

CHEMICAL INTELLIGENCE

The Newsletter of the Society for the History of Alchemy and Chemistry

No. 15, January 2016

CONTENTS

Membership Renewal	2
Upcoming SHAC Events	3
<i>Ambix</i> Journal	4
Books for <i>Ambix</i> Review	4
Graduate Network	6
Graduate Profile	7
Other Meetings	8
Calls for Papers	12
SHAC Prizes and Awards	15
Other News and Events	16
Reports	20
New members	46

INSIDE

SHAC Spring Meeting
Morris Award and Lecture
New <i>Ambix</i> Issue
Upcoming Conferences
Exhibition: 'Scholar, Courtier, Magician: the Lost Library of John Dee'
Feature: Sir Lawrence and Lady Bragg
Conference Reports
SHAC Award Reports
Humphrey Davy Commemorated in Penzance
SHAC Postgraduate Workshop
SHAC Autumn Meeting
HSS & FoHCS, San Francisco
New Members

Editorial

Welcome to the Winter issue of *Chemical Intelligence*, my first as editor, Jo Hedesan, as you will know, having stood down in June after two years in the role. Interestingly, I thus become the third female historian of alchemy whose name begins with a 'J' to edit this newsletter, Jo having received the baton from Jenny Rampling, *CI*'s originator. Be assured, however, this is not a requisite for the job! During her tenure, Jo set a high standard in developing the content and format of the newsletter and I am grateful to her for the generous support, expertise and keen eye she has lent as I attempt to step into her shoes.

I am currently in my third year of the part-time PhD programme at Goldsmiths University of London, my research focusing on the mystical alchemist, Thomas Vaughan (1621-1666). Vaughan was both an esoteric philosopher and, by the standards of his day, a skilled laboratory chemist, thus exemplifying the rationale for SHAC, a learned society concerned with the history both of alchemy and chemistry.

In this issue, SHAC's work in supporting postgraduate and early career researchers is apparent from the Reports section, where beneficiaries of the 2014 SHAC Awards reveal the uses to which their grants were put (pp. 20-27). There is also a detailed account of this autumn's postgraduate workshop: 'Alchemy and Chemistry in Sickness and in Health', which took place at the Maison Française

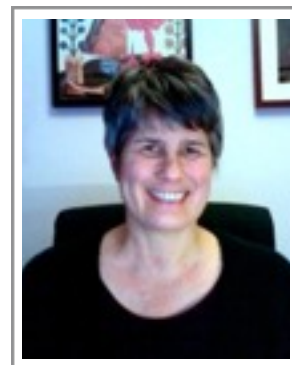
d' Oxford (31-37).

The reports on conferences and meetings taking place on both sides of the Atlantic over Summer and Autumn show just how much activity has

been taking place amongst scholars of the history of alchemy and chemistry. Readers will find accounts of the 10ICHC (pp. 27-29), the HSS annual meeting, which started with a dramatic performance by some of our scholarly colleagues (pp. 40-41), and the activities there of the FoHCS (pp. 42-43). SHAC's Autumn Meeting: 'Chemistry and its Audiences', heard debunked the scurrilous suggestion that women attended Humphry Davy's lectures due to his handsome looks (pp. 37-40), but it is Davy's contribution to chemistry, not his appearance, that was celebrated in Penzance last year (pp. 30-31).

You will find inside many opportunities to contribute to or participate in a stimulating range of events throughout Spring and Summer, including an exhibition on John Dee's lost library. So, with thanks to all contributors of text and images, please enjoy this bumper issue!

Judith Mawer



SOCIETY FOR THE HISTORY
OF
ALCHEMY AND CHEMISTRY



Visit our website at <http://www.ambix.org>

SHAC MEMBERSHIP SUBSCRIPTIONS 2016 AND 2016/2017



Membership subscriptions were **due on 1 January 2016**, and shortly thereafter the Membership Secretary will be sending out email reminders to those Members who are not already paid up for that year .

Members who do wish to renew – and indeed also new joiners – can pay for 2016 or 2016/17 (details on the website www.ambix.org – but **please do not log in**, as that is only necessary to access the *Ambix* on-line archive). Please note that the website does not ‘know’ whether you have already paid for 2016 in a combined 2015/16 subscription, so it does allow you inadvertently to double-pay for 2016. If you have doubts as to whether you have already paid for 2016, contact the **Membership Secretary, Anna Simmons**, at membership@ambix.org.

If your email or postal address changes, please let the Membership Secretary know as soon as possible. Almost all of our communication with members is *via* email and **it is important that we hold a current email address that you check regularly**. The Membership Secretary also prepares address lists for distribution of the journal, so please inform her, not the publisher, if your postal address changes.

