



# Historical Group

## NEWSLETTER and SUMMARY OF PAPERS

No. 70 Summer 2016

Registered Charity No. 207890

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# RSC Historical Group Newsletter No. 70 Summer 2016

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Celebrating Gilbert N. Lewis" and of the RSC Chemical Landmark Plaques honouring Sir John Cornforth at the Kent Science Park, Sittingbourne

Finally, I would like to thank everyone who has sent material for this newsletter, with particular thanks to the newsletter production team of Bill Griffith and Gerry Moss. If you would like to contribute items such as news, articles, book reviews and reports to the newsletter please do contact me. The guidelines for contributors can be found online at: <http://www.chem.qmul.ac.uk/rschg/Guidelines.html> !

The deadline for the winter 2017 issue will be Friday 2 December 2016. Please send your contributions to [a.simmons@ucl.ac.uk](mailto:a.simmons@ucl.ac.uk) as an attachment in Word. All contributions must be in electronic form.

Anna Simmons  
University College London

## ROYAL SOCIETY OF CHEMISTRY HISTORICAL GROUP MEETINGS

### H.G.J. Moseley (1887-1915): A Lost Nobel Laureate?

Wednesday 19 October 2016, Royal Society of Chemistry, Burlington House, Piccadilly, London

#### Programme

10.30 Registration and tea or coffee

10.55 Welcome – Dr John Hudson (Historical Group, Chair)

#### First session – Chair Dr Michael Jewess (Historical Group)

11.00 Henry Moseley: The Formative Years

*Clare Hopkins (Archivist, Trinity College, Oxford)*

11.40 Moseley in Manchester

*Dr Neil Todd (Universities of Manchester and Exeter)*

#### 12.20 Royal Society of Chemistry Historical Group, AGM

**12.40 Lunch: This is NOT provided at Burlington House, but there are many cafés and bars nearby.**

#### Second session – Chair Dr David Payne (Imperial College, London)

14.00 Counsellor Mr Cem I ik of the Embassy of the Republic of Turkey

14.20 Henry Moseley's Role as a Signals Officer; Signalling in the Gallipoli Campaign

*Dr Elizabeth Bruton (University of Manchester)*

15.10 Henry Moseley and the Politics of Nobel Excellence

*Prof. Robert Marc Friedman (University of Oslo)*

#### 15.40 Tea

#### Third session – Chair Prof. Peter Edwards, FRS (University of Oxford)

16.05 Moseley's Legacy

*Prof. Russell Egdell (University of Oxford)*

16.45 Re-climbing Moseley's Staircase

*Prof. Justin Wark (University of Oxford)*

17.25 Concluding remarks: *Prof. Russell Egdell*

17.30 Close of meeting

#### REGISTRATION FORM

There is no charge for this meeting, but prior registration is essential. Please use the form below or the flyer included with the hard copy version of the newsletter and send it to Professor John Nicholson, 52 Buckingham Road, Hampton, Middlesex, TW12 3JG, [jwnicholson01@gmail.com](mailto:jwnicholson01@gmail.com). **This is expected to be a popular meeting. If ha**





**The Historical Group on**



More than 2,860 articles were published by several hundred authors between April 1797 and December 1813, excluding reports of publications and societies. The titles of all these articles may now be searched online via the website



## NEWS AND UPDATES

**Royal Institution**

The competition is open to anyone with a scholarly interest in the history of alchemy or chemistry who, by the closing date of 31 December 2016, has not reached thirty-five years of age, or if older is a student in the history of science or has been awarded a masters degree or PhD in the history of science within the previous three years. No restriction is placed on the nationality or country of residence of competitors. Only one entry is permitted from any competitor.

The prize-winning essay will be published exclusively in the Society's journal,

The RCC was conceived in 1842 as “a College of Chemistry for promoting the science and its application to agriculture, arts and medicine”. Its original promoters were the pharmacist John Lloyd Bullock (1812-1905) and apothecary John Gardner (1804-1880), both followers of Liebig [3]. Gardner had spent time in Giessen with Liebig

He became president of the CS from 1875-1877, and of the Institute of Chemistry (later the RIC) from 1880-1883 [11].



