison
 President

* Directions for filling up the Certificate are given on the other side.

Lieutenant Charles Cochrane Iles (1886-1914, aged 28)

Born in Wellington, New Zealand on 12 March 1886, Charles Iles received his education at Otago University in New Zealand before moving to Scotland and entering Edinburgh University as a student of medicine in 1905. Becoming qualified as a medical doctor, he gained employment in Derby in 1911 and then at Ralli Memorial Pathological and Research Laboratories.

Charles Iles was elected as a Fellow on 3 December 1914 but never appeared in the official Members' Registers for the Chemical Society as he died two weeks after being elected.

Joining the Royal Army Medical Corps (RAMC) of the East Lancashire Regiment, he entered the war in France on 19 August 1914. Lieutenant Iles died while his battalion was serving on the Western Front on 19 December 1914.

Lieutenant Richard Arnold Seymour-Jones (1889-1915, aged 25)

Son of Alfred Seymour-Jones CBE, Richard Seymour-Jones was born in Wrexham on 18 May 1889 and educated at Leeds University. At Leeds, he studied applied chemistry and graduated with a first class honours BSc in the chemistry of leather manufacture, being awarded the Le Blanc medal for special distinction.

He took his MSc the following year whilst also being engaged as research assistant to Professor Procter during his work on the acid swelling of gelatine. He did a lot of work on the little known chemistry of tanning, dealing especially with the acids present in tan liquors, the estimation of mercuric salts at great dilutions and the chemistry of skin.

In 1911, Richard Seymour-Jones was awarded the Royal Humane Society's certificate for a 'gallant attempt to save a woman from drowning'; the circumstances surrounding this and whether or not the woman survived hasn't been determined via research.

Moving to Warrington in 1912, he took charge of a department of technical scientific research at Messrs Joseph Crosfield and Sons Ltd. Here he was mainly engaged in the applications of physical and colloidal chemistry to the soap industry.

In addition to his scientific work, he'd been a territorial officer for several years prior to the war and so had gained some valuable skills before proceeding to France with the 4th Battalion of the South Lancashire Regiment. He died in the trenches in March 1915.

Source:

1. 1916, 'Obituary Notices: Richard Arnold Seymour-Jones', Journal of the Chemical Society, Transactions, pp. 371-372.

CHEMICAL SOCIETY.
CERTIFICATE OF A CANDIDATE FOR ELECTION.

The attention of the candidates in whose favour this certificate is made out is especially directed to the fact that, if elected, he will be required to sign the following obligation prior to his admission into the Society—

OBIGATION—I, the undersigned, do hereby engage that I will observe to promote the interests and welfare of the Chemical Society, that I will observe its laws, and to the utmost of my power maintain its dignity, as long as I shall continue a Fellow thereof.

Name in full—*Maurice Kemp-Welch*

Usual Place of Residence—*Blackburn, Weybridge, Surrey*

Designation or Occupation—

Qualifications—*Graduate of Cambridge University*
Natural Science Tripos Part I, II & III
1st Hon. Exhibition, King's College, Cambridge

Being desirous of admission into the CHEMICAL SOCIETY, we, the undersigned, propose and recommend him as a proper person to become a FELLOW thereof.

Dated this *29* day of *December* 1912.

From Personal Knowledge: *W. J. Hall*
4th Dec 1912

From General Knowledge: *J. H. Duggan*

Proposed on *14 Dec 1912*

To be Published for *12 Dec 1912*

4624

Second Lieutenant Maurice Kemp-Welch (1880-1917, aged 36)

Born in Bristol in 1880, son of James and Olive, Maurice Kemp-Welch entered King's College Cambridge in 1899, gaining his BA in business three years later.

On leaving Cambridge, he entered into business, dealing with the commercial chemistry of oils. Immediately after the outbreak of war he applied himself to adapting German methods in rubber and with a colleague, devised a process of coating canvas with rubber. Although his main focus was primarily commercial, the one characteristic he always displayed was 'science for science sake'.

He married Margaret Frazer Kemp-Welch in 1911; they had one daughter, Margaret, in 1912.

Second Lieutenant Kemp-Welch went to France with the Princess of Wales's Own Yorkshire Regiment in June 1916 and fought through the Battles of the Somme. He was killed on 11 April 1917 near Henin-sur-Cojeuil at the start of the First Battle of the Scarpe during the Arras Offensive.

Source:

1. 1918, 'Obituary Notices: Maurice Kemp-Welch', Journal of the Chemical Society, Transactions, pp. 303-304.

Lieutenant Herbert King (1876-1917, aged 41)

Born in Scarborough on 7 April 1876, Herbert King won the County Major scholarship to the Yorkshire College (now Leeds University) gaining his BSc in 1895 and his MSc in 1905. He was a Fellow of both the Chemical Society and the Institute of Chemistry and after university took up a teaching post at St. Martin's Grammar School in Scarborough.

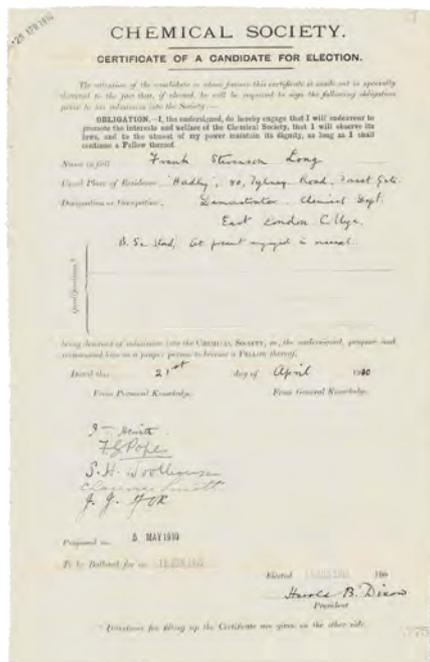
Up until 1908, he held several more teaching posts and in 1908 was appointed head of the chemical department of Cockburn High School; from 1909 to the time of his death he was also the public analyst for Scarborough.

In February 1917, Herbert King took a commission with the Army Ordnance Department and after undergoing training at Woolwich, was engaged in government work at Portsmouth before leaving for France that August. He was killed on 6 October 1917 when an ordnance dump exploded after being hit by an enemy bomb; he was awarded the Victory medal posthumously.

His sister Amy was the executor of his will and in December 1917, his estate was valued at £4,505 19s 10p; he had been saving this money to pay for his own laboratory.

Source:

1. AJC 1918, 'Obituary Notices: Herbert King', Journal of the Chemical Society, Transactions, pp. 304-305.



Lieutenant Frank Stevenson Long (1889/90-1915, aged 25)

On leaving school, Frank Long was awarded a Drapers' Company's Scholarship to the East London College and in 1909, obtained a BSc and became a demonstrator in the chemical department. Whilst there, he was engaged in teaching and research work and turned his attention to the study of physics, obtaining a BSc in that subject in 1911. After leaving London, he went to Cambridge to further his teacher training and later became attached to Fitzwilliam Hall.

Having been a member of both the London University and Cambridge University's Officers' Training Corps for 5 years prior to the war, he obtained a commission in the 11th Essex Regiment in September 1914. Lieutenant Long was at first reported wounded and missing, but was afterwards confirmed as having been killed in action on 26 September 1915, the second day of the Battle of Loos.

A biography about statistician Hilda Mary Woods MBE mentioned that she had met Frank Long through her brother who was his college friend in Cambridge. They were engaged soon after meeting and remained so until his death.

In announcing Long's death at the meeting of the Chemical Society on 2 December 1915, the president, Dr Alexander Scott, remarked that the Society had lost 'one of the best type of Fellows, well qualified in chemistry and physics, and with a competent knowledge of mathematics'.

Source:

1. Woolhouse, SH 1916, 'Obituary Notices: Frank Stevenson Long', Journal of the Chemical Society, Transactions, pp. 370-371.

**Lieutenant Herbert King
(1876-1917, aged 41)**

Reproduced courtesy of
Carolyn Huston



Second Lieutenant James McConnan (1881-1916, aged 34)

Born on 30 October 1881, son of Charles and Jane McConnan, James McConnan was educated at Liverpool College before going to Switzerland at age 14 to studying modern languages. He later went to study in Germany and in 1899 came back to the UK to study at University College Liverpool.

In 1902, he achieved a BSc in chemistry at Liverpool and then later an MSc. After graduation, he went to Jena in Germany where he undertook a study of pyrazole derivatives, gaining a PhD two years' later. After a brief time in a teaching post at the newly-established University of Liverpool, he took up the post of research chemist to the River Plate Fresh Meat Company in Argentina, where he spent six years and carried out several investigations on the technology of animal by-products.

His work in Argentina was terminated by the death of his father in 1913, when he was called home to succeed him as director of Messrs Jackson, McConnan, and Temple, rope manufacturers. Not losing his keen interest in chemical technology, he embarked on research again at Liverpool University on the constitution of 'naphthalene-oleo-sulphonic acid', in connection with the acid hydrolysis of fats, and later entered Messrs Lever Bros., at Port Sunlight, as a member of the research staff.

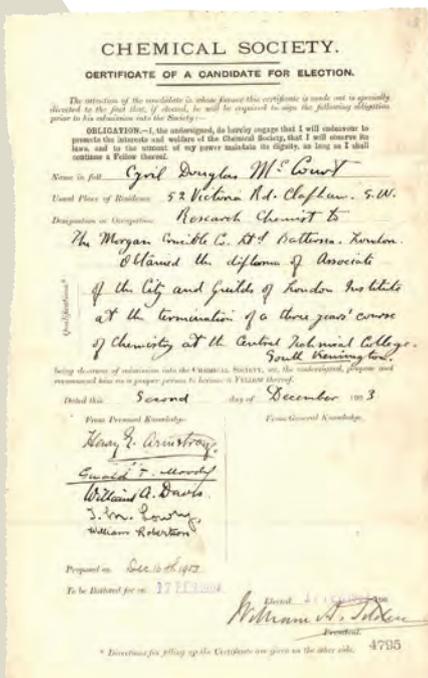
On the outbreak of war, he enlisted as a private in the 12th King's Liverpool Regiment and received training at Aldershot, Bisley and Chelsea Barracks. In March 1915, he received a commission to the 11th Manchester Regiment and received further training at Lichfield until September 1915 when he was sent out to Gallipoli. With his regiment, he took part in the evacuation there but afterwards became sick in hospital at Mudros; later, after joining his battalion near Alexandria, he was in hospital again with sunstroke.

Leaving for the Western Front with his battalion in July 1916, he served as a billeting officer due to his excellent knowledge of French. He served for nearly 13 months abroad and was killed at the Battle of Flers-Courcelette during the Somme Offensive on 19 September 1916. Having married his wife Gladys in August 1913, he also left a son who he never got to meet.

Source:

1. Titherley, AW 1917, 'Obituary Notices: James McConnan', Journal of the Chemical Society, Transactions, pp. 316-318.

Second Lieutenant Cyril Douglas McCourt (1883-1916, aged 33)



Cyril McCourt was born in London on 11 March 1883, son of George and Elise McCourt. His mother was born in France; his father had previously worked for the Australian Land Mortgage Company. Having gained a scholarship at the City and Guilds of London Central Technical College (now Imperial College), he served for a brief period as private assistant to Professor Henry Armstrong, former president of the Chemical Society.

In 1903, he was appointed chief chemist to the Morgan Crucible Company where he stayed for six years before moving on to collaborate with Professor W. A. Bone, on the industrial applications of the new principle of incandescent surface combustion. This collaboration resulted in the many important inventions comprised under the Boncourt system of surface combustion, the value of which was afterwards recognised the world over.

To engage further in this work, Cyril McCourt became managing director of Radiant Heating Ltd and chemist & technical adviser of the Boncourt Surface Combustion Company Ltd. He was subsequently appointed consulting chemist to the Morgan Crucible Company Ltd, a position he held up to his death. In 1908, he was granted a US patent (No. 904,077) for the 'Method of Uniting a Flexible to a Solid Body'.

During the war, he joined the 21st Battalion of the London Regiment (First Surrey Rifles) and died while leading, as bombing officer, an attack during the Somme Offensive on the night of 8 October 1916.

Source:

1. McCourt, GP 1917, 'Obituary Notices: Cyril Douglas McCourt', Journal of the Chemical Society, Transactions, pp. 318-319.