Of the methods of payment on the website, the easiest and cheapest for most people, especially non-UK Members, is to do so *via* the Paypal link on the website using a credit or debit card.

The subscriptions for 2016 and 2016/17 for all classes of Member (Student, Retired with at least 10 years’ standing, and Full) are given in full detail on the website and also in the autumn issue of *Ambix*. The subscription (ranging from £ 25 to £ 40 per year) represents remarkable value: as well as the other benefits of Society membership, Members receive –

4 hard-copy issues of *Ambix* per year (it was 3 up to and including 2012), and access to the online *Ambix* archive.

UPCOMING SHAC EVENT

SHAC Spring Meeting 2016: **HIGH PRESSURE IN THE INTERWAR PERIOD**

To be followed by the Morris Award lecture and reception



Dana Research Centre and Library, 165 Queens Gate, London SW7 5HD
(10 minutes' walk from South Kensington or Gloucester Road underground stations)

The new research centre is part of the Science Museum, but can only be accessed from Queens Gate, not the main museum entrance. It is just beyond the Natural History Museum's Darwin Centre.

Programme

- 13.00 Registration and coffee (lunch is not provided)**
- 13.25 Peter Reed**, 'The Hesitant Emergence of Chemical Engineering and the Chemical Engineer in Britain, 1909–1930'
- 13.55 Thijs Michels**, 'Antonius Michels, His High Pressure Research and the Origins of Polyethylene'
- 14.25 Robert Bud**, 'Oiling the Wheels of Coal: High Pressure and the Benefits of Science'
- 14:55 Tea**
- 15.15 Alan Dronsfield**, 'The Ammonia Problem and its Solution'
- 15.45 Peter Morris**, 'A Different Kind of High Pressure Chemistry: The Birth of Reppe Chemistry'
- 16.15 Ernst Homburg**, 'From Bergius to Dubbs: Unexpected Links between Coal and Oil'
- 16.45 Presentation of the Morris Award to Tony Travis**
- 17.00 The Morris Award Lecture, by Tony Travis**: 'Nitrogen Capture: The Emergence of a Global Industry, 1920-1935'
- 18.00 Morris Award Reception (at no extra cost)**
- 19.00 Finish.**

The registration fee for the meeting is **£10 for SHAC members and Royal Society of Chemistry Historical Group members. Others are welcome at £15.**

To participate:

Either send your name, address, email, and details of whether you want to stay for the reception, along with a cheque drawn on a UK bank for £10 or £15 as appropriate payable to 'Society for the History of Alchemy and Chemistry', to Dr Michael Jewess, SHAC Treasurer, The Long Barn, Townsend, Harwell, Oxfordshire, OX11 0DX, UK.

Or (suitable for those not having a UK bank account) make a PayPal payment for £10 or £15 as appropriate to the account 'treasurer@ambix.org' (quotation marks are not part of the account name) and email details of your name, address and whether you want to stay for the reception to treasurer@ambix.org. (For this, you will have to create your own PayPal account if you do not already have one.)

A registration form can be found on the SHAC website at <http://www.ambix.org/wp-content/uploads/2015/12/Final-SHAC-Science-Museum-2016-Meeting-Flyer.pdf>

SHAC gratefully acknowledges the support of the Science Museum for this event.

AMBIX

Publication of the fourth issue of volume 62 of *Ambix* is imminent, following an unavoidable delay caused by widespread flooding around Chennai where, like many academic journals, it is composited. It is a special issue on the theme of ‘Chemical Knowledge in Transit,’ guest edited by Ana Maria Alfonso-Goldfarb, Hasok Chang, Marcia H. M. Ferraz, and Silvia Waisse. This project began with the international conference *Crossing Oceans: Exchange of Products, Instruments, and Procedures in the History of Chemistry and Related Sciences*, held in São Paulo, Brazil, 24-28 August 2014, jointly organised by the Society for the History of Alchemy and Chemistry (SHAC), the Centre Simão Mathias (CESIMA), Pontifical Catholic University of São Paulo (PUC-SP), and the Centre for Logic, Epistemology and History of Science (CLE), State University of Campinas (UNICAMP). Besides celebrating the twentieth anniversary of CESIMA, a leading centre for the history of science (including numerous projects related to the history of alchemy and chemistry), this was the first time that SHAC sponsored a major event outside Europe or North America. The special issue represents a further stage in our transatlantic collaboration, incorporating four essays by Brazilian and British scholars, and guest-edited by representatives of both CESIMA and SHAC. Papers include:

