Historical Group

NEWSLETTER
and
SUMMARY OF PAPERS

No. 71Winter 2017

Registered Charity No. 207890

COMMITTEE

Chairman: Dr John A Hudson ~Dr Noel

RSC Historical Group Newsletter No. 71 Winter 2017

Contents

History: A Traveller's Guide, edited by Mary Virginia Orna, is recommended. A review is also included of Raymond G. Stokes and Ralph Banken's book Building on Air: The International Gases Industry, 1886-2006. Russell Egdell writes about the RSCHG meeting held in October [illegible]. The speech given at this meeting by [illegible] Embassy of the Republic of Turkey is also reproduced. Reports also appear on the Dalton Anniversary Celebrations held in Manchester, where National Chemical Landmark Plaques were unveiled; the centenary of the opening of the Dyson Perrins Organic Chemistry Laboratory; and a Blue Plaque for the nineteenth

John Hudson

OBITUARY

Though not a member of our Group, David Zuck who died aged ninety in November 2016, attended a number of our recent symposia. Indeed, he contributed to several where they reflected his specialism, the history of anaesthesia. He recognised the continuing connection between anaesthesia and chemistry and until recently had every intention of attending next October's meeting on this topic. We extend our sympathy to his children, Michael and Linda, and to his travelling companion of recent years, Mala Tribich.

Alan Dronsfield

MEMBERS' PUBLICATIONS

If you would like to contribute anything to this section, please send details of your historical publications to the editor. Anything from the title details to a fuller summary is most welcome.

Hannah Gay and William P. Griffith, *The Chemistry Department at Imperial College London: A History, 1845-2000* (Abingdon: World Scientific Publishing, January 2017).

The new book by Bill Griffith, the RSCHG's Membership Secretary, and Hannah Gay is accurately described by its title. Imperial College was so named in 1907 but began life in 1845 as the Royal College of Chemistry, subsequently (1881-1907) called the Royal College of Science. The book is roughly chronological in layout, and concentrates on research, teaching, departmental governance and social life. It covers the many famous figures on its staff from 1845 to (almost) the present day. It places both people and events in the wider historical context of chemistry, politics, culture and the economy, and is richly anecdotal. It will be reviewed in our Summer 2017 Newsletter by Anna Simmons.

Chris Cooksey, "Quirks of dye nomenclature. 6. Malachite green", *Biotechnic & Histochemistry*, 2016, 91:6, 438-444.
http://dx.doi.org/10.1080/10520295.2016.1209787

Malachite green was discovered independently by two researchers in Germany in the nineteenth century and found immediate employment as a dye and a pigment. Subsequently, other uses, such as staining biological specimens, emerged. A much later application was the control of fungal and protozoan infections in fish, for which the dye remains popular, although illegal in many countries owing to a variety of toxicity problems. In solution, malachite green can exist as five different species depending on the pH. The location of the positive charge of the coloured cation on a carbon atom or a nitrogen atom is still debated. The original names of this dye, and their origins, are briefly surveyed.

Interested people can download copies at
http://www.tandfonline.com/eprint/ccqCj5asm9zMyTJNbAf5/full
but only fifty copies are available, so if that does not work, please contact the author (chriscooksey8@gmail.com).

Chris Cooksey, "Pliny's First Century Vat-Dyeing Recipe", in J. Ortiz, C. Alfaro, L. Turell and M.ª J. Martínez (eds.), *Purpureae Vestes. V. Textiles, Basketry and Dyes in the Ancient Mediterranean World* (Universitat de València, 2016), pp. 211-220.

NEWS AND UPDATES

Society for the History of Alchemy and Chemistry

7 K H I R O O R Z L Q J L V V X H Ambix Have been published since the last issue of the SHAC Newsletter

Ambix, volume 63, issue 2, May 2016, From the Library to the Laboratory and Back Again: Experiment as a Tool for the History of Science, contains the following articles:

+ M D O P D U) R U V / D Z U H Q F H 0 3 U L Q F L S H D Q G + 2 W W R 6 L E X P ³) U R P Experiment as a Tool for Historians of S

These are very early days. As well as an active website and email list (see below), the group is aiming to hold a range of workshops and conferences and produce guidance material. It will look to work with bodies such as the Health Archives and Records Group, the Scientific Archivists Group and the British Society for the History of Science, as well as institutions holding significant science and engineering archives collections.