Captain Raymond William Nichols (1885-1916, aged 31)

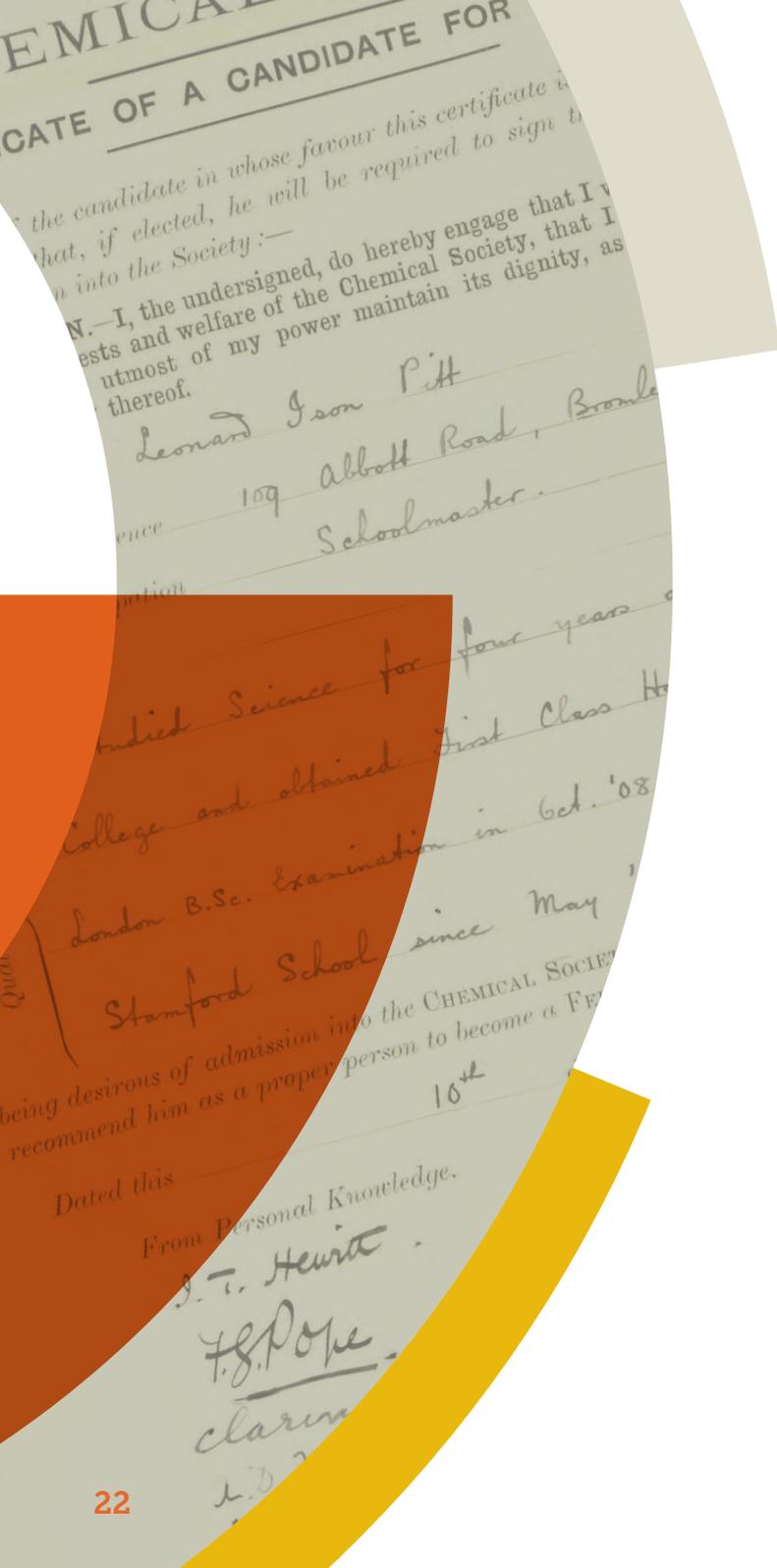
Raymond Nichols was born on 16 January 1885, youngest son of Henry and Mary Nichols, grandson of Henry Nichols, chemist. In 1901, on the formation of the Guinness Research Laboratory, he was employed as assistant to Mr F. Escombe, botanist. Relinquishing this work, he emigrated to Canada where he obtained an important position at the Government Experimental Farm at Ottawa.

In July 1915, he joined the 102nd Battalion, Canadian Infantry where he received his captaincy before leaving Canada. After special training in England, he left for France in July 1915 with the 10th Battalion, Royal Warwickshire Regiment. After some time in the trenches his battalion was ordered to storm the Regina Trench (at the height of the Battle of Ancre Heights during the Somme Offensive) on 20 October, where they successfully took the trench. The battalion lost many officers, Captain Nichols being the most senior officer to survive.

As the battalion was being relieved on the night of the 23 October 1916, Captain Nichols walked down a communication trench with another officer when a shell burst over them, killing Captain Nichols instantly but leaving his companion unharmed.

Source:

1. Nichols, JA 1917, 'Obituary Notices: Raymond William Nichols', Journal of the Chemical Society, Transactions, p. 319.



Sergeant Leonard Ison Pitt (1888-1915, aged 27)

Leonard Pitt was born in London in 1888, son of George and Sarah Elizabeth Pitt; he also had a brother, Arthur, who became a chemist in a pathological laboratory. In 1908, Leonard entered East London College and took his final BSc examination in chemistry just after his twentieth birthday.

His first job was as science master at Stamford Grammar School and at the outbreak of war he was assistant headmaster. Whilst working as a teacher, he also took a great interest in agricultural chemistry and passed the first part of the Diploma of Agriculture at Cambridge.

At the outbreak of war, he enlisted in the 8th Battalion of the Rifle Brigade being very proud to be one of the First Hundred Thousand of Kitchener's Army. Leonard Pitt embarked for France in May 1915 and met his death when the Germans mounted a surprise attack in the Hooge sector on 30 July that year. It was during this attack that the Germans used flamethrowers for the first time.

The Officer commanding his platoon wrote:

'A better Sergeant or friend no man could wish - he met his death as only an English gentleman can - leading an attack against great odds.'

Source:

1. Hewitt, JT 1918, 'Obituary Notices: Leonard Ison Pitt', Journal of the Chemical Society, Transactions, pp. 305-306.

Second Lieutenant Benjamin Ashwell Posford (1877-1915, aged 38)

Benjamin Posford was born in 1877 and raised by his parents, Benjamin and Mary, on their 848 acre farm. He married Cecile Posford and they had two children, George, born in 1906 and Josephine, born in 1908.

In September 1908, Benjamin Posford began work as an analyst in the laboratories of Percy Edgerton at 96 Cheapside, London. This same building, which had since become a tailors', was raised to the ground during the Blitz, on 11 October 1940.

Elected as a Fellow of the Chemical Society in 1910, his application was counter-signed by his employer Percy Edgerton as well as noted chemists, William Ramsay and Frederick Mollwo Perkin.

During the war, he was part of the Royal Army Service Corps (Supply Depot) and died on 25 February 1915. Buried in Boulogne Eastern Cemetery in France, the circumstances surrounding his death are unknown.

Captain William Gilbert Saunders (1889-1916, aged 27)

Born in Liverpool in 1889, William Saunders was the only son of W. H. and Elizabeth Saunders. He received his early education at Marlborough College, Liverpool, after which he went to Bonn in Germany, then Neuchatel in Switzerland, not remaining at either place for much more than a year. In order to acquire some knowledge of the retail drug trade, he spent a year with Dr Charles Symmes and Herbert Taylor before entering the service of Ayrton, Saunders and Company Ltd as the head of the packed drug department. He then studied for the Chemists' Major Examination at the Pharmaceutical College, Bloomsbury Square and returned to Liverpool University to study chemistry.

Immediately on the outbreak of war, he placed himself at the service of the government, thinking how his chemical knowledge and experience might be utilised. After waiting for nearly three months without receiving any replies and feeling, to use his own words, 'ashamed to walk about the city', he

joined the 5th Battalion, King's Liverpool Rifles as second lieutenant. He afterwards became lieutenant and adjutant and in July 1916, captain and adjutant of the battalion.

Captain Saunders being a keen writer contributed various scientific articles to the *Pharmaceutical Journal* and articles of general interest to the *Liverpool local Press*, besides contributing war stories to *The Bystander*.

He was killed in action during the Somme Offensive on 6 September 1916.

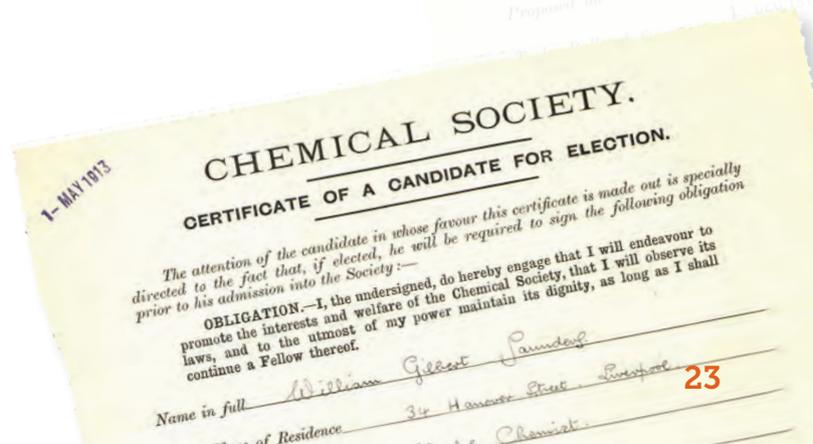
Having been elected as a Fellow of the Chemical Society and an Associate of the Institute of Chemistry in 1913, three months after his death the Nominations and Examinations Committee of the Institute of Chemistry met and recommended that a Certificate of Fellowship be issued to his father, back dated to the 21 July 1916.

In his son's obituary in the *Journal of the Chemical Society*, W H Saunders wrote:

'He was a splendid-looking young fellow, 6ft 3 in height, and not only popular, but much liked by everyone with whom he came into contact. He was a member of the 'Lyceum' and 'Sandon' Club, of the Philomathic Society, and also of the Dingle Golf Club. His early and tragic death cast a very heavy gloom over the members of the staff in Hanover Street, by whom he was universally respected and beloved, so much so that, a most handsome and striking brass plate to his memory has been erected in the vestibule of the Company's offices in Hanover Street (Liverpool), voluntarily contributed by the entire staff.'

Source:

1. Saunders, WH 1917, 'Obituary Notices: Leonard Ison Pitt', *Journal of the Chemical Society, Transactions*, pp. 305-306.



Pioneer Arthur Edwin Tate

(1880-1917, aged 36)



Copyright:
A.E. Coe & Sons.

Born on 23 April 1880, son of Thomas and Mary Tate, Arthur Tate had five sisters and one brother; he married shortly before joining the army. He received his education at the Durham College of Science (now Armstrong College, University of Durham) and graduated in 1901 with a BSc in chemistry, gaining an MSc in 1909.

While working as a teacher in Newcastle, he also worked in the college laboratories in the evenings and on Saturdays and after his appointment to the science mastership at Pontefract Grammar School, he continued his experimental investigations.

During the war, he was assigned to the 'N' Special Company of the Royal Engineers; was wounded on 12 April 1917 during the Arras Offensive and died from the effects of his wounds ten days later on 22 April 1917.

Source:

1. PPB 1918, 'Obituary Notices: Arthur Edwin Tate', Journal of the Chemical Society, Transactions, p. 306.

Lieutenant Cecil Hamersley Waldron

(1885-1916, aged 30)

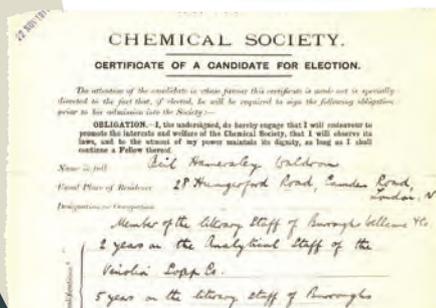
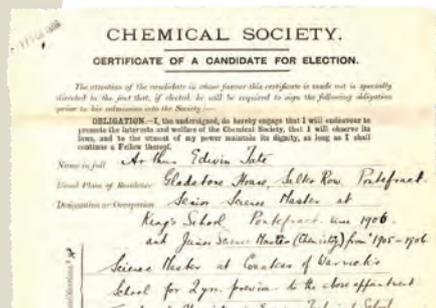
Born in London on 14 August 1885, son of Charles and Annie Waldron, Cecil Waldron travelled often through Europe going as far as Russia and making a close study of the Russian language.

He received his early education in Camberwell and then at the Mathematical School in Rochester, afterwards graduating from the University of London in January 1902. In June 1902, he won the School Leaving Exhibition which was awarded to the best scholar of the year. Pursuing his studies at Cambridge Tutorial College and Birkbeck College, he passed the Inter BSc in 1903. After college, he was appointed assistant analyst at Vinolia then at Burroughs Wellcome & Co (now the Wellcome Trust).

When war began, he joined the University of London Officers' Training Corps, later becoming Second Lieutenant of the 7th Battalion, Lincolnshire Regiment being promoted to Lieutenant in January 1915. That July, he went to the Front and was killed in action near Ypres, on 2 March 1916, when leading his company (of which he had just been given the command) to the attack after 48 hours of the most severe combat.

Source:

1. 1916, 'Obituary Notices: Cecil Hamersley Waldron', Journal of the Chemical Society, Transactions, pp. 431-432.



4- APR 1915

CHEMICAL SOCIETY.
CERTIFICATE OF A CANDIDATE FOR ELECTION.

The admission of the candidate to whom passes this certificate is made out in conformity with the rules of the Society.

OBLIGATION—I, the undersigned, do hereby engage that I will endeavor to promote the interests and welfare of the Chemical Society, that I will observe its laws, and in the event of my never holding its dignity, as long as I shall continue a Fellow thereof.