Ana Maria Alfonso-Goldfarb, Hasok Chang, Marcia H. M. Ferraz, Jennifer M. Rampling, and Silvia Waisse, ‘Introduction: Chemical Knowledge in Transit’

Andréa Bortolotto (Pontifical Catholic University of São Paulo), ‘Johann Andreas Cramer and Chemical Mineral Assay in the Eighteenth Century’

Robert G. W. Anderson (Clare Hall, Cambridge), ‘Teaching the Chemistry of Platinum’

Cristiana Loureiro de Mendonça Couto (Pontifical Catholic University of São Paulo), ‘Nineteenth-Century Chemical, Medical and Nutritional Views on Brazilian Staple Foods’

Frank A. J. L. James (Royal Institution of London), “‘Agricultural Chymistry is at present in its infancy’: The Board of Agriculture, The Royal Institution and Humphry Davy”

Books Received for *Ambix* Review

NOTE: Appearance in this list does not guarantee review in a subsequent issue. Anyone wishing to act as a reviewer of any of the books should contact *Ambix* reviews editor: José-Ramón Bertomeu-Sánchez (bertomeu@uv.es).

The Cradle of Chemistry. The First Century of Chemistry at the University of Edinburgh. Edited by ROBERT G.W. ANDERSON. Pp. 224, illus., index. John Donald: Edinburgh. 2015. £25. ISBN: 978-1-9065-6686-9.

Otto Linné Erdmann an Justus von Liebig - kommentierte Briefe von 1853 bis 1867. By LOTHAR BEYER. Pp. 283, illus., index. Leipziger Universitätsverlag: Leipzig. 2014. € 22. ISBN: 978-3-86583-873-5.



Making 20th Century Science. How Theories Became Knowledge. By STEPHEN G. BRUSH and ARIEL SEGAL. Pp. xviii + 531, illus., index. Oxford University Press: Oxford. 2015. \$39. ISBN: 978-0-19-997815-1.

The British Pharmacopoeia, 1864 to 2014. By ANTHONY C. CARTWRIGHT. Pp. 266, illus., index. Ashgate. 2015. £70. ISBN: 978-1-4724-2032-9.

The Lost Elements. The Periodic Table's Shadow Side. By MARCO FONTANI, MARIA GRAZIA COSTA, MARY VIRGINIA ORNA. Pp. xxxvii + 531, illus., index. Oxford University Press: Oxford. 2015. £25.99.

Animal, Vegetable, Mineral? How Eighteenth-Century Science Disrupted the Natural Order. By SUSANNAH GIBSON. Pp. 240, illus., index. Oxford University Press: Oxford. 2015. £16.99. ISBN: 978-0-19-870513-0.

Jonas Salk. A life. By CHARLOTTE DECROES JACOBS . Pp. 559, illus., index. Oxford University Press: Oxford. 2015. \$34.95. ISBN: 978-0-19-933441-4.

Humboldts Preussen: Wissenschaft und Technik im Aufbruch. By URSULA KLEIN. Wissenschaftliche Buchgesellschaft: Darmstadt. 2015.

Akademi og industri: Kjemiutdanning og -forskning ved NTNU gjennom 100 år. By ANNETTE LYKKNESS and JOAKIM ZIEGLER GUSLAND. Pp. 537, illus., index. Fagbokforlaget: Trondheim. 2015. ISBN: 978-82-450-1828-8.

Chemiker im 'Dritten Reich'. Die Deutsche Chemische Gesellschaft und der Verein Deutscher Chemiker im NS-Herrschaftsapparat. By HELMUT MAIER, illus., index. Wiley-VCH. 2015.

Experimentalisierung und internationale Kommunikationen: Der Fall Curare. By SILVIA MICHELETTI. Pp. 239, Deutscher Apotheker Verlag: Stuttgart. 2014. ISBN: 978-3-7692-6417-3.

The Matter Factory. A History of the Chemistry Laboratory. By PETER MORRIS. 2015. \$45. ISBN: 978-1-7802-34-427.

Bridging Traditions. Alchemy, Chemistry, and Paracelsian Practices in the Early Modern Era. By KAREN HUNGER PARSHALL, MICHAEL WALTON, BRUCE T. MORAN. Pp. xxii + 310, illus., index. Truman State University Press: Kirksville. 2015. ISBN: 978-1-61248-134-0.

Entrepreneurial Ventures in Chemistry: The Muspratts of Liverpool, 1794-1934. By PETER REED. Pp. xxii + 327, illus., index. Ashgate: Farnham, Surrey. 2015. £60. ISBN: 978-1-4724-4978-8.

The Restless Clock. A History of the Centuries-Long Argument over what makes Living Things Tick. By JESSICA RISKIN. Pp. 544, illus., index. Chicago University Press: Chicago. 2015. \$40. ISBN: 978-0-2263-0308-6.