**Figure 2:** The First RCC Professors: Hofmann (1845-1865) and Frankland (1865-1885).  
(Images courtesy of Imperial College Archives).

**William Crookes (1832-1919; RCC 1848-1854)** a brilliant scientist. later became a successful entrepreneur. With Hofmann he investigated the constituents of mineral soot from the Harz mountains. When he left the RCC he kept some of that soot, and in 1861 in his home laboratory noted that its atomic spectrum had a new green line, which he attributed to a new element, thallium. He knew Faraday and, inspired by him, was drawn toward the physical chemistry interests that occupied much of his later life [15]. He founded *Chemical News* in 1859 and edited it until 1906. He became president of the Chemical Society in 1887-18

Frankland was also much concerned with structural formulae; his friend John Cargill Brough gently lampooned

6. G.K. Roberts, "The Establishment of the Royal College of Chemistry: An Investigation", *Hist. Stud. Phys. Sci.*, 1976, **7**, 437-85.
7. R. Warington *et al.*, "History of the Development of the Society", *Jubilee Chem. Soc. Lond.*, 1896, 113-22.  
[http://pubs.rsc.org/en/journals/journalissues/m1#!issueid=m11896\\_0\\_jubilee&type=archive](http://pubs.rsc.org/en/journals/journalissues/m1#!issueid=m11896_0_jubilee&type=archive)
8. Anon., *Proc. Chem. Soc. Lond.*, 1841 (pub. 1842), **1**, 1.  
<http://doi.org/cwmqv5>
9. Anon., *Mem. Chem. Soc. Lond.*, 1841 (pub. 1843), **1**, B001-B008. <http://doi.org/cksgnz>
10. Lyon Playfair, "Personal Reminiscences of Hofmann and the Conditions which led to the Establishment of the Royal College of Chemistry", *J. Chem. Soc. Trans.*, 1896, **69**, 575-579.  
<http://doi.org/btvn66>
11. F.A. Abel, "The History of the Royal College of Chemistry and Reminiscences of Hofmann's professorship", *J. Chem. Soc. Trans.*, 1896, **69**, 580-96.  
<http://doi.org/c8dt8p>
12. W.H. Perkin, "The Origin of the Coal-tar Colour Industry, and the Contributions of Hofmann and his Pupils", *J. Chem. Soc. Trans.*, 1896, **69**, 596-637.  
<http://doi.org/fgk4xn>
13. H.E. Armstrong, "Notes on Hofmann's Scientific Work", *J. Chem. Soc. Trans.*, 1896, **69**, 637-732.  
<http://doi.org/fvzzj3>
14. W.H. Brock, "Liebig and Hofmann's Impact on British Scientific Culture" in *Science for All – Studies in the History of Victorian Science and Education*, (ed.) W.H. Brock (Aldershot: Variorum, 1996).
15. W.H. Brock, *William Crookes (1832-1919) and the Commercialization of Science* (Aldershot: Ashgate, 2008).
16. John Hudson, *RSCHG Newsletter*, 2016, **69** (Winter) 38

principle, which he named penicillin, proved notoriously difficult due to its instability. Fleming was already eminent





improved and within two weeks he was lively and feeding well....There is little doubt that in this case a severe staphylococcal pyaemia (septicaemia caused by pus-forming bacteria being released from an abscess) was rapidly controlled and that methicillin had a life-saving effect [8].

Unfortunately, this optimism was misplaced. Just four months later an alarm was sounded by the Staphylococcus Reference Library, sited at Colindale, London. It was busy identifying various strains of the bacterium, and investigated some 5,440 samples over a two-month period at the end of 1960. Because of the interest generated by methicillin, they examined each strain for susceptibility against this new antibiotic. Three strains proved methicillin-resistant. Commenting on a subset of 4,430 strains the author concluded:

...the great majority were penicillin-resistant hospital strains, and many of them were resistant to several antibiotics. The finding of these (two) strains does not therefore detract from the very great value of methicillin, but the fact that the occasional resistant strain does exist should be borne in mind [9].