If you have responsibility for, an interest in or make use of archives of science, engineering and related disciplines this will be a group for you, so please do subscribe to the STAG email list at STAG@JISCMAIL.AC.UK. Or visit www.jiscmail.ac.uk and search for STAG.

New President for the Chemical Heritage Foundation

Robert Anderson, former Director of the British Museum has been selected as the President and the CEO of Chemical Heritage Foundation. He has been interim President since July 2016, stepping into the role from his SRVLWLRQ DV 9LFH &KDLU RI &+)¶V %RDUG RI 'LUHFWRUV ³7KH SURFH far afield but in the end we found the perfect person close to home: Robert Anderson, former Director of the British Museum, longtime CHF board member, and internationally recognized historian of science, has agreed to share his knowledge and expertise to lead CHF into the future. We are so fortunate to have Robert step into this role,´ said Laurie Landeau, Chair RI &+)¶V %RDUG RI 'LUHFWRUV $QGHUVRQ DVVXPHV KL

Anderson has wide-ranging interests in the history of chemistry, including the history of scientific instrumentation, the work of Joseph Black and Joseph Priestley, the history of museums, and the involvement of the working class in material culture. He has been Director of the British Museum, London, where he presided over the creation of the £110 million Great Court; Keeper of Chemistry at the Science Museum, London; and Director of the National Museums of Scotland in Edinburgh. He has been Chairman of the Society for the History of Alchemy and Chemistry since 2008 and was honoured with the Wheeler Award by the Royal Society of Chemistry Historical Group in 2004.

Johnson Matthey Bicentenary

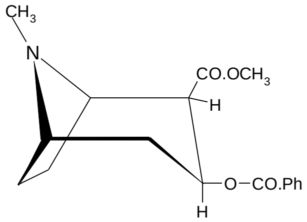
2017 is the 200th year of Johnson Matthey

See https://twitter.com/Johnson_Matthey/status/819468776890572804

fine sutures the surgeon had used to secure his work, with disastrous consequences. In 1880s attempts were being made to find eye drops that might enable painless eye surgery with the patient wide awake. Nothing worked and moreover, most of these ineffective agents irritated the eye for hours afterwards.

Enter cocaine

Natives of South America had long chewed the leaves of the shrub *Erythroxylum coca* on account of the pleasurable "wakeful" sensations it induced. With the advent of refrige… nineteenth century, the leaves could be exported to Europe both for commercial exploitation and chemical investigation. Angelo Mariani (1838–1914) was a chemist who succeeded in the former. He steeped the coca leaves in cheap Bordeaux wine. The resulting "tonic" wine marketed from … had a cocaine content of 7.2 mg per fluid ounce (0.25 mg cm^{-3}) and was enthusiastically endorsed by the celebrities of the period. An alcohol-free effervescent coca drink was also marketed from 1886: Coca-Cola (today's product is, of course, cocaine-free). The chemists got to work on the leaves, too. In 1855 Friedrich Gaedcke isolated cocaine in a reasonably pure state. Combustion analysis carried out by Wilhelm Lossen in 1863 showed that its empirical formula was $C_{17}H_{21}NO_4$ and in … Richard Willstätter … structural formula (I):



(I)

The availability of the pure alkaloid in the second half of the nineteenth century

time was struggling against the effects that chloroform and ether anaesthesia were having on his patients. Koller had been attempting, unsuccessfully, to anaesthetise the eye prior to surgery using solutions of morphine sulphate or chloral hydrate. Having confirmed the observation that cocaine made his lips numb, Koller decided to try its effects RQ WKH H\H +H FDXWLRXVO\ DSSOLHG D VROXWLRQ RI FRFDLQH K\GU to touch. He moved on to rabbits, then dogs, and finally himself:

« :H .ROOHU DQG DQ DQRQ\PRXV DVVLVWDQW WULHG WKH HIIHFW RQ placed a mirror before us, took pins and with the heads, tried to touch the cornea. Almost simultaneously we ZHUH DEOH WR ,VWDWH WKDW WKH VROXWLRQ

Koller presented his results to an ophthalmological conference in September 1884, opening a new era in eye surgery.

