EDWARD FRANK HARRISON: a military pharmacist

Slide – Harrison

Edward Frank Harrison was born in 1869, the son of a civil servant in the Home Office. His father died when Harrison was 12 years old and he was raised by his Mother, the owner of a school. He was educated in London at the United Westminster School. At the age of 14 he entered pharmacy as an apprentice in North London. In 1890 he gained a Jacob Bell Scholarship and entered the School of Pharmacy in Bloomsbury Square.

Slide – Harrison Student

In 1891 he was awarded medals and certificates in chemistry, botany and materia medica. In that year he passed both the Minor and Major examinations and became registered as a pharmacist. For the following three years he worked in the Pharmaceutical Society’s Research Laboratory and served as assistant lecturer in chemistry and physics. It seems that he was a workaholic because, during the same time, he was also attending classes in the evenings, coaching pupils and taking an active part in the management and proceedings of the London Chemists’ Association as Secretary then President. At this early stage in his career he was elected a member of the Chemical Society. His next position was as a representative for a company, Brady and Martin of Newcastle. In his spare time he studied for the London Bachelor of Science examination, getting married between the theoretical and practical parts. He then spent the next six years as a pure chemist at Burroughs Wellcome and Company. He then went into partnership with a Mr C E Sage in the Central School of Pharmacy during which time he qualified as a Fellow of the Institute of Chemistry.

Slide – Secret Remedies

He joined with a Mr P A W Self in an analytical and consulting practice in Chancery Lane. Here he took an intense interest in unmasking fraudulent advertisements of nostrums as an analyst for the ‘Secret Remedies’ books in 1909 and 1912.

He was a member of the Board of Examiners for England and Wales and a member of the British Pharmaceutical Codex Revision Committee.

Slide – in uniform

At the outbreak of the First World War in 1914, Harrison was aged 45 and not very fit. He underwent an operation and which enabled him to enrol in the Sportsmen’s Battalion of the Royal Fusiliers. He completed his basic training and was about to embark for France when a call went out for chemists to be transferred to the Royal Engineers and promoted to Corporal. He was later commissioned to the rank of lieutenant and became engaged in investigating ways to combat the ever-increasing menace of chemical warfare in the form of poisonous gases. He was a leader in the development of what was known as the small box respirator, the final form of which was responsible for saving the lives of thousands of British and French soldiers.

Slide – Gas mask

At the beginning of the war protection against gas was fairly simple, a cloth soaked in Sodium Hypophosphite was sufficient. But as gas warfare advanced new gases were used. Harrison and his
team worked on developing a form of respirator which would give many hours of protection against a wide range of chemicals. The first respirator was the large box respirator which contained Sodium Thiosulphate, Sodium Phenolate, Hexamine, an Alkali and Animal Charcoal. The respirators were manufactured by the Boots Company until 1917 and about 200,000 were distributed.

**Slide - Gas Mask 2**

The next development was the Small Box Respirator. Chemical granules were prepared composed of an alkaline permanganate mixture consisting of lime, caustic soda and permanganate. Vegetable Charcoal was found to be preferable to Animal Charcoal. The boxes were then packed in this order:

**Slide - Packing**

A wire gauze dome  
A thin layer of cotton wool over the gauze  
A layer of mixed granules with charcoal  
A layer of cotton wool  
An expanded metal diaphragm  
A second layer of mixed granules and charcoal  
A layer of cellulose wadding  
A second expanded metal diaphragm  
A third layer of mixed granules and charcoal  
A piece of towelling  
A piece of expanded metal  
Two springs to hold the contents in place

**Slide - manufacture of gas masks**

John Bell, Hills and Lucas

Manufacture reached 50,000 per week and, in all, some 20 million respirators were distributed.

**Slide - Wearing a gas mask**

In 1916 Harrison was promoted to the rank of General, then to Lieutenant-Colonel in 1917. The French had recognised the value of his services for the protection of their troops from poisonous gases by conferring on him the Legion of Honour.

Harrison died on the 4th of November 1918. The cause of death was influenza and it was suspected that his overwork and exposure to poisonous gases had lowered his immunity. He had insisted on trying out the experimental gas-masks himself. Despite the influenza he had continued to work with a raging temperature for several days until he collapsed and was taken home to die.

**Slide - funeral**

He was buried in Brompton Cemetery in London with full military honours.
Slide – medals

To commemorate his life a Harrison Medal was instigated. Every two years the medal is awarded to a pharmacist who is judged to have made significant achievement in both the science and practice of pharmacy. The medal is in silver and bears an image of Harrison.

Slide - The Plaque

A memorial plaque was commissioned by the Pharmaceutical Society. It was designed by Phyllis Blundell who knew Harrison personally. In November 1921 it was unveiled in the Pharmaceutical Society’s headquarters at Bloomsbury Square by Sir Worthington Evans, Secretary for War. It is now displayed in the Society’s Headquarters at Lambeth.

The plaque reads:

EDWARD FRANK HARRISON

Lieutenant-Colonel Royal Engineers

CMG. BSc. FIC. PhC. Officer of the Legion of Honour. Member of the Order of St Maurice and St Lazarus. Controller of Chemical Warfare 1918

CMG = Companion of the Order of St Michael and St George – sixth highest in the British Honours system.

BSc – Batchelor of Science Degree

FIC – Fellow of the Institute of Chemistry

PhC – Pharmaceutical Chemist Diploma

Legion d’Honneur – France’s highest award for outstanding service to France

Order of St Michael and St George – Italian State award for civilian and military merit

Slide – Churchill’s Letter

In 2008, a researcher found a letter in the Imperial War Museum. It was a letter from Winston Churchill, then Minister of Munitions, to Harrison’s wife:

“Dear Mrs Harrison

I beg you to accept my deep sympathy in the loss of your distinguished husband. Colonel Harrison carried out great work for the Country, and it is due in large measure to him that our troops have been given effectual protection from the German poison-gases.”

THANK YOU