Moore's Law. The Life of Gordon Moore, Silicon Valley's Quiet Revolutionary. By ARNOLD THACKRAY, DAVID BROCK, RACHEL JONES. Pp. 560, illus., index. Basic Books: New York. 2015. \$36. ISBN: 978-0-4650-5564-7.

Pure Intelligence. The Life of William Hyde Wollaston. By MELVYN C. USSELMAN. Pp. 424, illus., index. Chicago University Press: Chicago. 2015. \$35. ISBN: 978-0-2262-4573-7.

Making Marie Curie: Intellectual Property and Celebrity Culture in an Age of Information. By EVA HEMMUNGS WIRTÉN. Pp. 248, illus., index. Chicago University Press: Chicago. 2015. \$ 35. ISBN: 978-0-2262-2359-8-1.

GRADUATE NETWORK

Autumn 2015 Postgraduate Workshop

The 6th SHAC Postgraduate Workshop took place at the Maison Française d' Oxford this year, on 30 October, and took as its theme: 'Alchemy & Chemistry in Sickness & in Health'. The Society very much appreciates the generous support of Director, Anne Simonin, and colleagues at the Maison Française in providing the venue, refreshments and administrative support, all of which contributed greatly to a successful, productive and enjoyable event. Our thanks go also to John Christie for his work in liaising with Dr Simonin on SHAC's behalf.

A detailed report on the proceedings at the graduate workshop is available on pages 31-37.

Aims & Objectives

The SHAC Graduate Network aims to stimulate research into the history of alchemy and chemistry worldwide, by providing research training, grants and networking opportunities for postgraduate students and postdoctoral researchers working in these fields. As part of this scheme, postgraduates and early career researchers are eligible to apply for grants towards the cost of research (the New Scholars Award). The Society also organises an annual workshop for students and junior scholars, focusing on methods, sources and approaches in the history of alchemy and chemistry.

Online Graduate Network

If you are a postgraduate student or junior researcher interested in the history of alchemy or chemistry, you are also invited to join our online Graduate Network group, the intention of which is to publicise announcements and host discussions related to the fields. Should you wish to join, please send an e-mail, giving your name, educational affiliation and, in brief, your particular subject interest(s) via the group email address, 'subscribe' at https://uk.groups.yahoo.com/neo/groups/shac_graduate_network/info. Please note that you do not need to be a member of SHAC to become part of the Graduate Network.

SHAC Student Representative

The current SHAC Student representative is **Mike Zuber**, a PhD candidate at the University of Amsterdam, who may be contacted via email (studentrep@ambix.org).

Contributions to *Chemical Intelligence*

Graduate members are encouraged to contribute items of interest to this newsletter, including a personal student profile (see format below); reports of conferences, workshops, events etc. attended; articles on places or resources of interest e.g. libraries, archives, museums, laboratories etc., news items about the history of alchemy and chemistry etc. Photographic images are also very welcome. Contributions should be sent to: Judith Mawer, *Chemical Intelligence* Editor, chemintel@ambix.org

Graduate members will find more information about SHAC, its events, prizes and awards, along with details relating to past, present and forthcoming news and activities in the history of alchemy and chemistry, by visiting the Society's webpage: <http://www.ambix.org>



GRADUATE PROFILE

Tillmann Taape
Cambridge University



Self-introduction

Having spent my undergraduate years at Cambridge University – first as a scientist, then as a historian of science – I am now pursuing a PhD in the Department of History and Philosophy of Science. My project, funded by the Wellcome Trust, is centred around the published works of the Alsatian surgeon-apothecary Hieronymus Brunschwig (c.1450-c.1530). Both his surgery manual and his books on medical distillation were among the earliest works of their kind to be printed in the German language, and thus provide valuable insights into the nascent tradition of medical publications in the vernacular.

What I find most fascinating about

Brunschwig is the fact that, unusually for an author of early printed books, he was not a university-trained scholar, but rather a craftsman trained by the local guilds. His practical know-how permeates his books, mingling with more theoretical ideas gleaned from his wide reading of medical and alchemical texts. I am particularly interested in the way Brunschwig combines craft knowledge and such lofty alchemical concepts as the idea of 'quintessence' to provide his readers – including common men and women – with safe and reliable medical care for themselves and their families.

What is the greatest challenge you are facing as a postgraduate student?