Events then happened quickly. It was found within days that topical applications of cocaine solutions could effectively anaesthetise most mucous membranes. On 15 November 1884, Dr N.J. Hepburn injected a 2% solution XQGHU WKH VNLQ RI D SDWLHQW¶V DUP DQG DFKLHYHG DQDHVWKHVLD IURP DQDH Dr F.M. Wilson who removed a fatty tumour from the forehead of a patient, having first anaesthetised the area by VXEFXWDQHRXV LQMHFWLRQV ,WV ILUVW XVH LQ ³SDLQOHVV´ GHQW 6KH D
removing tartar, extirpating exposed nerve pulp, preparing sensitive teeth for filling, incising inflamed gums and extracting teeth > @ 7KHLU GLVFRYHU\ DGY-DQFHG WKH QRWLRQ WKDW UURP D sought to preserve D SDWLHQW¶V WHHWK UDWKHU WKDQ VLPSO\ H[WUDFWLQ Halsted reported that cocaine solutions could be infiltrated into a nerve trunk, thus blocking it and preventing the transmission of pain impulses to the brain. This could be applied to nerves that supplied portions of the jaw, thus extending the possibilities of dental surgery, or to the spinal column. This latter discovery is attributed to James Corning (1885), though credit is usually given to the German surgeon August Bier who in 1898 reported the first RSHUDWLRQ RQ WKH DQNOH RQ D SDWLHQW ZKRVH VHQVDWLRQV R spinal cord [5].

Disadvantages of cocaine

But the local anaesthesia induced by cocaine injec

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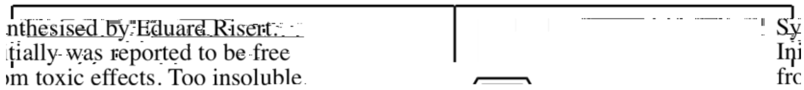


The popularity and ubiquity of Novocaine for over half a century after its introduction warrants its deeper considerat L R Q 7 K H V W D U W L Q J P R O H F X O H I R U (L Q K R U Q ¶ V L Q Y H V W L J D W L R Q -ester (II).

(II)

Image courtesy of:
https://en.wikipedia.org/wiki/Alfred_Einhorn

It soon became apparent that attaching the benzoyl group (-CO.Ph) to the aromatic ring (which substituted for the aliphatic cycloheptane ring in cocaine) conferred no particular advantage. Local anaesthetic action would result from a benzoic acid mono-ester. This having been established, the molec X O H Z D V ³ W Z H D N H G ´ W R D F K L H anaesthetic. The NH_2 I X Q F W L R Q Z D V S U R E D E O \ ³ E R U U R Z H G ´ I U R P W K H H D U O L H

the tertiary amino group was introduced to enhance water solubility [6]. It is injected as a hydrochloride salt and thus it is a salt of a strong acid and a weak base. Its solutions will be slightly acidic giving the possibility of irritation at the site of injection. Despite the fact that this seldom occurred in practice, the 1930s saw several attempts to solubilise the anaesthetic with weak acids such as citric, malic or tartaric, with one patentee optimistically claiming "Furthermore, the presence of the fruit acids in the solution give it an agreeable flavour and taste, which make the solutio Q K L J K O \ D J U H H D E O H D V D P L O G V X U I D F H However, none of these variants was ever marketed.

There were two drawbacks of Novocaine, compared to cocaine. Its effects were more transient compared to cocaine and sometimes relatively large amounts had to be injected to achieve a satisfactory degree of anaesthesia. Cocaine had a property that Novocaine did not: it was a vasoconstrictor. This means that on injection, the blood vessels round the injection site constrict, holding the anaesthetic in place for it to exert its numbing effect. On the other hand, with no similar intrinsic effect, the Novocaine was rapidly washed away and dispersed round the body. There was, however, a neat way around this problem. In 1903 Heinrich Braun reported that adrenaline, which had recently been put on the market by the chemical suppliers Parke-Davies, was itself a vasoconstrictor. When injected alongside cocaine, it added its constricting effect to that of the alkaloid, prolonging its numbing effect. With the advent of

The January 1895 paper reported isolation of a new gas from the air. William Crookes had measured the spectrum of the gas and identified numerous characteristic lines. The high ratio of specific heats C_p/C_v of the gas was close the theoretical value of 5/3 for a monatomic gas. (The only gas known previously to have such a ratio had been mercury vapor.) The density of the gas was around 40. Accordingly, the atomic weight of argon was also around 40, suggesting (correctly) a location after chlorine in the periodic table in a new group (now called group 18, the noble gas group [3]). This was indeed a great

As a matter of public policy, the UK patent law gives only minor benefit to those who keep their inventions secret.