Name in full: John Griffiths
 Usual Place of Residence: The Hillside, Kington Park, Chester
 Designation or Occupation: Teacher

Graduate in Science, Univ. of Wales.
Hon. A.A. Brough
 Science Master at The College, Clebury, Mortimer
 attended Chemistry & Practical Courses at University
 of North Wales from Oct. 1899 until Jan. 1903.
 Being admitted a candidate into the CHEMICAL SOCIETY, on the foregoing, proper and
 necessary form to be prepared previous to becoming a Fellow thereof.

Dated this _____ day of _____ 1915

From Personal Knowledge: James J. Dobbin
Alexander Lander
Allan Baguley
Robt. O'Neill

From General Knowledge: W. J. Jones
W. J. Shephard
John Barrett

Proposed on 6th April, 1915
 To be Balloted for on 5th MAY 1915

Witnessed: W. J. Jones



Reproduced courtesy of
 William Nelson, Larne RFC.

The Missing Fellow

Through undertaking the research for this booklet, it came to light that one Fellow of the Chemical Society, who had given his life on active duty during the war, was missing from the memorial...

Captain John Griffiths (1881-1916, aged 34)

John Griffiths was born on 24 August 1881. He took his BSc at the University of North Wales and afterwards took a position as science master of Clebury Mortimer College in Shropshire and then in 1909 at Larne Grammar School in County Antrim. While at Larne, he captained the newly created Larne Rugby Football Club and led the team to win the Provincial Town's Cup.

At the outbreak of war, he took a commission with the Ulster Volunteers and was attached to the 12th Battalion of the Royal Irish Rifles, crossing to France in 1915. In June 1916, he was wounded while leading his men in a bombing raid.

Captain Griffiths was killed in action on 1 July 1916 whilst leading his men up the enemy's trench at Beaumont-Hamel; he was among 19,000 men who were killed on this first day of the Battle of the Somme. The village of Beaumont-Hamel was extremely close to the front lines and saw some of the heaviest conflict during the Battle of the Somme, so much so that the village was virtually destroyed by 1918.

John Griffiths was mentioned in Field Marshal Sir Douglas Haig's dispatches of 13 November 1916 for distinguished service in the field.

Source:

1. Griffiths, C 1917, 'Obituary Notices: John Griffiths', Journal of the Chemical Society, Transactions, pp. 315-316.

The Institute of Chemistry Memorial

On 28 October 1920, the president of the Institute of Chemistry, Sir Herbert Jackson, unveiled the memorial to the Fellows, Associates and Students who had died in the service of their country in the First World War. The ceremony took place in the Institute's premises at 30 Russell Square in London. Having been draped with a Union Flag, the memorial was unveiled while the 'Last Post' was sounded by Mr William Smith, formerly of the Band of H.M. Scots Guards, Housekeeper to the Institute.

In his address, Sir Herbert recalled the 700 Institute members who had served with the H.M. Forces during the war; the losses by death being no more than 55 were mainly due to the fact that many of those serving were recalled early in the war for chemical service at home.

The memorial had been in place for the best part of a year before the news of the death, in action, of another student member reached the Institute. The Journal and Proceedings of the Institute of Chemistry reported:

'Information has lately been received of the death of George Joynson, who was killed in action at the Battle of Loos. His name will be added to the Roll of Honour of the Institute.'

...and so an extra plate was made and affixed to the memorial.

When the Royal Society of Chemistry relinquished possession of the former premises of the Institute of Chemistry in 1989, the memorial was moved to its current position in the entrance to its premises at Burlington House.

Current
Location



Original
Location

Second Lieutenant James Watson Agnew

(1884/5-1915, aged 31)

Born in Scotland in the mid-1880s, son of James and Elizabeth Agnew, James Agnew received his education at the Glasgow and West of Scotland Technical College. After completing his education, he stayed at the college as lecturer and demonstrator in chemistry. He was subsequently appointed lecturer in chemistry at St. Mungo's College, Glasgow and in 1909 was made an examiner in chemistry to the Glasgow Royal Faculty of Surgeons and Physicians.

He became a Fellow of the Institute of Chemistry in 1910 and was a contributor to The Analyst and the Journal of the Chemical Society. One of his articles was co-authored with George Gerald Henderson who later became President of the Institute of Chemistry, 1924-1927, and of the Chemical Society, 1931-1933.

Second Lieutenant Agnew was killed while his battalion, the 1st Battalion of the Highland Light Infantry served at the Western Front on 21 May 1915. The battalion was based in Ambala, India in 1914 as part of the Sirhand Brigade, 3rd (Lahore) Division and moved to France via Egypt, landing at Marseilles on 1 December 1914.

Source:

1. 1915, 'Obituary: James Watson Agnew', Proceedings of the Institute of Chemistry, p. 22.

Second Lieutenant John Love Strathearn Allan

(1889-1915, aged 25)

John Allan was killed in action on the first day of the Battle of Loos, 25 September 1915.

Born in Scotland in 1889, he received his scientific training at the Glasgow and West of Scotland Technical College, qualifying as an Associate of the Institute of Chemistry in 1912.

At the outbreak of war he was engaged as chemist at the Glenfield Starch Works in Paisley and at the time of his death was serving as a Second Lieutenant in the 7th Battalion of the King's Own Scottish Borderers.

Source:

1. 1915, 'Obituary: John Love Strathearn Allan', Proceedings of the Institute of Chemistry, p. 10



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Lieutenant James Duncan Archibald

(1895/6-1916, aged 21)

James Archibald was born in Dublin but raised in London, the only son of Andrew and Mary Archibald; he received his education at King's College London where he held the Sambrooke Scholarship in Science.

During the war, he fought with the 10th Battalion of the Essex Regiment and died from wounds received in action on 20 July 1916, during the first month of the Somme Offensive.

Source:

1. 1916, 'Obituary: James Duncan Archibald', Proceedings of the Institute of Chemistry, p. 30



Copyright:
King's College London

Captain James Scott Bainbridge (1888-1918, aged 30)

Born in 1888, son of William & Mary Bainbridge, James Bainbridge later graduated from Leeds University. After university, he went to work in the chemical laboratory of Messrs Rowntree & Co. in York and was engaged in the research of the aromatic principle of the cocoa bean.

In 1914, he was appointed research chemist at the Doncaster Coalminers' Laboratory but enlisted with the 4th Battalion, Yorkshire Regiment when the war began; in June 1917, he was caught in a gas attack whilst fighting with his battalion at the Hindenburg Line.

When the German Spring Offensive (Kaiserschlacht or 'Kaiser's Battle') began on 21 March 1918, Captain Bainbridge and the battalion were moved up to Brie and marched for six hours to the front line at Hancourt. At 6.30pm on 22 March, as the enemy was pushing the 5th Battalion Durham Light Infantry (DLI) on the left of the 4th Yorkshires back, Captain Bainbridge attempted to steady and rally the DLI. He was killed when he became caught in heavy enemy fire; his body was never recovered.

Source:

1. 1918, 'Obituary: James Scott Bainbridge', Proceedings of the Institute of Chemistry, p. 24

Sub-Lieutenant Montague Samuel Baker (1887-1917, aged 29)

Samuel Baker was born in Walthamstow on 13 August 1887, son of James and Mary Baker. He received his education at Kings College London, qualifying as an analytical chemist and later becoming a temporary assistant at the Government Laboratory. In 1913, he took the post of assistant chemist at Messrs Doulton & Co.

Soon after war began, he joined the Hawke Battalion Royal Naval Division and between the 9 March and 30 July 1915, was on special duty at Mudros in Greece in support of the Gallipoli campaign. After Gallipoli, he went on to Egypt for anti-gas duties before returning to the UK on 17 March 1916 for officer training. Commissioned as a temporary sub-lieutenant, in April 1917, he was sent to France with the British Expeditionary Force and joined Howe Battalion, 63rd (Royal Naval) Division on the 4 May 1917.

Sub-Lieutenant Baker was killed in action on 29 July 1917.

Source:

1. 1918, 'Obituary: Montague Samuel Baker', Proceedings of the Institute of Chemistry, p. 47

Lieutenant Jesse Dell Berridge (1896/7-1918, aged 21)

Jesse Berridge won the Wilcox Gold Medal for Chemistry at Christ's Hospital before going on to study at Kings College London. When war began, he was still at Kings and having already joined the Officers' Training Corps, he received a commission in the South Lancashire Regiment. He was transferred to the Royal Engineers in July 1915 and was wounded twice, the first time in December 1915 and then in July 1916. For gallantry, he was awarded the Military Cross on 28 December 1917.

Lieutenant Berridge was killed during the German offensive near Arras on 24 May 1918.

Source:

1. 1919, 'Obituary: Jesse Dell Berridge', Proceedings of the Institute of Chemistry, p. 55



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King's College London

Captain John Edmund Bishop (1892/3-1916, aged 24)

Originally from Brighton, John Bishop was the son of Arthur and Emily Bishop; his mother had come to the UK from Canada.

He was an analysts' student at Nottingham University where he was also a member of the Officers' Training Corps. During the war, he fought with the East Lancashire Regiment and was killed during the Battles of Bait Aisa and Sannaiyat (part of the on-going Mesopotamian Campaign) on 18/19 April 1916. He is remembered on the Basra Memorial in Iraq.

Second Lieutenant Gavin Boyd (1889/90-1916, aged 26)

Second Lieutenant Gavin Boyd was killed in action in France on 13 July 1916. He was educated at Shawlands Academy and afterwards went to Glasgow University for his scientific training. He received a commission in the 14th Battalion of the Argyll and Sutherland Highlanders but at the time of his death was serving with the Royal Engineers.

Source:

1. 1916, 'Obituary: Gavin Boyd', Proceedings of the Institute of Chemistry, p. 30

Captain Harold William Brooke (1893-1917, aged 26)

Harold Brooke, son of Henry and Hannah Brooke of Leeds, was killed on active service in 1918. He received his general education at Cockburn High School before going on to Leeds University in 1910. At the time of his death, he was serving with the 7th Battalion, East Yorkshire Regiment.

Source:

1. 1919, 'Obituary: Harold William Brooke', Proceedings of the Institute of Chemistry, p. 55

Corporal Joseph Arthur Brown (1880-1917, aged 36)

Joseph Brown was killed in action on 20 April 1917. Trained at University College, Nottingham, he afterwards held a number of positions assisting the Public Analysts for Derbyshire, Bournemouth and then Worcester. He relinquished his last post in 1914 in order to become assistant to the city analyst for Birmingham and contributed several papers to the Society of Public Analysts and to the Chemical News.

At the time of his death, Corporal Brown was serving with the Royal Engineers; he died during the first weeks of the Arras Offensive.

Source:

1. 1917, 'Obituary: Joseph Arthur Brown', Proceedings of the Institute of Chemistry, p. 15

Second Lieutenant Clarence Edward Butcher (1898/9-1917, aged 19)

Clarence Butcher, son of Edward and Emily Butcher, was reported wounded and missing on 3 May 1917 during the Third Battle of the Scarpe of the Arras Offensive. The War Council later assumed his death; he had been serving with the Royal Fusiliers (City of London Regiment).

Second Lieutenant Butcher was educated at Christ's College, Finchley and having graduated from London University in 1913, became registered as Student of the Institute of Chemistry whilst at Finsbury Technical College in 1915.

Source:

1. 1918, 'Obituary: Clarence Edward Butcher', Proceedings of the Institute of Chemistry, p. 24

Norman Phillips Campbell (See Chemical Society)

Second Lieutenant George Maclellan Carruthers (1891/2-1917, aged 26)

Born in Rutherglen, son of William and Jessie Carruthers, George Carruthers' father was also a Fellow of the Institute of Chemistry.

He received his scientific education at the Royal Technical College, Glasgow before leaving for the United States for work. After three years' experience at the B. F. Goodrich Rubber Co. in Akron, Ohio, he was appointed chief chemist at the Dunlop Tire and Rubber Goods Co in Toronto, Canada where he remained until the start of the war.

Second Lieutenant Carruthers was killed on 10 August 1917. His company, the Gordon Highlanders, were in the process of establishing a position after having taken a strong point and capturing prisoners during the Third Battle of Ypres (Passchendaele).

Source:

1. 1918, 'Obituary: George Maclellan Carruthers', Proceedings of the Institute of Chemistry, p. 47

Second Lieutenant Stephen Hepworth Dennett (1893-1917, aged 23)

Born on 12 May 1893, son of Stephen and Fanny, Stephen Dennett received his education at the University of Birmingham. At the time of his enlistment he was working with the public analyst for Portsmouth and preparing for the examination for the Associateship of the Institute of Chemistry.

Having joined 23 Squadron of the Royal Flying Corps and serving in France and Salonika, he was killed in a flying accident on 11 May 1917. His aircraft, a BE2e (No. 6765) collided near Aboukir with a Bristol Scout (No. C4684); his plane was being flown by Second Lieutenant Ralph Robertson, who also was killed. Dennett was buried in Hadra, Egypt.

Source:

1. 1919, 'Obituary: Stephen Hepworth Dennett', Proceedings of the Institute of Chemistry, p. 32

Second Lieutenant Ralph John Dunn (1891/2-1915, aged 24)

Born in the early 1890s, Ralph Dunn was the son of William and Mary Dunn. Educated at the University of Birmingham, he joined the Royal Engineers, Royal Warwickshire Regiment during the war.