On a daily basis, motivation and self-discipline can be difficult, but I also find it challenging to find and maintain a clear focus for the project. Three years turns out to be a very short time, and it's easy to get distracted, especially when digging around the archive looking for material on craftsmen and medical practice. I got badly side-tracked at one point by the fantastic woodcuts of people wearing stripy trousers in Brunschwig's books – fortunately, as it turned out, I was able to turn my obsession with stripes into an argument about the intended audience of Brunschwig's works, so it wasn't entirely a waste of time.

OTHER MEETINGS

Joint meeting of the the Club d'Histoire de la Chimie, and Centre Alexandre Koyré (CAK)

LE LABORATOIRE DANS TOUT SES ÉTATS. SAVOIRS OPÉRATOIRES DE LA MATIÈRE À LA FIN DU XVIII^e SIÈCLE ET AU DÉBUT DU XIX^e SIÈCLE

Paris, France



Program:

Bruno Belhoste (Paris I/IHMC), 'L'art de la teinture. Antoine Quémizet et l'atelier des Gobelins'

John Perkins (Oxford Brookes University), "'Voici de la bonne chymie": les apothicaires, le refaçonnement de la chimie et la construction de l'industrie chimique en France, 1750-1810'

Christine Lehman (Paris Ouest/IREP), 'Guyton et la vraie nature du diamant'

Corinna Guerra (Hastec/CAK), 'How volcanic materials shaped chemical studies in the Kingdom of Naples'

John Perkins (Oxford Brookes University, 'Situating Chemistry, 1760-1840'

More information: <http://www.societechimiquedefrance.fr/manifestation/le-laboratoire-dans-tous-ses-etats-savoirs-operatoires-de.html>

International Conference

OLD AND NEW WORLDS: THE GLOBAL CHALLENGES OF RURAL HISTORY

Lisbon, Portugal



The motivation for this international conference arises from a move to promote and globalise research in the area of rural history, examining and applying historical and historiographical methods. The conference, which combines with the VI Encontro Rural RePort and the XV Congresso de Historia Agraria de la SEHA, is to be held in Lisbon, Portugal, and hosted by ISCTE - University Institute of Lisbon. There will be a broad range of panels, including some focused on the history of chemistry, e.g. 'Wine Quality in the 19th and 20th centuries'.

More information: <http://lisbon2016rh.wordpress.com/>



Royal Society of Chemistry Historical Group Meeting:**THE ATOM AND THE MOLECULE: A SYMPOSIUM CELEBRATING GILBERT N. LEWIS***Royal Society of Chemistry, Burlington House, Piccadilly, London***Speakers will include:**

Dr Patrick Coffey (USA), “Does Personality Influence Scientific Credit? Simultaneous Priority Disputes: Lewis vs. Langmuir, and Langmuir vs. Harkness”

Professor Alan Dronsfield (UK), “An organic chemist reflects on the Lewis two-electron bond”

Dr Nick Greeves (UK), “The influence of Lewis on organic chemistry teaching, textbooks and beyond”

Professor Clark Landis (USA), “Lewis and Lewis-like Structures in the Quantum Era”

Dr Julia Contreras-Garcia (France), “Do bonds need a name?”

Professor Michael Mingos (UK), “The Inorganic dimension to Lewis and Kossel’s landmark contributions”.

This one day symposium commemorates the 100th anniversary of the publication of ‘The Atom and the Molecule’ by G. N. Lewis and the impact his diverse contributions have made to chemistry and the way it is taught.

The meeting, which **starts at 10.30 a.m.**, is free to attend but **prior registration is essential**. Further details and the full meeting programme will be available from the Group's Secretary, Professor John Nicholson (jwnicholson01@gmail.com) in January 2016.

Eleventh European Social Science History Conference (ESSHC)*Valencia, Spain*

The aim of the ESSHC is to bring together scholars who explain historical phenomena using the methods of the social sciences. The conference is characterized by a lively, small group exchange, rather than in formal plenary sessions. The conference is organized in many networks covering specific topics. It welcomes papers and sessions on any historical topic and any historical period.

More information: <https://esshc.socialhistory.org/esshc-valencia-2016>



Eighth Joint Meeting of the BSHS, CSHPS, and HSS (Three Societies Meeting):

TRANSITIONS

University of Alberta, Edmonton, Alberta, Canada



The eighth joint meeting of the British Society for the History of Science, the Canadian Society for the History and Philosophy of Science, and the History of Science Society will take place in Edmonton, Alberta, Canada. The theme of the meeting will be 'Transitions' and participants have been encouraged to consider the broader scientific, scholarly and social implications associated with moments of scientific transition.

The programme will include parallel themed sessions, plenary lectures, education and outreach activities, a reception at the Art Gallery of Alberta and a Conference Dinner (TBA). Delegates can explore the vibrant arts scene, and there are many festivals in June, including the Edmonton International Jazz Festival.