This difference reflects a more general issue of patent law in Europe. In thirty-eight states (geographically spread from Turkey to Iceland as of 2 November 2016 and including all EU states) [10], the written law on the law on the granting, validity, and interpretation of patents has been harmonised to a remarkable degree, in a process that began in the 1970s; any residual variation arises mostly from the inevitable variation between the approach taken by different courts, which can arise within a jurisdiction as well as between jurisdictions. In contrast, the written law on infringement has not been harmonised to the same degree, which allows (a) the variation between the French code and the UK statute just discussed. The recent Agreement on the Unified Patent Court [11] will, if it comes into force, effect significant harmonisation of infringement law within the EU subset of the thirty-eight states. However, even in that AgrHHPHQW WKH)UHQFK DQRPDO\ ZDV H[SUHVVO\ QRW DGGUHV

Any person, who, if a national patent had been granted in respect of an invention, would have had, in a Contracting Member State, a right based on prior use of that invention or a right of personal possession of that invention, shall enjoy, in that Contracting Member State, the same rights in respect of a patent for the same invention [when under consideration by the EU Unified Patent Court].

The French sealed packet systems seem destined to flourish for many more years.

References

1. Alwyn Davies, RSCHG Newsletter, summer 2016, 70, 33-37.

2. Lord Rayleigh and William Ramsay, Proc R Soc London, 1895, 57, 265-287.

3. Group 18 has been the IUPAC recommendation since 1988 (https://iupac.org/what-we-do/periodic-table-of-elements/), though previously the group was known as Group 0. The term ³LQHUW JDVHV´ LWVHOI ZDV from the Greek for ³LQDFWLYH´ ZDV XVHG XQWLO XeF_6 (see N. Bartlett, Proc. Chem. Soc., 1962, 115-116 $IWHU WKLV WKH JURXS ZDV UHQDPHG E\ DQDORJ\ ZLWK WKH WHU

4. L. Pearce Williams, Michael Faraday ±A Biography (London: Chapman & Hall, 1965; New York: Da Capo paperback reprint, 1987), p. 181 (Da Capo edition).

5. James Hamilton, Faraday ±The Life (London: Harper Collins, 2002), pp. 257-258.

6. Code de la propriété intellectuelle (consolidated version 25 April 2016) available as http://www.wipo.int/edocs/lexdocs/laws/fr/fr/fr500fr.pdf

7. 2014 en chiffres (INPI, Courbevois, France, 2015), available as

https://www.inpi.fr/sites/default/files/inpi_rapport_data.pdf, and previous annual versions of essentially the same publication.

8. /¶HQYHORSSH 6ROHDX (INPI, Courbevois, France),

https://www.inpi.fr/sites/default/files/brochure_enveloppe_soleau.pdf

9. UK Patents Act 1977 (as amended), Section 64, available, like all UK statutes, under http://www.legislation.gov.uk/. To understand how the wording of this leads to the conclusion above, see standard patent law texts such as the current edition of the CIPA Guide to the Patents Acts (London: Sweet and Maxwell).

10. For a map showing the thirty-eight states (members of the European Patent Organisation), see http://documents.epo.org/projects/babylon/eponet.nsf/0/8C0038873D92C1257EEE002E4EBB/$File/European_patents_coverage_en.png. When the system in question commenced with the opening of the European Patent Office on 1 June 1978, only the following states participated: three large states UK, France, and Germany; the three ³%HQHOX[´ VWDWHV 6ZHGHQ QRW WKHQ D PHPEHU RI WKH SUHGHFH EU even today), see http://www.epo.org/about-us/organisation/member-states/date.html

11. Agreement on a unified patent court, https://www.unified-patent-court.org/sites/default/files/upc-agreement.pdf The agreement has been signed (as of 2 November 2016) by all EU member states other than Spain and Poland. The non-signature of Spain and Poland is not fatal: if ≥13 of the states which have signed (of which three must be the UK, France, and Germany) proceed to the next step of ³UDWLILFDWLRQ´ WKHQ WKH $JUHHP respect to those ≥13 states. The referendum in favour of Brexit has cast doubt on the timing and likelihood of UK ratification, with the result that future of the Agreement is in peril.