Second Lieutenant Dunn was reported missing and then confirmed killed on the first day of the Battle of Loos on 25 September 1915.

Second Lieutenant William Vivaish Eastman (1898-1917, aged 19)

William Eastman was born in London in 1898; he received his scientific education at Finsbury Technical College.

He was killed in action on the first day of the Battle of Broodseinde during the Third Battle of Ypres (Passchendaele) on 4 October 1917. At the time of his death he was serving as a Second Lieutenant in the King's Royal Rifle Corps.

Source:

1. 1918, 'Obituary: William Vivaish Eastman', Proceedings of the Institute of Chemistry, p. 48



Reproduced courtesy of Military Genealogy
(www.military-genealogy.com)

Lieutenant Kenneth Gordon Garnett (1892-1917, aged 25)

Born in Northamptonshire on 30 July 1892, Kenneth Garnett, son of William and Rebecca Garnett, was raised in London. He received his education at Trinity College, Cambridge and rowed no. 5 in the Cambridge winning 8 at the Oxford and Cambridge Boat Race of 1914. In 2008, his great-great nephew, Tobias Garnett rowed no. 4 for Cambridge.

When war began, Kenneth Garnett joined the crew of the Zarepha, of which his brother, Lieutenant Stuart Garnett, was lieutenant commander. For five months he was engaged in mine-sweeping, then in January 1915, he entered the Royal Field Artillery, and in the following month went to France.

In March 1915, he was shot in the leg and returned home. When convalescent he went up to Cambridge and completed his honours degree course, though still on crutches. He was offered three home billets, but declined them, as (to use his own words) he didn't wish to stay at home and let a married man fight for him, so he returned to the Front in October 1915.

Wounded in the spine on 24 August 1916, he was brought home to be nursed at the Empire Hospital, Vincent Square in London and then at Templeton House, Roehampton. He was awarded the Military Cross and received his decoration from the King whilst at the Empire Hospital and also received the Croix de Guerre from the French Government.

Lieutenant Garnett never fully recovered and died on 21 August 1917; he was buried in Wandsworth (Putney Vale) Cemetery, London.

Source:

1. 1918, 'Obituary: Kenneth Gordon Garnett', Proceedings of the Institute of Chemistry, p. 48

Captain Alexander Gemmell (1892-1919, aged 29)

Born in 1892, son of Mr G H Gemmell FIC, Alexander Gemmell graduated from Edinburgh University aged 19. Staying on at the university, he became assistant to the chemistry department and then left to become associated with his father in the consulting practice of Messrs Readman and Gemmell.

Soon after the start of war, he re-joined the University of Edinburgh's Officers' Training Corps and had command of the unit for about a year. He was afterwards appointed to the command of an anti-gas school and then in 1917, was transferred to the Anti-Gas Department in London; it was there that he worked with Lieutenant Colonel Edward Harrison in devising means of defence against poison gas.

Captain Gemmell died as a result of experiments in 'atmosphere's charged with poison gas' on 3 January 1919. In the words of his commanding officer 'He died on active service as much as any soldier in the field.' He was buried in the Edinburgh Grange Cemetery.

Source:

1. 1919, 'Obituary: Alexander Gemmell', Proceedings of the Institute of Chemistry, p. 56

Second Lieutenant Stuart Wycliffe Goodwin (1899/1900-1918, aged 19)

Born in Coolgardie, Western Australia at the turn of the 20th Century, Stuart Goodwin was the son of Robert and Dora Goodwin. In 1901, aged 2, he, his mother and aunt were boarders at a house in Swanage in England, it's uncertain as to when exactly they had arrived in the UK. Aged 12 in 1911, he was at boarding school in Broadstairs then later in Tiverton. He graduated from London University and then received his scientific education at the Imperial College of Science and Technology.

Not being old enough to enlist when the war began, he joined the Officers' Training Corps of London University and then later the 11th Battalion of the Border Regiment in 1917. Aged just 19, Second Lieutenant Goodwin was killed during the German advance known as the Kaiserschlacht (Kaiser's Battle) on 31 March 1918.

On his death, his commanding officer wrote to his parents:

'He was a keen officer, liked by his men and brother officers, full of dash and courage. I considered him one of the best, if not the best subaltern in the Battalion.'

For gallantry in a previous action, I recommended him for the Military Cross, and his name was published in Divisional Orders just after his death, as having been awarded this decoration. He showed a splendid example to his men at all times of danger and was a loss to the battalion. You may well be proud of your son.'

On the 22 June 1916, the citation for his Military Cross appeared in the London Gazette:

'For conspicuous gallantry and devotion to duty. During a raid on an enemy position he advanced with his party to within 30 yards of a hostile post. Coming under heavy machine gun fire, he withdrew his party to a position in the rear. Having re-organised his men, he led them forward again, and reaching to within ten yards of the hostile post was prevented from penetrating into it by thick wire and heavy machine gun fire. He however, accounted for two of the enemy himself, and opened rifle fire on the remainder as they retreated. He showed a fine example of leadership and initiative.'

Source:

1. 1918, 'Obituary: Stuart Wycliffe Goodwin', Proceedings of the Institute of Chemistry, p. 25

Lieutenant Reginald Greaves (1896/7-1919, aged 23)

Born in the mid-1890s, son of Albert and Elizabeth, Reginald Greaves was a student at Liverpool University when war began.

He enlisted in the 19th Kings and transferred to the Special Brigade, Royal Engineers (Gas Services) in June 1915. In March 1917, he received a commission in the Royal Garrison Artillery (12th Siege Battery). Having served throughout the war, he died in France from influenza on 22 February 1919.

Source:

1. 1919, 'Obituary: Reginald Greaves', Proceedings of the Institute of Chemistry, p. 43

Lieutenant Joseph Walter Harris (1887-1915, aged 27)

Entering University College, Nottingham in 1908, Joseph Harris obtained the degree of BSc in 1913. On leaving college, he was appointed chemist at the Shirebrook Colliery, near Mansfield, a position which he held until August 1914.

Lieutenant Harris died while on active service in France on 3 June 1915; at the time of his death he was serving in the 1st Lincolnshire Regiment.

Source:

1. 1915, 'Obituary: Joseph Walter Harris', Proceedings of the Institute of Chemistry, p. 23

Edward Frank Harrison (See Chemical Society)



Reproduced courtesy of Military Genealogy
(www.military-genealogy.com)

Lieutenant Charles Oswald Hayward (1894-1916, aged 21)

Charles Hayward was born in Lincoln on 30 June 1894, son of Charles and Annie; Charles Snr. worked as a manufacturing chemist.

Prior to war, he was an active member of the Officers' Training Corps at Pembroke College, Cambridge and when war began he joined the 7th Battalion, Lincolnshire Regiment attached to the Royal Flying Corps. Lieutenant Hayward died on active duty:

'...after taking part in some aeroplane engagements in January, he was reported missing and later to have been killed in action whilst flying over the German lines at Dadizeele'.

Second Lieutenant John Robertshaw Hill (1884/5-1917, aged 33)

John Hill was educated at Bradford Grammar School, afterwards gaining an open foundation scholarship to St. John's College, Cambridge. In June 1906, he received his BA with honours in chemistry and subsequently took a position as assistant demonstrator and research student.

In 1908, he became assistant to Professor Dunstan at the Imperial Institute and in 1910 was appointed government chemist at Kuala Lumpur, Federated Malay States. On resigning this appointment in 1913, he returned to England and carried out research at the Royal Institution in connection with mangostin, the results of which were published in the Journal of the Chemical Society.

At the outbreak of war he volunteered as a private in the 16th West Yorkshire Regiment, was transferred to the Royal Engineers in 1915, and received his commission in 1916. Second Lieutenant Hill was killed in action on 6 May 1917 during the Arras Offensive.

Source:

1. 1917, 'Obituary: John Robertshaw Hill', Proceedings of the Institute of Chemistry, p. 23

Lieutenant Richard Hofmeyr (1892-1917, aged 25)

Born in Cape Colony (South Africa) in 1892, Richard Hofmeyr and his mother Isabella emigrated to the UK on the RSM Moon and arrived in Southampton on 23 September 1900. He and his mother then went to live with his grandmother, Margaret Noble in Aberdeenshire.

Educated at the Royal Technical College, Glasgow he joined the King's Own Yorkshire Light Infantry attached to the Royal Flying Corps when the war began. Lieutenant Hofmeyr died from wounds received whilst on active duty at Doiran in Greece on 11 September 1917.

Source:

1. 1918, 'Obituary: Richard Hofmeyr', Proceedings of the Institute of Chemistry, p. 49

Private Glyn Ellis Jones (1894-1918, aged 24)

Born in Swansea on 11 February 1894, Glyn Jones was educated at University College Aberystwyth where he gained a BSc with honours in chemistry.

In the early part of the war, he helped to prepare acetaldehyde and subsequently acetal in connection with the scheme for securing supplies of beta-eucaine for the government. He was refused enlistment in 1915 but was accepted for the 2nd Battalion of the Suffolk Regiment in 1918. Private Jones died during the Battle of the Hindenburg Line on 1 October 1918; he left a widow, Hilda.

Source:

1. 1919, 'Obituary: Glyn Ellis Jones', Proceedings of the Institute of Chemistry, p. 44

Lieutenant Simon James Jones (1894-1918, aged 24)

Born in Cardiganshire in 1894, Simon Jones was the son of David and Elizabeth Jones. During the war, he fought with the 2nd Battalion, Prince of Wales' Volunteers of the South Lancashire Regiment; the battalion had been in France since the start of the war where they fought in the Somme in 1916 and at the Hindenburg Line & the Battle of Cambrai in 1917. Lieutenant Jones was badly wounded at the Battle of Aisne and died on 5 June 1918.

Corporal George Joynson (1887 -1915, aged 28)

George Joynson was born in Manchester in 1887, son of William & Emma Joynson. He trained at the Municipal School of Technology in Manchester and obtained the Associateship of the School in Applied Chemistry before passing the Intermediate Science Examination of London University. After university, he worked in the laboratory of the Openshaw Works of Sir W. G. Armstrong Whitworth & Co Ltd.

During the war, he enlisted in the Lancashire Fusiliers and in July 1915, he was transferred as a corporal to the Special Brigade, Royal Engineers (Gas Services), 3rd Company, 5th Battalion.

Some confusion lies in the circumstances surrounding Corporal Joynson's death; his obituary states that he was killed at the Battle of Loos but this battle was fought between 25 September and 18 October 1915 and his date of death is given as 19 June 1916. Originally, his name was not included on the Institute's war memorial when it was hung in the autumn of 1920. This omission was rectified in 1921 as soon as the Institute were informed of his death.

Source:

1. 1921, 'Obituary: George Joynson', Journal and Proceedings of the Institute of Chemistry, p. 223.

Corporal Robert Gordon Kind (1889-1917, aged 28)

Robert Kind was born in Birkenhead in 1889, son of Thomas and Marian; he received his education at Liscard High School and Oakes Institute in Walton. For just over two years, he worked in the laboratory of Messrs Cammell, Laird & Co, afterwards proceeding to Liverpool University for his scientific training. Cammell, Laird & Co was one of the famous names in British shipbuilding during the 19th and 20th Centuries.

Corporal Kind died from gas poisoning during the Arras Offensive, on 3 May 1915, while serving with the Royal Army Medical Corps in France.

Source:

1. 1918, 'Obituary: Robert Gordon Kind', Proceedings of the Institute of Chemistry, pp. 49-50.

Herbert King (See Chemical Society)

Second Lieutenant George William Moore (1891-1918, aged 26/27)

George Moore was born in London in 1891; he trained for three years at Finsbury Technical College and for one year at Imperial College.

Having had some training with the Territorial Army, when war came, he very quickly joined the 16th London Regiment and was on service in France in November 1914. In the following year, he was transferred to the Royal Engineers and served as a corporal until July 1917 when he became a cadet to the Royal Garrison Artillery. He was killed in action on 28 March 1918 in France. His commanding officer wrote on his death:

'During a most critical phase of the battle he fought the gun with great gallantry and inspired the men with his own high standard of courage.'

Source:

1. 1918, 'Obituary: George William Moore', Proceedings of the Institute of Chemistry, p. 27.

Lieutenant Cyril John Nixon (1897/8-1917, aged 20)

Born to Butler and Mary Nixon, Cyril Nixon was the youngest of three brothers. He trained at Finsbury Technical College and joined the Royal Flying Corps when the war began. He initially went to the Western Front in September 1916 and it appears that he served in the 8th battalion as he'd reported on the disappearance of a fellow officer from that battalion in January 1917. However, by 17 March 1917, he was reported to be in the 2nd Western General Hospital in Manchester.

Lieutenant Nixon died at the Military Hospital in Tidworth on 18 October 1917 from the results of a flying accident, the details of which remained unconfirmed; he was buried in Aldenham, Hertfordshire.

Source:

1. 1918, 'Obituary: Cyril John Nixon', Proceedings of the Institute of Chemistry, p. 50.

Corporal Thomas McIlveen Paterson (1892/3-1915, aged 23)

Born in Scotland to John and Mary Paterson, Thomas Paterson received his education at the Royal Technical College, Glasgow. Not much is known about his life except that he joined the 1st Battalion, Special Brigade of the Royal Engineers and died on 26 October 1915, from wounds received at Battle of Loos on 13 October.