Participation is in no way limited to members of the three organising societies, but there will be a discount for members. Intending participants should also note that the usual HSS rules concerning presenting at successive conferences do not apply to this meeting.

Enquiries concerning the program should be directed to aede@ualberta.ca

Enquiries concerning the conference should be directed to threesocieties2016@ualberta.ca

Additional details may also be found on the British Society for the History of Science website: <http://www.bsbs.org.uk/conferences/three-societies-meeting>

Workshop

ALCHEMY, UNIVERSAL MEDICINE AND PROLONGATION OF LIFE

St Anne's College, University of Oxford, UK

One of the most important goals of alchemy in the Middle Ages and early modern period was the preparation of potent medicine. The development of sophisticated distillation techniques led many alchemists to believe that their medicine could be much more effective than the existing Galenic preparations. In the formulation of Roger Bacon (c. 1214-c.1292), Johannes de Rupescissa (d. 1362), and the pseudo-Arnaldian and pseudo-Lullian corpora, alchemical medicine could even reach the status of a universal panacea and/or a medicament to radically prolong one's life.



This belief became particularly poignant in the early modern period, as Theophrastus von Hohenheim, called Paracelsus (1493-1541), proposed a far-reaching reform of medicine that would set it on a firm alchemical

foundation. Whether or not he believed in a universal panacea, Paracelsus spearheaded a revival and indeed a vogue for this idea in early modern Europe, which lasted well into the 18th century.

The 'Alchemy, Universal Medicine and Prolongation of Life' workshop, generously funded by the Wellcome Trust, will bring together major and upcoming scholars of alchemy and medicine to



look at the topics of universal medicine and radical prolongevity in the medieval and early modern periods. The presenters, in alphabetical order, are:

Prof Chiara Crisciani (Pavia)
 Dr Peter J. Forshaw (Amsterdam)
 Dr Georgiana Hedesan (Oxford)
 Dr Hiro Hirai (Nijmegen)
 Dr Didier Kahn (CNRS Paris)
 Dr Natalie Kaoukji (Cambridge)
 Dr Joel Klein (Columbia)
 Dr Joaquín Pérez-Pariente (CSIC Spain)
 Dr Rafal Prinke (Poznan)
 Prof Bruce Moran (Nevada-Reno)
 Dr Jennifer Rampling (Princeton)
 Dr Anna Marie Roos (Lincoln)

The workshop welcomes outside attendance, but will require prior registration, as spaces are limited. A call for participation will be issued in due course.

For more details, please contact Georgiana Hedesan at georgiana.hedesan@history.ox.ac.uk.

5th *Scientiae* Conference, 2016

DISCIPLINES OF KNOWING IN THE EARLY MODERN WORLD

St Anne's College, University of Oxford, UK

The annual *Scientiae* conference focuses on disciplines of knowing in the early modern world (roughly 1400-1800). The major premise of this conference series is that knowledge during this period was inherently interdisciplinary, involving complex mixtures of theories, practices and objects, which had yet to be separated into their modern 'scientific' configurations. Although centred on attempts to understand and control the natural world, *Scientiae* addresses natural philosophy, natural history, and the *scientiae mixtae* within a wide range of



related fields, including but not restricted to Biblical exegesis, medicine, artisan practice and theory, logic, humanism, alchemy, magic, witchcraft, demonology, divinatory practices, astronomy, astrology, music, antiquarianism, experimentation and commerce. Attention is also given to mapping intellectual geographies through the tools of the digital humanities.

This international conference alternates every year between North America, UK and continental Europe and has a large and growing attendance of around 110-140 participants. It is anticipated that several panels will focus on the History of Alchemy.

This year, *Scientiae* (via its convenor, Jo Hedesan) has been awarded a SHAC Subject Development Award that will enable the organisers to offer 4 bursaries for student and early career presenters in the field of alchemy and early chemistry.



Keynote Speakers for this year's conference are:

Wouter Hanegraaff (Amsterdam), Martin Kemp (Oxford), & Tara Nummedal (Brown)

Conference Convenor: Georgiana Hedesan (Oxford)

Senior Adviser: Howard Hotson (Oxford)

Organising Team: Karen Hollewand (Oxford), Cornelis Schilt (Sussex) and
Luca Guariento (Glasgow)

For more information please see *Scientiae's* website at <http://scientiae.co.uk/oxford-2016/>

OTHER MEETINGS: CALLS FOR PAPERS

The Third Biennial Early-Career Conference for Historians of the Physical Sciences

Deadline extended until January 20th 2016

The American Institute of Physics (AIP) Center for the History of Physics is pleased to host a third international conference for graduate students and early career scholars, to be held April 6-10, 2016 in Annapolis, MD. The goal of this conference is to foster communication and collaboration amongst junior scholars and to provide a forum for exploring and reflecting upon current issues in the historiography of the physical sciences. The conference will also provide an opportunity for junior scholars to interact with invited senior scholars. "Early Career" includes graduate students and recent PhDs, independent scholars, post-docs, and those in early-stage academic positions.