Michael Jewess

Two Hundred Years of Turmeric

Turmeric is obtained from the rhizome of *Curcuma longa*/ DQG LV WKH ³PRVW SRSXODU \HOOR [1]. The Latin name *Curcuma* is derived from the Arabic word, Kourkoum, which was the original name for saffron [2]. The average annual production of turmeric in India for the years 2000±2005 was over 800,000 tonnes, mostly used as a significant component of colourful curries [3].

The history

Chemists became interested in turmeric in the early nineteenth century, which was then known as terra-merita or de safran des Indes, and the first report on the colouring component was made by Pelletier and Vogel in 1815 [4]. They named the colorant curcumine. The solvent extraction procedure used by Pelletier proved to be a winner for investigating plant compounds. Pierre Joseph Pelletier (1788-1842) was appointed adjunct professor of natural history at the École de Pharmacie in 1815 and remained there for the next twenty-five years, becoming director in 1832. He was co-discoverer of quinine, caffeine and strychnine among many other compounds [5, 6].

Their procedure was later (1842) summarised and improved and with an added elemental analysis by A. Vogel Jnr of Munich [7]. Perkin and Everest described the isolation of curcumin from turmeric thus:

3 H O O H W L H U D Q G 9 R J H O ¶ V P H W K R G R I L V R O D W L Q J W K H F X U F X P L Q F
impurities by extracting pulverised turmeric with water and carbon disulphide, then dissolving out the colouring matter with boiling alcohol, and purifying it by successive solution in ether and alcohol, precipitation with lead acetate, and subsequent treatment with hydrogen sulphide and extraction of the product with ether. It was thus obtained as an amorphous yellow powder. [8]

Although Vogel presented elemental analysis figures for his product in 1842, he declined to suggest a molecular formula. His product was not at all pure, being liquid at 40°C, and any derived formula would have been incorrect. Throughout the nineteenth century researchers attempted to determine the molecular formula of curcumin without much success. In 1882, Jackson and Menke, working in the chemistry laboratory at Harvard University, summarized the progress [9]. Of ten publications, they LJH P D U N ³ > S @ D V V L Q J R Y H U D Q X P E H U R I X Q L P
three of note in 1870. Friedrich Daube extracted turmeric with benzene and purified the curcumin via the lead salt to give a product with m.p. 165°C and assigned a formula $C_{16}H_{16}O_3$ [10]. Iwanoff <</Lang (en-US)>> BDC BT (tw)24(1/Lt5<03

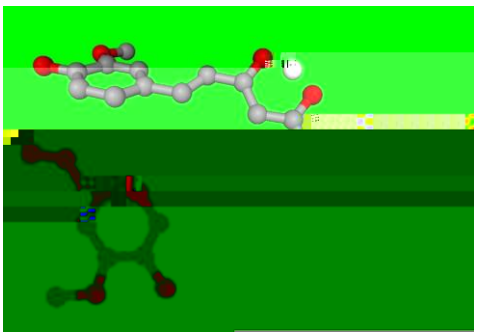


Fig. 2. X-

Brian Iddon,

MEETING AND CONFERENCE REPORTS

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

The RSC Historical Group Meeting held in Burlington House, in conjunction with the History Group of the Institute of Physics, on Wednesday 19 October 2016 included six talks about Henry Moseley' talks dealt with Moseley's life had four years but in two ground breaking career papers published in 1913 and 1914 he showed that the frequencies of X-rays could be linked to a number allocated to each element and that this number could be equated with the charge on the nucleus. He was killed in Gallipoli on 10 August 1915 while serving as a signals officer in the Royal Engineers.

The first talk Henry Moseley ... was given by Clare Hopkins, Archivist of Trinity College Oxford. Between the ages of thirteen and twenty-two, Henry Gwyn Jeffreys Moseley attended two of Britain's most elite institutions Eton College and Tri shape both his scientific ambitions, and his military career. Using published sources, archives, letters, and memoirs, her talk examined how he was taught, and the different ways in which he took advantage of, but was frustrated by, the educational opportunities that were available to him. It considered the relationships and experiences that had the greatest influence on his life, and analysed his academic and social development during this important stage.