Source:

1. 1916, 'Obituary: Thomas McIlveen Paterson', Proceedings of the Institute of Chemistry, p. 37.



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Lieutenant Arnott Andrew Patterson (1891-1916, aged 25)

Born in Evesham in 1891, son of George and Agnes, Arnott Patterson was educated at the Royal Technical College, Glasgow. He worked at Nobel's Explosives Factory under William Rintoul (President of the Faraday Society, 1934-1936).

During the war, he was a lieutenant in the Border Regiment, later becoming attached to the Royal Flying Corps (34 Squadron). Lieutenant Patterson died on 9 November 1916 from wounds received in action.

Source:

1. 1918, 'Obituary: Arnott Andrew Patterson', Proceedings of the Institute of Chemistry, p.50.

Corporal John Howard Potter (1895-1916, aged 21)

John Potter was born in 1895, son of James and Maud Potter; he was educated at Finsbury Technical College. When war began, he joined the 2nd Battalion, Special Brigade of the Royal Engineers and died during the Somme Offensive on 18 August 1916.

Lieutenant Julius Sefton Prince (1892-1915, aged 23)

Julius Prince was killed in action on the first day of the Battle of Loos on 25 September 1915. Born in Hendon in 1892, he had received his general education in Germany and Switzerland. At the time of his death, he held a commission in the 7th Battalion of the London Regiment, having joined the London University Officers' Training Corps before the outbreak of war.

Source:

1. 1916, 'Obituary: Julius Sefton Prince', Proceedings of the Institute of Chemistry, p.33.

Lieutenant Albert Alexander Robinson (1896-1916, aged 21)

Albert Robinson was born in Bassien (now known as Vasai) north of Mumbai in India, in 1896. When war began, he was receiving his scientific training at University College London.

In November 1914, he joined the 59th Siege Battery of the Royal Garrison Artillery and became a lieutenant just a few days before his death. Lieutenant Robinson was killed in action during the first month of the Somme Offensive on 20 July 1916, aged 21; he was awarded a posthumous Honorary War Degree of a BSc from his former university.

Source:

1. 1916, 'Obituary: Albert Alexander Robinson', Proceedings of the Institute of Chemistry, p.34.

Lieutenant Lawton Keir Rodger (1892-1919, aged 26)

Lawton Rodger was born in Rutherglen in 1892; he was the son of Adam Keir Rodger the MP for Rutherglen from 1918 to 1922. Taking a diploma course at the Royal Technical College, Lawton then became chemist to Messrs. Smith & Rodger, Paint and Varnish Manufacturers in Glasgow.

When war began in August 1914, he joined the Royal Engineers, received a commission in February 1915 and was promoted lieutenant in June 1916. He was later discharged with an honorary rank on account of disabilities contracted on service and died as a result of the great flu pandemic on 15 January 1919. His older brother William also fought in the war as a second lieutenant but survived and lived until 1956.

Source:

1. 1919, 'Obituary: Lawton Keir Rodger', Proceedings of the Institute of Chemistry, p.44.

Second Lieutenant Kenneth Ross (1890-1915, Aged 25)

Born in Northern Ireland in 1890, son of George and Henrietta, Kenneth Ross entered Queen's University Belfast in 1908. One of the articles Kenneth Ross wrote for the Journal of the Chemical Society was co-authored by Cecil Crymble; Crymble also fought in the war and died in November 1914; he is commemorated on the Chemical Society memorial.

Second Lieutenant Ross was serving in the 4th Battalion of the Royal Irish Rifles at the time of his death; he was killed in action in France on 25 September 1915.

Source:

1. 1916, 'Obituary: Kenneth Ross', Proceedings of the Institute of Chemistry, p.37.

Second Lieutenant Ferribee Sadler (1893-1917, aged 23)

Born on 5 May 1893, son of Ferreebe and Hannah, Ferribee Sadler graduated from London University and embarked upon his professional training at the University of Birmingham.

During the war, he served in the Durham Light Infantry attached to 29 Squadron of the Royal Flying Corps; he was reported missing on 21 April 1917 while flying a Nieuport Scout with 29 Squadron and was subsequently remembered on the Arras Flying Services Memorial in France.

Source:

1. 1919, 'Obituary: Ferribee Sadler', Proceedings of the Institute of Chemistry, p.33.

Lieutenant Francis William Sanderson (1893/4-1916, aged 23)

Francis Sanderson, born in London, was killed in action during the Somme Offensive on 2 September 1916. He received his general education at Haberdashers' School and then his scientific training at Finsbury Technical College. He enlisted as a private in the Artists Rifles and at the time of his death, Lieutenant Sanderson was serving in the Royal Engineers.

Source:

1. 1916, 'Obituary: Francis William Sanderson', Proceedings of the Institute of Chemistry, p.34.

William G Saunders (See **Chemical Society**)

Lieutenant George Evanston Smith (1894/5-1915, aged 21)

George Smith, born in Glasgow, entered the Royal Technical College, Glasgow in April 1912. He was a member of the Glasgow University Officers' Training Corps and obtained a commission as a second lieutenant in the 3rd Battalion of the Argyll and Sutherland Highlanders in September 1914. He was killed in action on the first day of the Battle of Loos on 25 September 1915.

Source:

1. 1915, 'Obituary: George Evanston Smith', Proceedings of the Institute of Chemistry, p.10.

Second Lieutenant James Salsbury Smith (1898/9-1917, aged 19)

James Smith was born in Darley Dale in Derbyshire, son of James and Frances; he was educated at Pannal Ash College in Harrogate.

Second Lieutenant Smith was killed during the German counter-attack at the Battle of Cambrai, initially reported missing on 30 November 1917, he was reported on 17 December to have been buried by the enemy. At the time of his death he was fighting with the Loyal North Lancashire Regiment.

Source:

1. 1918, 'Obituary: James Salsbury Smith', Proceedings of the Institute of Chemistry, p.29.

Second Lieutenant Leslie Phillips Smith (1893/4-1915, aged 21)

Very little is known of the life of Leslie Smith. He was educated at the Royal Technical College in Glasgow and during the war he served with the Royal Garrison Artillery. Killed on 6 March 1915, he was buried in Lydd Cemetery, Kent.



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Lieutenant John Holder Stearn (1894-1917, aged 23)

John Stearn was born on 26 August 1894, son of Harry and Elizabeth, he received his scientific training at Kings College London. During the war, he fought with the 14th Battalion of the Durham Light Infantry and served with the Expeditionary Force in France and Flanders from 11 September 1915. He was wounded twice, once at the Battle of Loos on 26 September 1915 and the second time at Lens on 22 April 1917. It was for his bravery at Lens that he received the Croix de Guerre from the French Government for putting a machine gun out of action and capturing 15 prisoners.

Lieutenant Stearn was killed in action near Marcoing during the German counter-attack at the Battle of Cambrai on 3 December 1917; he was buried where he fell. He was mentioned in Despatches in the London Gazette by Field Marshal Sir Douglas Haig on 21 December 1917 and awarded the Distinguished Service Order.

Source:

1. 1918, 'Obituary: John Holder Stearn', Proceedings of the Institute of Chemistry, p.50.

Captain Allan Robert Steele (?- 1918, age unknown)

Captain Allan Steele was wounded in action during the German offensive in the spring of 1918 and died at home on 6 April 1918. At the time he was serving with the 9th Battalion, Cameronians (Scottish Rifles). He was honoured in despatches:

'He displayed great courage and determination in endeavouring to break the enemy's wire under most difficult conditions. Later he carried out several dangerous patrols and took part in a successful raid.'

Prior to the war, he was educated at the Royal Technical College Glasgow and the University of Glasgow.

Second Lieutenant Guy Somerville Stewart (1898-1918, aged 19)

Born in Wembley in 1898, son of Frederic and Edith, Guy Stewart was educated at Westminster City School and Harrow County School before entering University College in 1915.

He was killed when his squadron, the 49 Squadron of the Royal Flying Corps, were conducting an operation against Bray during the German Spring Offensive on 28 March 1918, he was 19 years old. During the operation, Second Lieutenant Stewart was the pilot flying Aircraft DH 4 serial C4501 (Fiat 4); his observer, Lieutenant Richardson was taken prisoner.

Source:

1. 1919, 'Obituary: Guy Somerville Stewart', Proceedings of the Institute of Chemistry, p.59.

Lieutenant Edward Leslie Johnson Stockdale (1893-1916, aged 22)

Born in Ely, Cambridgeshire in 1893, son of William and Rose, Edward Stockdale received his chemical training at King's College London. After university, he worked for London County Council as a chemical assistant in the headquarters' laboratory at 2 Savoy Hill. He was later engaged on the chemical and bacteriological examination of the water of the River Thames at the Southern Outfall Laboratory, Crossness in London.



During the war, he received a commission with 'B' Company, 10th Battalion of the Lancashire Fusiliers being promoted to a lieutenancy in July 1915. Reported missing on 7 July 1916 from the Quadrangle Support Trench, Contalmaison; the War Office confirmed his death six weeks later. A letter received from one of his fellow officers stated:

'After leading his company in two charges on the morning of Friday 7th July, it was necessary for him to order a withdrawal of 100 yards. He remained till the last in the position gained and alone was covering the retirement of his men with his revolver against the assaulting enemy when he was seen to fall wounded.'

Source:

1. 1916, 'Obituary: Edward Leslie Johnson Stockdale', Proceedings of the Institute of Chemistry, p.34.
2. Kings College London: Stockdale, Edward Leslie Johnson. [Online]. [Accessed 1 April 2014]. Available from: <http://kingscollections.org/warmemorials/kings-college/memorials/stockdale-edward-leslie-johnson>



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Second Lieutenant Oliver John Stone (1886-1916, aged 29)

Born in Sydenham on 5 December 1886, Oliver Stone was the youngest son of Edward and Alice Stone. He received his scientific training at King's College London and the University of London; afterwards working as a demonstrator at King's College. There, he conducted some research in to the biological and chemical nature on antiseptic dressings.

Second Lieutenant Stone fought with the Artist's Rifles then later the Wessex Regiment of the Royal Field Artillery during the war; he died on the Somme on 22 September 1916 from wounds received in action the previous day.

After his death, Oliver Stones' house master from Rassall School, where he studied prior to King's College, described his 'singularly sweet and lovable nature' and how generally well-regarded he was.

Source:

1. 1916, 'Obituary: Oliver John Stone', Proceedings of the Institute of Chemistry, p.35.

Captain and Adjutant William Currie Taylor (1895-1918, aged 23)

Born in Leith in 1895, son of William and Margaret, William Taylor graduated in arts and science from the University of Edinburgh. At the outbreak of the First World War, he was working in the laboratory of the Neva Stearine works in Petrograd, Russia but returned home and joined his University's Officers' Training Corps Artillery Unit. He later received a commission with the 14th Divisional Ammunition Column of the Royal Field Artillery.

Captain Taylor died at home in Leith (the circumstances of his death remain unknown) on 7 November 1918 and was buried in Rosebank Cemetery, Edinburgh.

Source:

1. 1919, 'Obituary: William Currie Taylor', Proceedings of the Institute of Chemistry, p.59.

Private Arthur Guthrie Tye (1895-1917, aged 21)

Born in Monmouthshire in 1895, Arthur Tye was orphaned at two years' old and was brought up by his father's sister, Emily Tye, in London. Arthur was admitted as a member of the Institute of Chemistry in 1913 having graduated from the Stationer's Company School in June 1911.

At the time of his death he was serving with the 1st Battalion of the Honourable Artillery Company; he died during the operations on the River Ancre on 20 February 1917

Source:

1. 1917, 'Obituary: Arthur Guthrie Tye', Proceedings of the Institute of Chemistry, p.39.

Corporal Harold Vernon (1889/1890-1916, aged 26)

Corporal Harold Vernon was killed in France on 1 January 1916.

He received his early scientific training at the Municipal Technical School in Birmingham and graduated as BSc in 1911. He passed the Final Examination and was elected an Associate of the Institute in 1914. Soon after the outbreak of war, he joined the Artists Rifles and at the time of his death was an observer in the Meteorological Section of the Royal Engineers.

Source:

1. 1916, 'Obituary: Harold Vernon', Proceedings of the Institute of Chemistry, p.37.

Lieutenant Joshua Biram Crossley Wigfield (1897-1918, aged 20)

Joshua Wigfield was born in Lincoln in 1897 and spent his childhood in nearby Grantham; he was educated at London University and afterwards, University College Nottingham. Fighting with the 74th Division Signal Company of the Royal Engineers, Lieutenant Wigfield died during the Battle of the Hindenburg Line on 21 September 1918.

Source:

1. 1919, 'Obituary: Joshua Biram Crossley Wigfield', Proceedings of the Institute of Chemistry, p.45.

Second Lieutenant Cyril George Williamson (1894-1916, aged 22)

Son of Arthur and Sarah, Cyril Williamson was born in Birmingham in 1894 and received his education at the University of Birmingham. He was killed in action on the second day of the Somme Offensive on 2 July 1916 as his regiment, the Royal Warwickshire, fought at the Battle of Albert.