We welcome submissions, including works-in-progress, from all time periods and areas of the history of the physical sciences, including geophysics, industrial physics, astronomy, **chemistry**, space sciences, and more. All historiographical perspectives are welcome, from socio-cultural to highly technical.

Presentations should be 20 minutes in length. Paper proposals should include the following:

- ★ Your name
- ★ E-mail address
- ★ Institutional affiliation
- ★ Presentation title and abstract (250 words max. not including title)
- ★ A short biography, indicating where you are in your studies and/or career (250 words max.)

Supplementary travel funds will be available for all participants

Paper proposals should be sent as an attachment in a single document (.pdf, .docx, or .doc) to tmuir@aip.org by **20 January, 2016**. Applicants will be notified by 30 January, 2016.



Conference Organisers: Victoria Flório Andrade, Daniel Liu, Daniel Jon Mitchell, Teasel Muir-Harmony, and Benjamin Wilson

<https://www.aip.org/history-programs/physics-history/early-career-conference/call-for-papers>

The Conference is supported by the Center for History of Physics of the American Institute of Physics

Joint Meeting of the European Society for the History of Human Sciences (ESHHS) and the International Society for the History of Behavioural and Social Sciences (CHEIRON)

Barcelona, Spain



Sessions, papers, workshops, round-tables and posters may deal with any aspect of the history of the human, behavioural or social sciences. However, this year's conference will devote particular interest in topics such as:

- historiography.
- history and philosophy of science.
- popularisation of science and the role of experts in modern society.
- circulation of science and technology in the European periphery.

Deadline for the call for papers: 15 January, 2016.

More information: http://www.cehic.es/ficha_congresos.php?sitelang=ca&idnoti=346

43rd ICOHTEC Annual Meeting

TECHNOLOGY, INNOVATION, AND SUSTAINABILITY: HISTORICAL AND CONTEMPORARY NARRATIVES

Porto, Portugal

The 43rd ICOHTEC meeting aims at addressing this complex relationship by encouraging papers that contribute to a deeper understanding of the multilayer cultural and material built meaning of innovation and sustainability and on the various roles played by technology in enabling or preventing such interplay.



The symposium covers all periods and areas of the globe. We invite submissions of new, original and unpublished work that offers fresh perspectives for the history of technology as well as exploring sources and

methods. The main theme embraces the concepts of technology, innovation and sustainability as organising principles, thus perceiving them as actors in the building of today's globalised society.

Deadline for the call for papers: 25 January 2016

More information: <http://www.icohtec.org/annual-meeting-cfp.html>



Joint Meeting of the Society for Social Studies of Science, and the European Association for the Study of Science and Technology:

SCIENCE & TECHNOLOGY BY OTHER MEANS: EXPLORING COLLECTIVES, SPACES AND FUTURES

Barcelona, Spain



There are no predetermined topics for the tracks but we encourage applicants submitting tracks to engage with the general theme of the conference: ‘Science & technology by other means: Exploring collectives, spaces and futures’. It refers to the opportunity for both 4S and EASST scholars to meet, share and discuss together how science and technology are increasingly performed, shaped and developed ‘by other means’: in a variety of exploratory activities that include the articulation of collectives that do not fit with the traditional actors and institutions in science and technology, or in

ways that problematize the established hegemonies involved in the production of knowledge and technologies.

Deadline for abstract submissions; 21st February 2016.

More information: <http://www.sts2016bcn.org/>

25th International Congress of History of Science and Technology:

SCIENCE, TECHNOLOGY & MEDICINE BETWEEN THE GLOBAL & THE LOCAL

Rio de Janeiro, Brazil

Questions of place are gaining increasing importance in the work of historians of science, technology and medicine, to such an extent that some scholars suggest this corresponds to a veritable ‘spatial turn’. It is unavoidable that researchers take sides on issues such as the ‘situated-ness’ of knowledge and practices, the problems pertaining to their movements across spaces and cultures (and not only along time) and, above all, the proper choice of scales of analysis – all the way between the global and the local, which is the core of the 25th ICHST’s theme.



At the same time, this theme relates to the very nature of the Congress as the largest international gathering of historians of science, technology and medicine, inviting all of us to think about what we may say to and learn from each other, considering our own multifarious places and standpoints.