Dr Knox, commenting on this finding, reassured physicians that the patients associated with the resistant strains had almost certainly not been previously treated with methicillin and were intrinsically resistant to the drug, and as of January 1961 there had been no reports of treatment failure where patients treated with it had developed methicillin-resistant staphylococci. This optimism was soon dashed by a report in the *British Medical Journal* in March 1963 [10]. Methicillin had been in use at the Paddington General Hospital since September 1960. The first methicillin resistant staphylococcus infection appeared in October 1962. The patient, suffering from complications following chest surgery, had never previously been treated with methicillin and had not visited any other hospital in the previous two years. Within four months four more cases of methicillin resistant staphylococcus infection were

- R. Knox, *Brit. Med. J.*, 3 Sept. 1960, 690.
- G.T. Stewart *et al*, *Brit. Med. J.*, 3 Sept. 1960, 703.
- M.P. Jevons, *Brit. Med. J.*, 14 Jan. 1961, 124.
- A. Beck and I.L. Evans, *Brit. Med. J.*, 30 March 1963, 887.
- C.A. Arias and B.E. Murray, *N. Engl. J. Med.*, 2015, **372**, 1168-70.

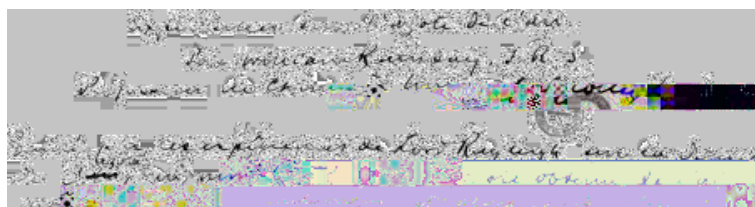


Figure 3: The first few lines of Ramsay's Pli Cacheté.

A transcription of the writing is as follows [2].

Expériences sur l'azote de l'air  
Par William Ramsay, F.R.S.  
Professeur de Chimie à University College, Londres



Masanori Kaji, Helge Kragh and Gábor Palló (eds.), *Early Responses to the Periodic System* (Oxford: The University Press, 2015). Pp. 314. ISBN 978-0-19-0200007-7. £23.49 (hardback).

In 1869 Dmitri Mendeleev published his paper “The correlation of the properties and atomic weights of the elements” in the *Journal of the Russian Chemical Society* [1]. In it, he advanced what he called The Periodic Law, i.e. the observation that the chemical properties of the elements show well-defined periodic similarities. The Periodic Table was seen by him as a consequence of the Periodic Law and it was the latter that he claimed to have discovered.

Interestingly, Mendeleev’s paper had originally been read at a meeting

friendships (some of which endure today) and then at the age of sixteen had to seek a job. Always interested in science, a place was found for him at *Lankro Chemicals* in Eccles, Manchester. Day-release for ONC study at 'Salford Tech' was part of the deal and Otto's academic career in chemistry started. I found this a moving book and a study in resilience when the author had to tackle adversity. Time and time again, Otto's 'sunny' disposition comes through. Well recommended.

Alan Dronsfield  
University of Derby

C.N.R. Rao and Indumati Rao, *Lives and Times of Great Pioneers in Chemistry (Lavoisier to Sanger)*, (London: World Scientific, 2016). Pp 312. ISBN: 978-981-4689-05-2. £19 paperback.

This book presents brief histories of twenty-one pioneering chemists, respectively Lavoisier, Dalton, Davy, Berzelius, Faraday, Wöhler, Kekulé, Mendeleev, van't Hoff, Emil Fischer, Ostwald, Arrhenius, Werner, Willstätter, G.N. Lewis, Robinson, Ingold, Eyring, Pauling, Woodward and Sanger. Each is given between ten and thirty-five pages; chapters having between twelve and thirty references, mostly from secondary sources. There is (at least in the galley proof reviewed here) no index and, unfortunately, no running title above each page referring to the subject, so the list of contents at the start is the only way to locate the subject.