Source:

1. 1916, 'Obituary: Cyril George Williamson', Proceedings of the Institute of Chemistry, p.36.



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Second Lieutenant Thomas Wright (1889/1890-1915, aged 25)

Thomas Wright was born in Lincolnshire, one of six siblings; he obtained a BSc in chemistry from King's College London in 1912. He returned to the King's College the next year as a demonstrator in chemistry, a skilled and popular tutor, he remained there until 1914. His intention to go to Germany to study was abandoned due to the outbreak of war that August when he was called upon to serve with the King Edward's Horse.

In December 1914, he received a commission in the Royal Berkshire Regiment and was serving as a second lieutenant at the time of his death. On 2 May 1915, his platoon being based at F'anquissant, Second Lieutenant Wright volunteered to join the next patrol. As he accompanied a sergeant through the trenches, he suddenly started coughing which alerted the enemy to his presence; they began firing, three bullets struck him, the one to the head proving fatal. His body was subsequently taken and buried at F'anquissant the next day.

Sources:

1. 1915, 'Obituary: Thomas Wright', Proceedings of the Institute of Chemistry, p.24.
2. Kings College London: Wright, Thomas. [Online]. [Accessed 1 April 2014]. Available from: <http://www.kingscollections.org/warmemorials/kings-college/memorials/wright-thomas>

The Men Who Came Home

In their Proceedings for November 1918, the Institute of Chemistry published a list of 614 members who had served in the First World War. The list was by no means exhaustive but did represent most of the men who had served both at home and abroad. The list consisted of 180 Fellows, 269 Associates and 165 Students, their ages ranging from 19 to 62 and their contributions consisted of active service on the Front and research, mainly in the anti-gas field, at home.

The global impact of the war was also represented by the different battalions and units that members served in, including: the Australian Engineers; Calcutta Light Horse; Canadian Expeditionary Force; Hong Kong Volunteer Reserve; Mahrattas (British Indian Army); Malay States Volunteer Rifles; Penang Volunteer Rifles; Singapore Volunteer Rifles; South African Field Ambulance; United Provinces Horse (India).

Whilst 83 members of Chemical Society and the Institute of Chemistry were killed in action during the war, the many hundreds that returned home went on to pursue careers and make valuable contributions to the chemical sciences. The following profiles look at the lives of some of these members:

(Lieutenant) Theodore William Gull Acland (1890-1960, aged 70)

Having previously studied at King's College, Cambridge, Theodore Acland was studying at the University of Berlin when war was declared and so immediately returned to the UK. In 1915, after a short period in the Forces, he became one of several chemists responsible for the start-up and running of explosives factories at Langley Green and Chester. After the war, he joined Brunner, Mond & Co. (later ICI) as a research chemist and in 1922 became assistant chemist in charge of the fuel department of Garton & Co in Battersea.

Source:

1. 1961, 'Obituary: Theodore William Gull Acland', *Journal of the Royal Institute of Chemistry*, p.121.

(Corporal) Leonard Archbutt (1858-1935, aged 77)

As well as being a member of the Institute of Chemistry, Leonard Archbutt was a member of the Chemical Society, the Society of Public Analysts (of which he was president, 1912-1913) as well as being a founder member of the Society of Chemical Industry and an original member of the Institute of Metals.



One of Archbutt's obituaries referred to him as 'the greatest of railway chemists': in 1881, he was appointed chief chemist to the Midland Railway Company in Derby. He was also active at the Railway Clearing House and was a member of the Goods Managers Committee on Explosives and other dangerous goods from 1893 till his retirement in 1923. For services on the standing committee concerned with the conveyance of explosives for the government during the war, he was awarded the OBE but declined it on the grounds that he 'had done no more than his duty'.

Sources:

1. 1935, 'Obituary: Leonard Archbutt', *Journal and Proceedings of the Institute of Chemistry of Great Britain and Ireland*, p. 272.
2. Turner, T 1935, 'Obituary Notices: Leonard Archbutt', *Journal of the Chemical Society (Resumed)*, p. 859.
3. White, J 1935, 'Obituary: Leonard Archbutt', *The Analyst*, pp. 579-581.

(Major) William Ringrose Gelston Atkins (1884-1959, aged 75)

During the First World War, William Atkins became assistant chemist at the Woolwich Arsenal then later to the National Physical Laboratory. He was afterwards commissioned to the Royal Flying Corps and placed in charge of an experimental depot in Egypt. Much of his work concentrated on problems related to balloon fabrics, varnishes, fuels and lubricating oils, coming up with a technique of using colloidal graphite to enable engines to run for longer and thus saving the lives of many pilots. He was twice mentioned in despatches for his work and promoted to major.

After the war, he was an indigo research botanist at the Imperial College of Agriculture in India. Entering the Marine Biological Association Laboratory in Plymouth, in 1921, as a plant physiologist and later becoming head of the department of general physiology. He remained there until his retirement in 1955, apart from the years of the Second World War. In 1931, he was awarded a CBE, having been given the OBE in 1919. During the Second World War, he served in the Home Guard and in the Royal Army Medical Corps and was at the Meteorological Office of the Air Ministry from 1943 to 1945.

Source:

1. 1959, 'Obituary: William Ringrose Gelston Atkins', *Journal of the Royal Institute of Chemistry*, p. 463.

Marmaduke Barrowcliff

(1883-1945, aged 61)

After university, Marmaduke Barrowcliff undertook research on natural products derived from plants at the Wellcome Chemical Research Laboratories. From 1906 to 1909, he also worked in the research department of Burroughs Wellcome & Co. After leaving Burroughs Wellcome, he took up an appointment as first assistant in the Department of Agriculture in the Federated Malay States (now Malaysia). Here he worked on soil surveys and also on the problem of coagulation of Hevea latex; this work led to a new method of coagulation for which patents were subsequently taken out.

In 1915, he returned to England to work at the Boots Pure Drug Company in Nottingham. His contribution to the war effort mainly concentrated on the process for the manufacture of saccharin and a method for the preparation of granules for use in anti-gas masks: in 1920, he was awarded an MBE for this work.

Sources:

1. 1945, 'Obituary: Marmaduke Barrowcliff', Journal and Proceedings of the Royal Institute of Chemistry of Great Britain and Ireland, p. 86.
2. Cronshaw, CJT 1948, 'Obituary Notice: Marmaduke Barrowcliff', Journal of the Chemical Society (Resumed), pp. 1475-1476.

(Second Lieutenant) James Charlton

(1894-1957, aged 63)

In 1916, James Charlton was appointed chemist-in-charge at the Ministry of Munitions factory in Greenock. The following year, he was gazetted second lieutenant in the Royal Engineers and was placed in charge of a water filtration plant in Mesopotamia.

On his return to England in 1920, he was selected as agricultural chemist to the Government of Burma and took up his duties in Mandalay early the following year. He was appointed director of agriculture in Burma in 1936 and so was transferred to Rangoon. Having completed five years' tenure of this office in 1941, he left for South Africa shortly before Burma was attacked by Japan. In Johannesburg, he became assistant to the director of explosives production and was later appointed technical assistant at the Industrial Development Corporation of South Africa, later becoming the company's director.

Source:

1. 1957, 'Obituary: James Charlton', Journal of the Royal Institute of Chemistry, pp. 656-657.

(Lieutenant Colonel) Dr Arthur William Crossley (1869-1927, aged 58)

Arthur Crossley's educational years were spent in Germany working with Emil Fischer and August Wilhelm von Hoffman (where he gained his PhD) and then later at Owens College in Manchester undertaking research work with William Perkin Jnr. After a number of teaching posts, he was appointed professor of chemistry at King's College London in June 1914, this appointment was cut short by the outbreak of war a couple of months later.

During the war, Crossley worked as a volunteer at the War Office under Colonel Sir John Pringle. Then, after aiding in the large-scale production of kharsivan (salvarsan), he became secretary of a war committee appointed by the Royal Society to organise the production of local anaesthetics such as novocaine, β -eucaine and other drugs previously only obtainable from enemy sources.

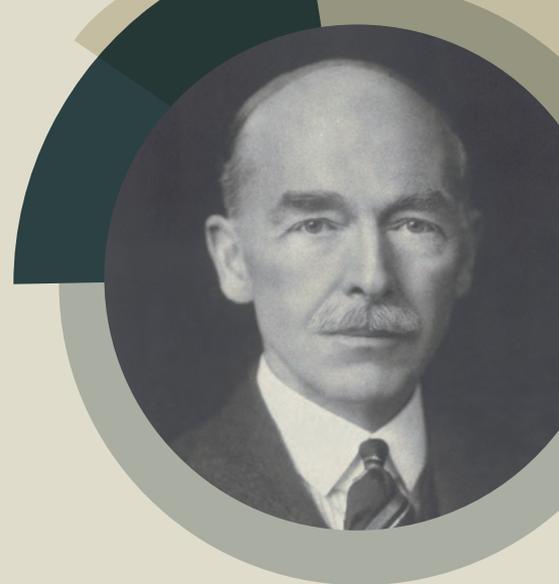
As the Germans had begun to use gas as a weapon from 22 April 1915, the Scientific Advisory Committee and the Commercial Advisory Committee were set up to deal with the provision of materials required to combat this new chemical warfare. Crossley was appointed secretary of both committees and worked tirelessly on their behalf. As he was doing such a good job in communicating the requirements between those working at home and those at the Front, he was appointed liaison officer for chemical warfare in November 1915, with the rank of lieutenant colonel. In this capacity he made several visits to the French battlefields.

In the summer of 1916, the government came to realise that successful development of chemical warfare required a large experimental testing ground at home. It was then entrusted to Arthur Crossley to oversee the suitable conversion of land acquired in Porton, near Salisbury. He remained at Porton for the next two and half years by the end of which it was staffed by 47 officers, 700 NCO's and 800 civilian workmen – the result being to significantly advance the methods by which the effects of poison gas could be counteracted. For his services during the war, he was awarded the honours of CBE, CMG and appointed an officer of the Legion of Honour.

After the war, Crossley held positions at King's College London and the British Cotton Industry Research Association. Throughout his life, Crossley served the Chemical Society in a variety of capacities, as an abstractor, member of the Publication Committee, honorary secretary, honorary foreign secretary and then president from 1925 to 1926. Due to ill health, he resigned the presidency after one year and became vice-president.

Sources:

1. 1927, 'Obituary: Arthur William Crossley', Journal and Proceedings of the Institute of Chemistry of Great Britain and Ireland, p. 120.
2. Thorpe, JF 1927, 'Obituary: Dr A. W. Crossley', The Analyst, pp. 316-317.
3. Wynne, WP 1927, 'Obituary Notices: Arthur William Crossley', Journal of the Chemical Society (Resumed), pp. 3165-3173.





(Lieutenant) Bernard Scott Evans (1880-1950, aged 70)

At the start of the war, Bernard Evans enlisted in the Artists' Rifles and was gazetted to the Queen's Regiment in 1915, going to France with the 4th Suffolk's in 1916. He was badly wounded during the Battle of Arras in 1917 and awarded the Military Cross.

From 1917 to 1919 he was attached to the Ministry of Munitions as a research chemist and appointed MBE in 1919 for his services, mainly in carrying out research work on arsenic compounds. In 1919, he obtained an appointment in the research department of Woolwich Arsenal and was later a senior experimental officer in the Armament research department, Ministry of Supply, being stationed at University College, Cardiff, during the Second World War.

Evans received the Sir George Beilby Award in 1936 in recognition of his work on analytical methods for the determination of metals. He was elected an Associate of the Institute of Chemistry in 1909 and a Fellow in 1915, serving as a member of council, 1936-1939. He was also vice-president of the Society of Public Analysts, 1937-1939.

Sources:

1. 1951, 'Obituary: Bernard Scott Evans', *Journal of the Royal Institute of Chemistry*, p. 62.
2. Ambler, HR 1915, 'Bernard Scott Evans: An Appreciation', *The Analyst*, p. 189.
3. Etheridge, AT 1915, 'Obituary: Bernard Scott Evans', *The Analyst*, pp. 188-189.

Major Herbert Garland (1882-1921, aged 38)

Herbert Garland was elected as a Fellow of the Chemical Society on 15 May 1913; he was based in Cairo at the time, studying ancient Egyptian alloys for which he was receiving a research grant of £10 from the Chemical Society. He published a couple of articles on this subject the following year but his research was halted when war broke out.

In 1914, he invented and oversaw the manufacture of the Garland grenade which was widely used in the Dardanelles and Gallipoli. Posted to the Hejaz in 1916, he worked with and fought alongside T.E. Lawrence during the Arab Revolt, contributing greatly to Lawrence's knowledge on explosives as well as himself commanding the Arab forces in the Battle of Yanbu.



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He was awarded the Military Cross, the Third Order of El Nahda, the Fourth Order of the Nile and in May 1918, received a letter from Winston Churchill, the then secretary of state for war:

*'Dear Mr Garland
I have had much pleasure in recommending to the Prime Minister that you should be appointed a Member of the Most Excellent Order of the British Empire, and I am glad to learn that the King has approved the recommendation. Pray accept my hearty congratulations on this recognition of the valuable services rendered by you to the State.'*

In 1921, Major Garland was forced to leave Egypt due to poor health. He arrived in England on 27 March and died less than a week later.



