COMMITTEE

From the Editor

It is with great pleasure that I introduce another rich issue of the RSC

in kinetics and organic chemistry (*cf.* report by Dr. Malcolm Jones,

service please email library@rsc.org, indicating you are a member of the Historical Group. Archive articles from 1940 and beyond are available for the member-reduced fee of £5.

Please note that access to articles is for non-commercial fair use only; by "fair" we mean that extensive article downloading is forbidden. Access levels are monitored and any abuse may result in the service being withdrawn temporarily. However, it is hoped that this initiative helps group members in their work. If you have any feedback, please let me or your Chair – Alan Dronsfield – know what you think of the new service.

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First, go to the RSC site listing available archive titles: http://www.rsc.org/Publishing/Journals/DigitalArchive/available.asp

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You should get a screen that says "Welcome Historical Group". Click on the "Proceed to requested content option", and the article should download.'

Alan Dronsfield,
University of Derby

NEWS AND

News from the Chemical Heritage Foundation (CHF)

which was born in 1856, then enjoyed fame but not much fortune, before becoming commercially extinct by 1870. While mauveine remains well known, another dye with a remarkably similar story has been nearly forgotten – Chinese green, *Lo-kao*.

Lo-kao (sometimes rendered as L!h-kaou, literally, green colour) was first brought from China to France in 1845 but the price was high (224 FF/kg, the same as silver metal), so it was only a curiosity. And curious it was. Investigations by chemists showed that it did not contain indigo. At that time green had only been achieved in two stages, by dyeing with blue (invariably using indigo) and yellow, but *Lo-kao* was the first one-pot green dye. Another virtue was soon recognised. In gas-light

All of these reactions are highly favourable at 298 K as indicated by the ΔGs, and there can be no doubt that they would be highly favourable also at Thomsen's kilning temperature, perhaps 1200 K. The last reaction, (e), in which NaF and $NaAlO_2$ are formed, has the most negative DG and is therefore the most favourable at 298 K. However, because we lack high-temperature heat capacity data on several of the compounds, and because the range of ΔGs across (a) to (e) is small, we cannot predict for certain that (e) would be the most likely to occur also at the kilning temperature.

A further possibility is that water-soluble sodium aluminates were formed, but more sodium-rich than the $NaAlO_2$ produced according to (e) above, as follows:

$$2\ Na_3AlF_6\,(s) + 6\ CaO\ (s) \rightarrow 2\ `Na_3AlO_3'\ (s) + 6\ CaF_2\,(s) \qquad (f)$$

In (f), 'Na_3AlO_3' (s) represents a mixture of sodium aluminate phases of the formula $x\ Na_2O,\ Al_2O_3$ ($x > 1$) in such proportions as to achieve the overall stoichiometry $x = 3$. Such phases were obtained in the 1980s by Barker *et al* (8) by heating mixtures of Na

manufacture of synthetic dyes, that relied on the most advanced and sophisticated theoretical concepts in chemistry. This was particularly so following the tremendous success of artificial alizarin during 1870. From early 1871, the year he became an industrial chemist, Meldola was a keen correspondent of Charles Darwin, who introduced him to the theories of the Germans Fritz Müller, the naturalist who discovered what became known as Müllerian mimicry among butterflies, and August Weismann, the experimental biologist whose *Studien zur Descendenz-Theorie* (1875) was translated by Meldola.

After the death in 1882 of the renowned author of *The Origin of Species*, Meldola grew close to Alfred Russel Wallace and, at Oxford, Edward Bagnall Poulton. It was to demonstrate Darwin's encouragement of his young followers that in 1896, Poulton, then professor of zoology, devoted an entire chapter in his book on natural selection to the Darwin-Meldola correspondence. Meldola's appreciation of theory-led science, the result of his exposure to its success with chemistry, it should be emphasised, was

Under the heading "Darwin and Modern Evolution" it was a heartfelt tribute to his late friend. It is also a valuable contemporary record of Meldola's own commitment to natural selection. As he explained, "Because of widespread ignorance…I think I cannot do better than occupy your time by recapitulating the main points in the theory of the origin of species."

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Robert McCrance who at the time was analysing plant foods for

Leslie S. Ettre and John V. Hinshaw (eds), *Chapters in the Evolution of Chromatography***.** London: Imperial College Press, 2008. £63 (but available from Amazon at £46.37). Pp 473, illus; ISBN: 978-1-86094-943-2.