Next Neil Todd, of the Universities of Manchester and Exeter dealt ... His lecture gave an overview of what as going on in Manchester physics before during a in Rutherford's group ... his life outside of the laboratory. He started with a brief review of the origin of Owen's College ... the New Physical Laboratories of the University of Manchester, which opened in He then talked about Rutherford's arrival in 1912, including the discovery of the nuclear atom. Next Dr Todd gave an impression of what it would have been like for Moseley in and outside of the laboratory. Of particular importance was the interaction that Moseley had with Niels Bohr and the ideas developing around the early quantum atom in 1913. Finally, the talk dealt with what happened in the years immediately after Moseley left Manchester during the War.

The final phase ... Moseley's ... Henry Mo signals officer and sign what kil

a workhorse technique in chemical analysis and a technique at the forefront of fundamental investigations of electronic structure.

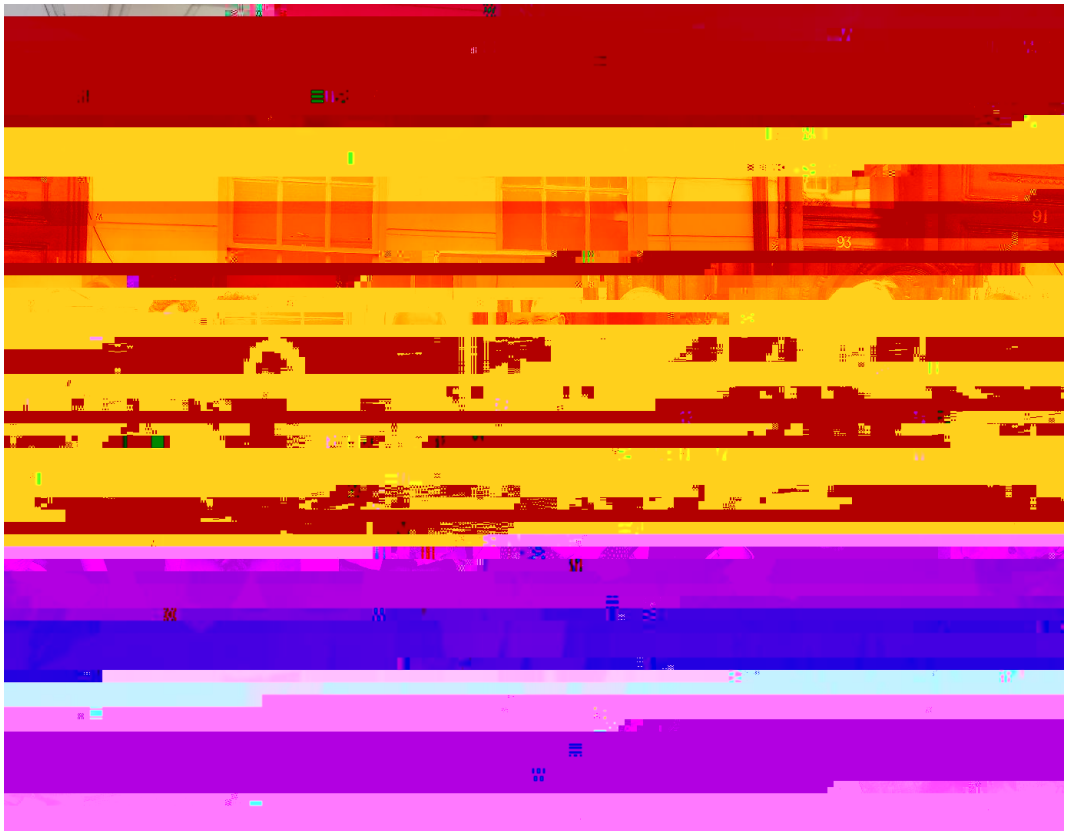
The final PhD oral presentation was presented by Justin S. Wark, from the Department of Physics, University of Oxford.

The day of 25 April 1915 was the beginning of a venture that lasted for eight and a half months. At the Gallipoli Campaign, the total number of casualties and losses from both sides was over half a million. And it was not before both the Turks and the Allies realised that the enemy that they were fighting was human, that there was no difference between their pain, suffering, or deaths.

And here, I would like to repeat the words of Mustafa Kemal Atatürk, the founder of Turkey, who would make it back, like Henry Moseley:

clinical weapon against infection and a success story of modern medicine. It was thus appropriate that the award ceremony was follow by a one G D \ V \ P S R V L X P H Q W L W O H G ³ ' R E H W D

The Blue Plaque



Those shown in the photograph include the Mayor of Camden, Cllr Nadia Shah (third from right), Niki Panourgia (great-great grandson of Dr Normandy; centre), Debbie Radcliffe (organiser of the event; second from left); and, John Nicholson of the RSCHG on the extreme right. Photograph courtesy of Ricci de Freitas.