Professor Sir Ian Morris Heilbron (1886-1959, aged 72)

During two world wars, Ian Heilbron served his country with distinction; he joined the Territorial Army in 1910 and was on active service during the First World War, rising to the rank of lieutenant colonel as an assistant director of supplies in Salonika (Greece).

Throughout the Second World War, he remained in London as a scientific adviser, first to the director of scientific research at the Ministry of Supply and subsequently to the minister of production. Mentioned three times in despatches, he was awarded the Distinguished Service Order, the Greek Order of the Redeemer, and the Medaille d'Honneur in 1918, and the American Medal of Freedom in 1947. Knighted in 1946, he was president of the Chemical Society, 1948-1950.

A pioneer of organic chemical research, he conducted important research on vitamins A and D as well as studying steroids and penicillin and helping develop the insecticide DDT.

Sources:

1. 1959, 'Obituary: Ian Morris Heilbron', Journal of the Royal Institute of Chemistry, p. 737.
2. Jones, ERH 1962, 'Obituary Notice: Ian Morris Heilbron', Proceedings of the Chemical Society, pp. 242-245.

Dr William Honeyman (1889-1976, aged 87)

William Honeyman served with the Royal Engineers during the First World War as one of the special brigade chemists and was involved in the Battles of Loos, the Somme and Vimy Ridge. He was brought back from France to join the research department at Woolwich.

In 1926, he became head of research at the York Street Flax Spinning Company. Among the developments made by the company was the special fabric used to cover airships as well as cords for tyre reinforcement and improved fishing lines.

During the Second World War, at the request of the government, he undertook a study of the problems likely to arise in the event of gas warfare. After his retirement, he kept up his interest in chemistry and his personal experiments in wine-making led to an improvement in the hydrometer for amateur wine makers.

Source:

1. DH & W F-K 1977, 'William Honeyman', Chemistry in Britain, p. 72.



Dr Douglas William Kent-Jones (1891-1978, aged 87)

At the outbreak of war in 1914, Douglas Kent-Jones joined the Public Schools Brigade (Royal Fusiliers 19th Battalion), from which, as a chemist, he transferred to the Special Companies Royal Engineers with whom he saw action at Loos. He obtained a commission in the Special Brigade and was mentioned in dispatches, then later transferred to the Royal Flying Corps as an observer.

In March 1918, his plane was shot down behind enemy lines and the pilot was killed; he however, survived but was captured and kept as a prisoner in Germany until the end of the war.

After the war, he became interested in the cereals and bread-making industries, authoring 'Modern Cereal Chemistry' and 'The Practice and Science of Bread-Making'. In 1935, he set up Procea Products Ltd to commercially exploit the recent invention of gluten-enriched bread. In 1947, he visited Australia at the request of the Bread Manufacturers of New South Wales and was instrumental in setting up the Bread Research Institute of Australia. He also co-developed the Flour Colour Grader, subsequently used and recognised throughout the world.

Dr Kent-Jones was president of the Society of Public Analysts in 1953 and of the Institute of Chemistry from 1955 to 1957. Following his retirement in 1966, he became chairman and then president of BIBRA. In 1974, he was awarded the OBE.

Sources:

1. Amos, AJ 1978, 'Obituary: Douglas William Kent-Jones'. Proceedings of the Analytical Division of the Chemical Society, pp. 322-323.
2. McLachlan, T 1979, 'Douglas Kent-Jones', Chemistry in Britain, p. 202.

(Captain) William Richard Simpson Ladell (1887-1942, aged 55)

Much of William Ladell's life was spent travelling and working in many different places around the world. In 1908, he was working for the Candy Filter Company and was then appointed chemist to the Agricultural Department at Cedara, Natal in 1909. In November 1910, he was transferred to the Grootfontein Agricultural College in Cape Colony as lecturer in chemistry. In 1912, he obtained an appointment with the Societe Financiere des Caoutchoucs in the Federated Malay States, where his duties related mainly to plant procedure; then, at the outbreak of the war, he joined the Malay States Volunteer Rifles.

He served for a time with the Colombo Town Guard during a native rebellion in 1915, before he returned home, and was commissioned lieutenant in the Royal Army Ordnance Corps. Towards the end of 1916, he was appointed inspecting ordnance officer, Northern Command eventually appointed major in the Regular Army Reserve of Officers in January 1921, twice being mentioned in despatches. As an inspecting ordnance officer, he was successful in dealing with unexploded bombs. On one occasion, he worked single-handedly on a bomb which had fallen with its mechanism caught in a lath and plaster partition, the surrounding houses being cleared of the occupiers.

In 1920, he became assistant in the Government Laboratory in Bangkok and in 1923, was transferred to the Ministry of Agriculture and entrusted with the formation of the Bureau of Agricultural Science. There, he was concerned mainly with paddy and the cultivation of citrus fruits, cotton, tobacco and ground-nuts. While in Thailand, he reorganised the chemical department of the pre-medical school at Chulalongkorn University and acted as part-time lecturer for two years.

In 1938, he joined the scientific staff of the West Indies Sugar Company in Jamaica where he became chief of the research staff, a position he held at the time of his death. In 1941, a research board of the Jamaica sugar planters was set up; William Ladell being chief research officer of this board had dealings with all the companies in Jamaica. He was also engaged in experiments, initiated by the Government of Jamaica, on growing rice on the Island.

Source:

1. 1942, 'Obituary: William Richard Simpson Ladell', Journal and Proceedings of the Institute of Chemistry of Great Britain and Ireland, p. 284.

(Major) Arthur Pearson Luff (1856-1938, aged 82)

During the war, Arthur Luff, an original member of the Institute of Chemistry and a Fellow of the Chemical Society, served with the Royal Army Medical Corps. Twice mentioned in despatches, he was later awarded a CBE.

Luff's pre-war work saw him hold the appointment of scientific analyst with the Home Office, 1892-1908. During this period, he was colleague of the renowned toxicologist, Sir Thomas Stevenson and played a prominent part in many noted poisoning cases. In the beer poisoning epidemic in the North of England in 1900, which was found to be due to arsenical poisoning, Luff, in conjunction with Sir Thomas and Professor Dixon Mann, played an important part in the investigation of the cause of the epidemic. The last criminal case he was involved in was the Crippen case in 1910 in which he gave evidence.



Gerald Roche Lynch (1889-1957, aged 68)

Gerald Roche Lynch entered the Royal Navy as a surgeon in August 1914, of his five years' service he spent two and a half years in Malta in charge of the Royal Naval Hospital Laboratory. He subsequently became assistant in the medical department of the Royal Naval College at Greenwich and was later in charge of the Laboratory of the Royal Naval Depot at Crystal Palace; his services were recognised with an OBE in 1919.

His working life at the Home Office and the Criminal Investigation Department of Scotland Yard began in 1920 when he was appointed assistant official analyst, he was senior official analyst from 1928 until 1954. From 1920 to 1954, he was involved in many important murder trials, especially those in which poison was involved, usually as the principal witness for the prosecution. In 1928, he was involved in the infamous trial of the two men accused of the murder of PC Gutteridge.

Gerald Roche Lynch was president of the Society of Public Analysts, 1936-1937 and the Royal Institute of Chemistry, 1946-1949.

Sources:

1. 1957, 'Obituary: Gerald Roche Lynch', Journal of the Royal Institute of Chemistry, pp. 712-713.
2. Kent-Jones, DW 1957, 'Obituary: Gerald Roche Lynch', The Analyst, p. 605.
3. Kent-Jones, DW 1957, 'Obituary Notices: Gerald Roche Lynch', Proceedings of the Chemical Society, p. 299.

(Captain) George Macaulay Painter (1885-1960, aged 75)

During the war, George Painter joined HM Forces, attained the rank of captain and was responsible for the anti-gas training of over 20,000 troops. After the war, he was a lecturer in chemistry at the Municipal Technical College, Portsmouth and later appointed as HM inspector of technical schools and colleges where he remained until his retirement in 1950. He was awarded the Military Cross and the OBE.

Source:

1. 1960, 'Obituary: George Macaulay Painter', Journal of the Royal Institute of Chemistry, p. 306.

(Sergeant) Frank Oates **(1889-1945, aged 55)**

At the start of the First World War, Frank Oates enlisted in the Grenadier Guards and from 1915 to 1916 saw service in France and Flanders with the Special Brigade of the Royal Engineers. Returning to France as a trench mortar subaltern, he was wounded in the Battle of the Somme and was transferred temporarily to the Chemical Warfare Department of the Ministry of Munitions for research work on war gases. Mentioned in despatches in 1919, he was appointed an MBE.

Returning to the Royal School of Mines where he had worked prior to the war, he obtained the Associateship of the Royal School of Mines and was then appointed personal assistant to Sir Albert Kitson on the Geological Survey of the Gold Coast, Australia; becoming director in 1929.

Transferring to the Tanganyika Geological Survey Department in East Africa as chemist and petrologist, he was appointed senior assistant geologist in 1931 and geologist in 1935. In 1940, he went to Dar-es-Salaam as acting chief inspector of mines, but returned to Dodoma, Tanganyika, at the end of that year as officer-in-charge of lands and mines. He was promoted chief geologist in 1943 and was awarded the OBE in 1945.

Source:

1. 1945, 'Obituary: Frank Oates', Journal and Proceedings of the Royal Institute of Chemistry of Great Britain and Ireland, p. 155.

Thomas Slater Price **(1875-1949, aged 74)**

During the First World War, Thomas Price managed his own laboratories in the large scale preparation of different organic chemicals to be used in the manufacture of drugs. In 1916, as a lieutenant in the Royal Naval Volunteer Reserve, he took up work of a secret nature at the Royal Naval Experimental Station in Stratford. One of the investigations involved the design of equipment to be used for the formation of smoke screens at sea which was later used to great effect in the raid on Zeebrugge in April 1918. At the end of the war, he was awarded an OBE for his work.

He held many offices within the Chemical Society and the Royal Institute of Chemistry, including appointments as treasurer, secretary and vice-president as well as being a member of council for both organisations.

Source:

1. 1950, 'Obituary: Thomas Slater Price', Journal of the Royal Institute of Chemistry, p. 78.

(Major) Henry Stanley Raper **(1882-1951, aged 69)**

Henry Raper's pre-war career saw him carry out organic chemical research under Julius Cohen; spending a year in Hofmeister's laboratory in Strasbourg; becoming a lecturer in pathological chemistry in Toronto; taking an appointment as a professor in the physiology department at Leeds University.

His work was broken by service during the First World War in the Anti-Gas Department of which he eventually became head; he was awarded the CBE for this work in 1918.

After the war, he spent most of the rest of his professional life at the University of Manchester where he was appointed professor of chemical physiology. His obituary in the Journal of the Chemical Society stated that he 'must be counted among the great physiological chemists which Britain has so far produced...'

Sources:

1. 1952, 'Obituary: Henry Stanley Raper', Journal of the Royal Institute of Chemistry, p. 347.
2. Folley, SJ 1955, 'Obituary Notices: Henry Stanley Raper', Journal of the Chemical Society (Resumed), pp. 2987-2988.



Sir Eric Keightley Rideal (1890-1974, aged 84)

Son of renowned chemist Samuel Rideal, Eric Rideal gained his PhD in 1912 after studying chemistry in Germany. When war began, he was working on fixing water supplies in Guayaquil and Quito in Ecuador, he returned home immediately and enlisted with the Artists Rifles. Initially, he was assigned to work with Edward Harrison on Millbank in London to work on developing gas respirators; afterwards, he was sent to supervise the supply of water to troops on the Somme in 1916 with the Royal Engineers (he was present at the Battle of Carboy Wood). Eric Rideal was invalided home the same year after an outbreak of dysentery and went to work for the Munitions Inventions Department and carried out research in catalysis at University College London. He was made MBE in 1918 for his war work.

Following the war, he went to the USA to take a temporary position as visiting professor at the University of Illinois, returning home a year later to take up a lectureship in physical chemistry at Cambridge. He remained at Cambridge for 26 years becoming professor of colloid science in 1930. During his time there, he founded the Colloid Science Laboratory which was later used for war work during the Second World War; in 1951, he was knighted for his service in the Ministry of Supply

Eric Rideal was president of the Faraday Society, 1938-1945 and the Chemical Society, 1950-1952. Today, the Rideal Trust (jointly administered by the Royal Society of Chemistry and the Society of Chemical Industry) provides travel bursaries to promising academic research workers in the general field of colloid and surface science

Source:

1. Barrer, RM 1975, 'Sir Eric Keightley Rideal 1890-1974', *Chemistry in Britain*, p. 231.

William Rintoul (1870-1936. Aged 66)

As his specialism was in the chemistry of explosives, William Rintoul went to work at the Royal Gunpowder Factory in 1894, eventually becoming chemist-in-charge of the manufacture of nitroglycerine and then chief chemist. His time at the factory was mainly spent under Sir Frederic Nathan who he eventually followed to the Nobel's Explosives Company in 1909.



His work there was concerned with further inventions and patents and carried on through the First World War for which he was awarded an OBE in 1918.

He later served on the council of the Chemical Society and was president of the Faraday Society, 1934-1936.