In the late 1960s I was a PhD student in one of the UK's largest chemistry departments. There, chromatography was almost unheard of. True, a few researchers had primitive home-built GLC set-ups at the ends of their benches, but as far as I could see they were nothing more than adornments, largely gathering dust. Fast forward now to the 1990s and the end of my laboratory career. Chromatography was in use in many of its forms. Involatile products were being located by TLC and then leached out, pure, from silica gel columns. More volatile species were detected by GLC (and, if optically active, their enantiomers quantified using chiral columns). Gas chromatograph machines were coupled to mass spectrometers with large on-board libraries, and a speculative reaction could be initiated in the morning and the product outcome cleared up by the late afternoon.

The history of this powerful technique goes back more than 100 years to the pioneering work of Mikhail Tswett, however some half a century before (in 1850) Friedlieb Runge was spotting various chemical mixtures on blotting paper and noticing the colour changes as elution took place. But he approached the subject from an artistic viewpoint, rather than an analytical one and he cannot really be regarded as the first chromatographer. A comprehensive history of this technique has not hitherto been attempted until this present work, which has resulted, in part, from a compilation (and a rewriting) of articles that had appeared over 20 years by Leslie Ettre in *LCGC Magazine*, *Chromatographia* and other journals. A co-author of two of the chapters is Historical Committee member Peter Morris who writes with Ettre firstly on Katharine Hope Coward who, in the 1920s, applied

Abstracts

Frank James (Professor of History of Science, Royal Institution) spoke on *Ludwig Mond and other Monds (Science and the Arts).*

This centred on a discussion of the work of Ludwig Mond (1839-1909) concentrating mainly on his philanthropic work. Mond's early studies of chemistry at Marburg under Kolbe and at Heidelberg under Bunsen were outlined before describing Mond's rather unsettled period of the 1850s and 1860s moving between various German states, the Netherlands and England before finally settling there in the mid 1860s. In partnership with John Brunner, Mond obtained the British licence for the Solvay process and at Winnington (near Northwich) constructed a factory for the manufacture of soda, as well as a home and laboratory.

As a result Mond became spectacularly wealthy and while he did not retire from the chemical industry, from 1883 he lived mostly in London (and in Rome during the winter) and concentrated on his philanthropic activities. These took two main forms: the support of science and the support of art. In the former he contributed about £66,000 to the Royal Society including support for its catalogue of nineteenth century scientific papers. For the Royal Institution he purchased its neighbouring building, 20 Albemarle

However, there were also some significant missed opportunities, for instance when ICI turned down offers to join collaborative schemes to develop the steroid hormone cortisone and the antibiotic cephalosporin. These were due to its tradition of ‘going it alone’ as a chemical company, as well as its continuing commitment to the chemical paradigm in pharmaceutical R&D. Therefore, despite some early successes, such as the development of genetically engineered #-interferon, achieved in collaboration with Corporate Laboratories, ICI’s Pharmaceutical Division was relatively slow to adapt to the revolution in molecular biology and biotechnology. Hence, like many other firms affected by the slowing of pharmaceutical innovation and the drying-up of drug pipelines in the 1980s, it seemed to lose its sense of purpose and direction.

In keeping with the theme of the day: ‘The Rise and Fall of ICI’, Quirke therefore ended by asking: when it spun off its Pharmaceutical Division in 1993 (to form Zeneca, later merged with the Swedish company Astra into AstraZeneca), whether ICI ultimately failed, and by opening up the question to the audience.

Dr Martyn Twigg (Chief Scientist, Johnson Matthey) and **Dr Pelham Hawker** (Chairman, Metalysis); *Catalysis at ICI.*