It is not feasible to comment on each chapter. Those on Lavoisier ("Father of Chemistry" and Faraday ("the greatest scientist of all time") are typical. Lavoisier receives twenty-three pages and eighteen references, of which four are to original papers by him and the rest are to modern books or websites; Faraday gets twenty-six pages and thirty-five references. The format of each chapter is roughly the same. There is a short introduction explaining why the subject is eminent; his early years (no women are featured); main contributions to chemistry, which naturally provides the bulk of the chapter; honours received; and sometimes the circumstances of the subject's death. Most chapters contain boxed sections emphasising particular points. Thus for Faraday such boxes highlight Davy's recommendation for him ("Davy's greatest discovery"); his major contributions to chemistry; for electromagnetic rotation; for electroinduction; a timeline of his discoveries in physics and electricity; on his famous ice pail experiment, and his demonstration of the paramagnetism of oxygen. There is also a picture of Faraday, and two of his pieces of apparatus.

After attending the excellent RSCHG meeting on G.N. Lewis (23 March 2016) I looked that evening at the chapter on Lewis in the light of what I had learned that day. It did very well in outlining the work of this extraordinary man, and includes some inoffensive colloquialisms – "Berkeley (from Lewis' efforts is) the numero uno chemistry department in the world".

Brief comments on other articles: Robert Robinson and Ingold occupy adjacent chapters, and a chance has been missed to discuss the great controversies between them in any depth. The section on Linus Pauling is good, covering his second Nobel Prize (for Peace) in some detail, and mentioning Mulliken's MO theory in its coverage of Pauling's valence-bond approach. By comparison the other double Nobel laureate, Fred Sanger, who actually received two *chemistry* prizes, gets rather short shrift – thirteen pages and fifteen references against Pauling's twenty-seven pages and thirty-four references. There are inevitably errors, e. g. John Newlands, the early Periodic Table pioneer, is referred throughout the chapter on Mendeleev as 'Newland'. Kekulé never receives his customary accent ("Kekule") though there is some late historical precedence for this.

This is an amiable and eminently readable book, perhaps rather more for the novice in the history of chemistry, but none the worse for that.

Bill Griffith  
Imperial College

Peter Reed, *Entrepreneurial Ventures in Chemistry: The Muspratts of Liverpool, 1793-1934* (Farnham: Ashgate,



deceitful. With little justification, Langmuir thought he deserved to share credit for Lewis's electronic theory, and many called it the "Lewis-



## **The Influence of Lewis on Organic Chemistry Teaching, Textbooks and Beyond**

*Professor Nick Greeves (Liverpool, UK)*

The lecture reviewed the use of Lewis' ideas, including the origins and applications of 'curly arrows', in textbooks on Organic chemistry over the years before moving on to internet-based open educational resources such as ChemTube3D.com .

## **Lewis and Lewis-like Structures in the Quantum Era**

*Professor Clark Landis (UWM, USA)*

Are Lewis structures consistent with high-quality electronic structures? Natural Bond Orbital (NBO) analysis of molecules across the periodic table supports the primacy of Lewis-



The Kent Science Park National Chemical Landmark Plaque honouring Sir John Cornforth  
 [Image courtesy of Kent Local Section of the Royal Society of Chemistry]



The Sittingbourne Public Library National Chemical Landmark Plaque honouring Sir John Cornforth  
 [Image courtesy of Kent Local Section of the Royal Society of Chemistry]

The two plaques were presented by former RSC President Professor David Phillips CBE. Recently retired site director James Speck received the plaque on behalf of the Kent Science Park, and the Sittingbourne public library plaque was accepted by Barbara Bragg, Area Library Manager for Kent County Council. The Kent Local Section of the RSC originally nominated Sir John Cornforth for the award of an RSC Chemical Landmark Plaque, and Mark Botting, other members from the Kent Local Section, Emma Elgar (Kent Science Park) and Jonathan Wells (RSC Cambridge) helped to organise the morning's proceedings.





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