His second wife Jess also played her part during the War, as a trained nurse she was with the 51st General (Scottish) Hospital in France and was mentioned in despatches.

Sources:

1. 1936, 'Obituary: William Rintoul', *Journal and Proceedings of the Institute of Chemistry of Great Britain and Ireland*, pp. 396-397.
2. Robertson, R 1937, 'Obituary Notices: William Rintoul', *Journal of the Chemical Society (Resumed)*, pp. 183-184.



**(Lieutenant Colonel)
Professor Arthur
Smithells**
(1860-1939, aged 78)

Arthur Smithells began his scientific education at the University of Glasgow before proceeding to study under Roscoe and Schorlemmer at Owens College, Manchester. He later took supplemental courses in Germany, one with von Baeyer in Munich and another with Bunsen at Heidelberg. A successful and popular teacher, from 1913 to 1914 he was special lecturer in the University of the Punjab; in 1915 he was visiting lecturer in anti-gas training in the Northern Command, and from 1916 to 1919, he held the rank of lieutenant colonel and chief chemical adviser (anti-gas training), GHQ, Home Forces receiving, in 1918, the honour of CMG, in recognition of his services.

After the war, Arthur Smithells became director of the Salters' Institute of Industrial Chemistry. Being very active in the learned societies he was vice-president of the Chemical Society, 1905-1908, 1917-1920 & 1927-1930, as well as being president of the Institute of Chemistry, 1927-1930.

Sources:

1. 1939, 'Obituary: Arthur Smithells', Journal and Proceedings of the Institute of Chemistry of Great Britain and Ireland, pp. 234-235.
2. Cobb, JW 1939, 'Obituary Notices: Arthur Smithells', Journal of the Chemical Society (Resumed), pp. 1234-1236.
3. Pilcher, RB 1939, 'Obituary: Arthur Smithells', The Analyst, pp. 244-245.

**(Captain) James
Netherwood Sugden**
(1894-1944, aged 50)

Orphaned as a young boy, James Sugden was raised by his grandmother. At the outbreak of war, he became personal assistant to Professor Brereton Baker afterwards obtaining a General Service Commission in the army; there his work was concerned with a variety of chemical investigations on new developments in warfare.

When the enemy began to use gas as a weapon, he took part in some of the early experimental trials on Salisbury Plain to devise how to counter this new weapon.

He also became responsible for the disposal of leaking cylinders of some of the more lethal experimental war gases. His work then led him to the provision of drinkable water for the troops; part of this was concerned with the development of methods and equipment for countering the poisoning of drinking water by the enemy.

The other aspect of his work with water supplies was the purification of water that had become unsafe to drink, particularly as a result of waterborne diseases. A number of mobile plants designed for the chlorination of water were sent to France on lorries and barges. Further afield, bigger plants were created and set up on the banks of the rivers Tigris and Euphrates in Mesopotamia (modern day Turkey). In 1917, some of these plants were shipped to Iraq where James Sugden went the following year to find most of them working efficiently.

After the war, he joined the teaching staff of the Royal College of Science (later, Imperial College) where he remained for the rest of his life.

Captain Sugden was killed in London by a flying bomb during the Second World War on 11 July 1944.

Source:

1. Ellingham, HJT 1945, 'Obituary Notices: James Netherwood Sugden', Journal of the Chemical Society (Resumed), pp. 75-77.

The Role of Women Chemists

As there weren't many female members of the Institute of Chemistry during the war and because women weren't admitted as Fellows to the Chemical Society until 1920, it's difficult to find much information on the contribution made by women chemists during the First World War. However, when looking back at the lives of the women who later became members, their deeds become apparent; a few of these are outlined in the profiles that follow:

May Sybil Burr (nee Leslie)

(1887-1937, aged 50)

In 1909, May Burr went to work at Madame Curie's laboratory in the Sorbonne on an 1851 Exhibition Science Scholarship; she worked there on problems connected with the radioactivity of thorium and its disintegration products. Renewal of the scholarship for a third year permitted her to spend time with Lord Rutherford at the University of Manchester.

Prior to the war, she held a couple of teaching posts but from 1915 to 1918 she acted as chemist-in-charge of laboratories in H.M. factories, her work there was concerned with the manufacture of high explosives at Litherland (Liverpool) and Penrhyndeudraeth (North Wales).

In 1918, she went to Leeds University and took the position of assistant lecturer in inorganic chemistry; subsequently being transferred to the Department of Physical Chemistry where she worked as both lecturer and as assistant in charge of the laboratory.

Sources:

1. 1937, 'Obituary: Mrs May Sybil Burr', Journal and Proceedings of the Institute of Chemistry of Great Britain and Ireland, p. 339.
2. Dawson, HM 1938, 'Obituary Notices: May Sybil Burr', Journal of the Chemical Society (Resumed), pp. 151-152.

Marie Curie

(1867-1934, aged 66)

Of the many achievements in the life of Marie Curie, some of the most significant came during the First World War. Seeing a need for radiological centres to assist surgeons on the Front, she developed mobile radiography units; these were to become known as 'Petites Curies'. Within the first year of the war, she had set up 20 radiological vehicles, which she herself drove to the front lines, and 200 units in field hospitals; it's estimated that over a million soldiers were treated at her units. She was also made head of the International Red Cross's radiological service and trained many nurses and doctors to use these new units.

It is thought that Marie Curie's death from aplastic anemia in 1934 was partly attributed to her exposure to radiation during her work in the war.







Mabel Beatrice Elliott (1885-1944, aged 59)

Born in London and educated in Holland and Belgium, Mabel Elliott was working as a foreign correspondent with an engineering firm in the City of London when war began; she immediately offered her services to the Postal Censorship, a recently established branch of the War Office. Beginning at the bottom as an unknown examiner, it was not long before she was promoted to the post of deputy assistant censor.

While she was in charge of a room of examiners her keen observation led her to suspect that an apparently innocent business letter contained invisible writing and on applying heat to the paper, she brought to light a secret message of the German spy, Kuepferle. At the subsequent trial in the Tower and at the Old Bailey, this evidence was an essential link in the case for the prosecution.

That night Kuepferle hanged himself in Brixton prison, leaving a confession, written on a slate, that he was a German officer.

Shortly afterwards, Miss Elliott again discovered secret messages in the letters of two more German agents, Muller and Hahn, and her evidence helped to convict them both. A few months later she was promoted to assistant censor and was so successful that in the following year, she was chosen to be censor in control of the whole of the female workforce (over 3,000) employed in the Postal Censorship. For these services to the country, she was made an MBE and was also awarded the *Palme d'un Officier d'Academie* by the French Government.

After the war, Miss Elliott opened a secretarial and translation bureau in Westminster which led in 1921, to her appointment as indexer and business manager of *The Analyst*. When she retired from the Society of Public Analysts at the end of 1937, the council showed their appreciation of all that she had done by presenting her with a diamond wrist watch and by electing her an Honorary Member; the only woman to have been given this honour during the whole of the Society's 70 years.

During World War Two, Miss Elliott took a prominent part in all the activities of the Women's Voluntary Service, such as acting as interpreter to Belgian, French and Dutch refugees after Dunkirk, and by escorting train loads of women en route to an internment camp.

Having passed the examinations of the British Red Cross Society, she gave all the time she could spare to nursing. It was soon recognised that she had the qualities of a leader and was invited to become commandant of the 78th Middlesex Detachment. During the autumn of 1940, she tended the old people at a sick bay returning home night after night during the incessant air raids and having to take shelter in doorways from the falling shell splinters.

Her increasingly bad health forced her to take up work less arduous than nursing, which included fundraising and working with the Red Cross Hospital Supply Association to the very last. Even when she was too ill to go out, she had the meetings of the working party in her own home and supervised them from her bed.

Source:

1. Mitchell, CA 1944, 'Obituary: Mabel Beatrice Elliott', *The Analyst*, pp. 33-34.

Annie Homer (1884-1953, aged 68)

Born in London, Annie Homer studied chemistry at Newnham College where she later became assistant lecturer and demonstrator. She moved to Canada in 1914 to work at the University of Toronto and the Dominion Experimental Farm in Ottawa but before long, she was recalled to Britain for the special work of reorganising the commercial production of commercial antitoxins to meet war demands. She was elected a Fellow of the Institute of Chemistry in 1918.

During the Second World War, she went to Palestine where her work involved obtaining oil and conducting enquiries there on behalf of the British Government.

Source:

1. 1953, 'Obituary: Annie Homer', Journal of the Royal Institute of Chemistry, p. 369.

Dorothy Jordan-Lloyd (1888-1946, aged 57)

During the First World War, Dorothy Jordan-Lloyd worked in the biochemistry laboratory at Cambridge in developing, for the Medical Research Committee, alternative culture media for use in bacteriology; she was also concerned in investigating the causes of 'ropiness' in bread.

After the war, her attention was turned to the colloid chemistry of proteins and following her appointment to the staff of the British Leather Manufacturers' Research Association in 1921, she published a series of papers on the swelling of gelatine and of protein fibres and on other fundamental problems related to the properties and treatment of leather.

She was vice-president of the Royal Institute of Chemistry, 1943-1946; another of her achievements came from outside the realm of science when in 1928, she became the first person to make the ascent and descent of the Eiger in one day.

Sources:

1. Pickard, RH 1947, 'Obituary Notices: Dorothy Jordan Lloyd', Journal and Proceedings of the Royal Institute of Chemistry of Great Britain and Ireland, pp. 32-33.
2. 1948, 'Obituary: Dorothy Jordan-Lloyd', Journal of the Chemical Society (Resumed), pp. 1727-1729.

Ida Smedley McLean (1877-1944, aged 66)

Educated at Newnham College, Cambridge, Ida Smedley McLean later worked as research student with Professor Henry Armstrong at the Central Technical College in London. Afterwards, she held a number of demonstrator and research positions then became the first woman to be appointed to the chemistry department at the University of Manchester in 1906.

During the war, she did valuable work for the Ministry of Munitions and the Admiralty. Dr Smedley-MacLean was elected a Fellow of the Institute in 1918 and became one of the first women Fellows of the Chemical Society a few years later having been one of the main champions to fight for this admission.

Source:

1. 1944, 'Obituary: Ida Smedley-MacLean', Journal and Proceedings of the Royal Institute of Chemistry of Great Britain and Ireland, p. 74.

Frances Mary Gore Micklethwait (1868-1950, aged 82)

In 1919, for her services during the First World War, Frances Micklethwait was awarded an MBE; her obituary in the *Journal of the Chemical Society* stated that her work was 'of national importance' but unusually, did not elaborate. The speculation that her work concerned explosives was supported by an entry in *The Supplement to the London Gazette* on 7 June 1918:

'Miss Frances Mary Gore Micklethwait, Experimental Chemical Supply Officer, Trench Warfare Supply Department, Ministry of Munitions.'

After the war, she worked in the research department of the Boots Pure Drug Company in Nottingham and then became principal of the Horticultural College in Swanley; this was the first horticultural college in the world for women. In 1920, she was one of the first women to be elected as a Fellow of the Chemical Society.

Sources:

1. 1950, 'Obituary: Frances Mary Gore Micklethwait', *Journal of the Royal Institute of Chemistry*, p. 277.
2. Burstall, FH 1952, 'Obituary Notices: Frances Mary Gore Micklethwait', *Journal of the Chemical Society (Resumed)*, pp. 2946-2947.

Millicent Taylor (1871-1960, aged 89)

During the war, Millicent Taylor worked for the Ministry of Munitions at University College London; in 1917, she was appointed a research chemist at H.M. Factory in Oldbury. After the war, she held teaching positions at institutions such as University College London and the University of Bristol until her retirement in 1937.

Millicent Taylor was one of the first women to be admitted to the Fellowship of the Chemical Society, her election taking place on 2 December 1920; in 1922, she was elected a Fellow of the Institute of Chemistry.

Sources:

1. 1961, 'Obituary: Millicent Taylor', *Journal of the Royal Institute of Chemistry*, p. 206.
2. Baker, W 1962, 'Obituary Notices: Millicent Taylor', *Proceedings of the Chemical Society*, p. 94.

Martha Annie Whiteley (1866-1956, aged 89)

Martha Whiteley served from 1891 to 1900, as science mistress in Wimbledon High School, where she also completed her higher education. In 1903, Sir William Tilden invited her to join the academic staff of the Royal College of Science (which later became Imperial College) and she earned the title of assistant professor in 1920, she remained in this position until her retirement in 1934.

During the First World War, she took a leading part in the small-scale synthesis of certain drugs that were urgently required by the medical services of the Armed Forces as well as participating in other research. She was recognised with an OBE for these services in 1920.

Also as a pioneer for women in chemistry, in 1904, Martha Whiteley was one of the signatories of an appeal to allow the admission of women to Fellowship of the Chemical Society; the request wasn't granted until 1920 when she became one of the first women to join. In addition, she later became the first woman to be elected as a council member of the Chemical Society, 1928-1931.

Sources:

1. 1956, 'Obituary: Martha Annie Whiteley', *Journal of the Royal Institute of Chemistry*, pp. 556-557.
2. Eldridge, AA 1957, 'Obituary Notices: Martha Annie Whiteley', *Proceedings of the Chemical Society*, pp. 182-183.



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