‘Human Catalysts’ steer the way companies operate. Alfred Mond, one of Ludwig’s sons, was one. He joined his father’s firm Brunner Mond and was instrumental in the amalgamation of four British companies to form ICI in 1926. Unlike Alfred Mond, who had advantages of an eminent father, an outstanding education, legal training, and who later became an MP with a cabinet position in Lloyd George’s Government, Harry McGowan had humble origins. Born in Glasgow the son of a brass fitter, he attended local schools and joined Nobel’s Explosives Company as an office boy. But he became a senior executive consolidating the British Explosives Industry before seeking further diversification through the formation of ICI. Then McGowan was ‘The Catalyst’ for many of ICI’s successes, especially during his time

speakers to prevent the break-up, there were several factors, especially financial ,which made these non viable. The period of the restructuring was testing and unpleasant for all involved. It took place at a time when British manufacturing industry –coal mining, steel, shipbuilding, automobiles as well as chemicals- was in decline – and he thought it remarkable that the whole process had been conducted without causing mass unemployment or social unrest. His overriding concern about the restructuring of ICI was the disappearance of a significant *tranche* of chemical research activity and hence the long-term damage to British science.

Jack Betteridge concluded the meeting by thanking the audience and all the speakers. He said that the speakers had given well-illustrated, well-presented and well-timed talks that were also witty. These had been admirably complemented by a display of historic pictures by Diana Leitch and many contributions from the floor from !those who were there". The detailed knowledge and passion of the speakers illustrated how much the Company meant to them as individuals and the huge contribution it had made to the well-being of the nation. Those who were not from ICI had attested that, through the early encouragement of the PhD, ICI Fellowships and sponsorship of academic research and conferences, the Company had made a huge contribution to the science base of the UK. It had been a memorable day's meeting.

Further Reading on the History of ICI recommended by Adrian Parkins:

Imperial Chemical Industries. A History. W.J. Reader Vol.1, 1970, Vol. 2,1975, Oxford University Press.

ICI, The Company That Changed Our Lives. by Carol Kennedy. 2nd Edn. Paul Chapman Publishing, 1993

International Directory of Company Histories, Gale, Farmington Hills, Michigan. Ongoing, some entries are available online.

The Awakening Giant: Continuity and Change in Imperial Chemical Industries. A.M. Pettigrew, Basil Blackwell 1985.

From Empire to Europe: the decline and revival of British industry since the second World War. Chapter 12. Geoffrey Owen, HarperCollins, London 2000.

Making it Happen: Reflections on Leadership by John Harvey Jones. Updated edn. Profile books, London 2003.

Jack Betteridge and Bill Griffith

Society for the History of Alchemy and Chemistry

The Partington Prize 2011

The Society for the History of Alchemy and Chemistry has established the Partington Prize in memory of Professor James Riddick Partington, the Society's first Chairman. It is awarded every three years for an original and unpublished essay on any aspect of the history of alchemy or chemistry. The prize consists of five hundred pounds (£500).

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 2010 has not reached 35 years of age, or if older has completed a doctoral thesis in the history of science within the previous three years. Scholars from any country may enter the competition, but entries must be submitted in English and must not have been previously submitted to another journal. The prize-winning essay will be published in the Society's journal, *Ambix*. One hard copy of the entry, word processed on one side of the paper, should be submitted, along with a copy of the entry on disc. We prefer files to be in Microsoft Word XP, if possible. Essays must be fully documented using the conventions used in the current issue of *Ambix*. Essays must not exceed 10,000 words in length, including references and footnotes. All entries must be submitted with a word count.

All entries should be sent to John Perkins, Hon Treasurer, Centre for Health, Medicine and Society, Oxford Brookes University, Gipsy Lane, Headington, Oxford OX3 0BP, with the words "Partington Prize" written clearly on the envelope. Each entry should contain a **separate** title page giving the author's name, institution, postal address, email address and date of birth (and if relevant the date of completion of their thesis). The author's name and contact details **must not** appear on the pages of the essay as the identity of the author will not be made available to the judges. Essays (no more than one from each competitor) must be received no later than 31 December 2010.

The decision of the judges appointed by the Council will be final. The Society reserves the right to divide the prize between two or more entries of equal merit, or not to award a prize should no essay be deemed of suitable standard.

The name of the winner will be announced by 30 April 2011, and all essays will be returned to competitors soon after that date.

Forthcoming RSC Historical Group Meetings

Autumn meeting: Monday 29 November, 2010.