Discovering Dr Normandy

$V ' U % L U-kauthor of the above paper, I admit that I am not a chemist and have no knowledge of desalination techniques. I do however happen to live in the house where Dr Normandy lived and worked in the mid nineteenth century, and initiated the idea of a plaque to him at this location.

During restoration of the Georgian front door in 2012, I discovered a small bronze plaque buried under several layers of thick black paint. This bore an engraving of the name Bayes and it stimulated my curiosity as to who had lived in the house in the past 180 years. 6HDUFK RI &DPGHQ¶V Blue Plaques brought the name of Dr Normandy to my attention.

,QWULJXHG E\ KLV)UHQFK RULJLQV , GLG D TXLFN LQWHUQHW VHDUFK and found that he was significant enough to warrant an entry in the Oxford Dictionary of National Biography. I also discovered a brief article written by Dr Jim Birkett of Maine, USA. We corresponded. Jim informed me he was giving a paper on Dr Normandy at the IDA Congress in China in November 2013 and kindly suggested I collaborate on the project. Being an enthusiastic historic researcher, I jumped at the chance. Another internet search revealed an article in the FOWNC Newsletter, researched and written in 2003 by Elizabeth Panourgia, 'U 1RUPDQG\¶V great-granddaughter.

The idea of peeling back the years from one century to another has always appealed to me. In his will Dr Normandy bequeathed two pianos to his daughter Louise (from whom Elizabeth is descended). I invited Liz for tea and we

Minchin Noad, who reZURWH 1RUPDQG\¶V Commercial Handbook of Chemical Analysis in 1875, following the 1872 revision of the 1860 Adulteration of Food and Drugs Act.

'U 1RUPDQG\¶V +DQGERRN ZDV SXEOLVKHG LQ expert in food adulteration and his work +H ZDV DQ DFNQRZ must have had some influence on the Act itself. As well as underestimating his pioneering developments in desalination processes, we feel that posterity has also undervalued Dr 1RUPDQG\¶V FRQWULEXWLRQ commonly used but poisonous additives in food and drink. His desire to provide practical guidance to people less FRQYHUVDQW ZLWK FKHPLFDO DQDO\VLV DOVR 7KHUH V)XUWKHG¶V 0DQXDO Agricultural Chemistry in 1853.

The research continues

Research can become addictive, especially when the subject seems to have been written out of history. But therein lies the challenge. Documents in Kew Archives and the British Library have already revealed new information about Dr 1RUPDQG\¶V legal battles, as well as his membership of the Royal Institution, for which he was recommended by Michael Faraday and other well-known scientists of the day.

A visit to Rouen gave context to his early years in France. Genealogical websites have provided names and dates of his family and descendants. Dr Birkett has visited the remains of a 1862 Normandy multi-effect desalination unit in Key West and found evidence for other sites (such as Malta), as well as in South America where they were crucial for the development of the mining industry in Chile and Bolivia. I made a daytrip to Heligoland (a small German

arrow poison back from South America and for his involvement in pioneering animal experiments. Visit its website (www.histpharmsoc.org.uk) to find up to date information on registration and the submission of abstracts.

FORTHCOMING CONFERENCES

British Society for the History of Pharmacy Conference

1 and 2 April 2017, London

The British Society for the History of Pharmacy (BSHP) is celebrating its fiftieth anniversary in 2017. To mark this milestone, the BSHP are holding a special conference in London on Saturday 1 and Sunday 2 April, open to all. The Saturday programme, hosted by the Royal Pharmaceutical Society, features talks on the Society of the Apothecaries (celebrating its 400th anniversary), the UCL School of Pharmacy (celebrating its 175th anniversary), the National Pharmacy Association (approaching its centenary) and the BSHP itself, with an afternoon of talks and tours featuring

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$ Q G H U V / X Q G J U H Q 8 S S V D O D 8 Q L Y H U V L W H W L G H " F L H Q F H L Q F K H P L F D O

For more details on the conference, including information about submitting proposals, please visit http://www.ntnu.edu/11ichc

The contact email for practical questions is: 11ICHC@videre.ntnu.no