This whole-day meeting, *Celebrating the History of Chemical Information*, will be held at Burlington House in association with the Chemical Information and Computer Applications Group (CICAG) and the CSA Trust. It includes talks from renowned experts in the field (e.g. Alexander Lawson, Bill Town and Peter Willett) and there will exhibitions of equipment used in the past to retrieve chemical information (see:

http://www.rsc.org/Membership/Networking/InterestGroups/CICAG/index.asp

A flyer with the registration form accompanies this Newsletter. Because registration and payment is being done by CICAG and as large numbers are expected the meeting will cost everyone £30; this includes the meeting fee referred to above, morning and afternoon coffee tea and coffee, a hm /F2.0ET Q q 0 -104 (t) - Q q 0. -8 ( )I ( ) (o) -8ouse 9 -8 (r) -5 (n) -8 (i) -4 (n) -8 (g) -8( ) -1 -12 (o) - Tj ET Q q 0.2400000

antagonist. However, it was later found to cause tumours in mice, and Black turned his attention to a different compound, propranolol, which had also been synthesised at Alderley Park. Investigations carried out at University College Hospital by the clinical pharmacologist Brian Prichard suggested that the compound could be used for treating not only angina, but also hypertension. Marketed under the name 'Inderal', propranolol, and the other 'beta-blockers' that followed, were to transform the treatment of angina, heart attacks and high blood pressure.

Then, in 1964, Black moved to the British subsidiary of the American firm Smith, Kline & French, where by analogy with the beta-blockers he sought a chemical that would block the H_2–histamine receptors, which he showed to be involved in excessive gastric secretion. This research led him to develop the H_2-antagonist, cimetidine (Tagamet), the first in a long line of effective treatments for gastric ulcers.

In 1973, Black was appointed Professor of Pharmacology at University College, London, where he remained four years, before accepting the post of Director of Therapeutic Research at the Wellcome Research Laboratories. In 1984, lured back into academia, he became Professor of Analytical Pharmacology at King's College Hospital. After retirement, in 1992-2006, he served as Chancellor of the University of Dundee, where a Centre was established bearing his name.

Sir James died on 22 March 2010 and is survived by his second wife, Rona McLeod MacKie, and a daughter from his first marriage.

Viviane Quirke
Oxford Brookes University

Dr J.H.S. Green (1929-2010)

Dr John Green, former committee member and Secretary (1991-95) of the Historical Group died on 20th March this year. John was a notable character whose involvement with the group was striking. He was convenor of our Group symposium at the 150th Anniversary Annual Congress at Imperial College in April 1991, and a few years later, contributed a thoughtful paper on 'Chemists at London Medical Colleges in the 19th Century' to an afternoon symposium. He had a profound knowledge of the history of chemistry, and was also deeply interested in the philosophy of chemistry, the relative neglect of which concerned him deeply.

John was a distinguished chemist in his own right. He studied for his BSc (Special Chemistry) at University College London, graduating in 1950. He followed this with a PhD under the supervision of Allan Maccoll , entitled

The gas phase pyrolysis of some organic bromides, which he completed in 1953. He remained a dedicated UCL man all his life, writing articles on the early history of the UCL Chemistry Department that appeared in the *Journal of the Chemical and Physical Society* in 1956 and 1957 and in retirement becoming an Honorary Senior Research Fellow there. He spoke warmly of studying under Ingold and Hughes, and was also very positive about Nyholm, for whom he had a memorably obscene nickname.

Following his PhD, John did his National Service, in the education branch of the RAF, after which he joined the Chemical Research Laboratory, Teddington. He remained there as this organisation transmuted in 1958 to the National Chemical Laboratory, then again to the Division of Chemical Standards, National Physical Laboratory in 1965. Towards the end of his career, John moved to the Tropical Products Institute, Gray's Inn Road, as Senior Principal Scientific Officer, retiring in 1989. His work was mainly on vibrational spectroscopy, infrared and Raman, and he published much important work on this topic, particularly in the early 1960s. In addition, he was visiting lecturer in molecular spectroscopy at the former Kingston Polytechnic in the early 1970s.

John lived for over 50 years in Hampton Hill with his wife Norma, who survives him. In addition, he had one son, who sadly died at the age of 12.

John Nicholson
University of Greenwich

STOP PRESS

Royal Society Publishing has just published a special issue from *Notes and Records* on The Royal Society and science in the 20th century: Papers from a conference for the Royal Society's 350th anniversary, guest edited by Dr Peter Collins, Director of the Royal Society Centre for History of Science. It is FREELY available online from
http://rsnr.royalsocietypublishing.org/seefurther