Deadline for submission of symposia proposals: 30th April 2016

Deadline for submission of stand-alone paper proposals: 30th November 2016

More information: <http://ichst2017.sbhc.org.br/>



SHAC PRIZES AND AWARDS

2015 SHAC Award Scheme

SHAC would like to congratulate the following Award winners:

New Scholar Awards:

Thijs Hagendijk,	Utrecht University
Konstantin Kiprijanov,	University of Leeds
Harriet Lloyd,	University College London
Agnieszka Rec,	Yale University
Ignacio Suay-Matellana,	Chemical Heritage Foundation (now at Centro Interuniversitário de História das Ciências e da Tecnologia (CIUHCT), Lisbon, Portugal)
Joppe Van Driel,	University of Twente
Mike Zuber,	University of Amsterdam

Subject Development Awards:

Rémi Franckowiak,	Université de Lille
Georgiana Hedesan,	Oxford University

Morris Award

SHAC is pleased to announce that it was the unanimous decision of the committee to select as the recipient of the Morris Award, Dr Anthony S. (Tony) Travis. Dr Travis was nominated as a candidate for his contributions to the history of the chemical industry (history of the dye industry and Heinrich Caro) and the history of modern chemistry (history of chemical instrumentation and the history of groundwater pollution).



The award will be presented at the SHAC Spring Meeting, on 11 February, 2016, at the Dana Research Centre and Library, 165 Queens Gate, London SW7 5HD. The meeting will take as its theme, 'High Pressure in the Interwar Period' and Dr Travis himself will present the Morris Award Lecture, the subject of his paper being; 'Nitrogen Capture: The Emergence of a Global Industry, 1920-1935'.

The afternoon will end with the Morris Award Reception.

Details of the SHAC Spring Meeting 2016 may be found on Page 3.



Oxford Part II Prize

The recipient of the Oxford Part II Prize was Mahnoor Naeem of Keble College, whose thesis on ‘William Hume Rothery’s contribution to the Science of Metallurgy’ achieved the highest mark of those electing to pursue a History of Chemistry Part II. Ms Naeem’s candidacy for the prize was proposed by the university, and the literature in support of this recommendation was read on behalf of SHAC by Prof Bill Brock, upon whose recommendation the Society agreed the award, which recognises the best History of Chemistry Oxford Part II thesis.

The prize was presented to Ms Naeem by Chair of SHAC, Dr Robert Anderson, at the SHAC Autumn Meeting: ‘Chemistry and its Audiences’, which took place at The Royal Institution on Saturday 14 November, 2015.



A report on the SHAC Autumn Meeting can be found on pages 37-40.

OTHER NEWS, EVENTS AND GRANTS

Nathan Reingold Prize

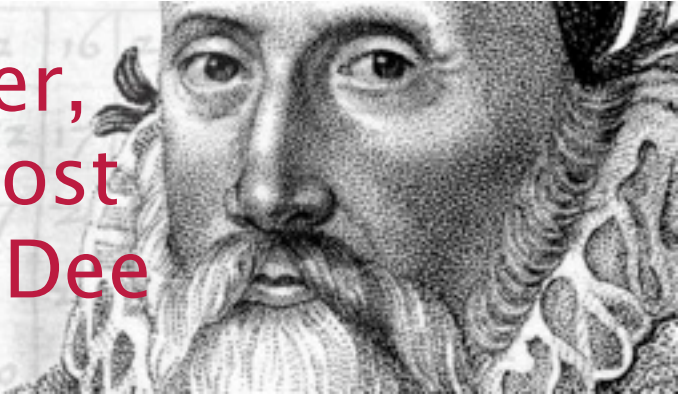


Congratulations to Evan Hepler-Smith, a graduate student at Princeton University’s Program in the History of Science (and winner of the 2014 Partington Prize), who has just been awarded the Nathan Reingold Prize by the History of Science Society for his essay “‘A way of thinking backwards’: Chemists, computers, and a once and future method.’ The Reingold Prize honors the best original and unpublished article on the history of science and its cultural influences written by a graduate student.

Hepler-Smith’s doctoral dissertation is entitled ‘Nominally Rational: Systematic Nomenclature and the Structure of Organic Chemistry, 1889-1940’ and examines the history and impact of the International Commission on Chemical Nomenclature, which established the framework for naming chemical compounds.



Scholar, courtier, magician: the lost library of John Dee



Royal College of Physicians of London, 11 St Andrews Place, Regents Park, London, NW1 4LE

Jan-Jul

18-29

2016

Mathematician, magician, astronomer, astrologer, imperialist, alchemist and spy, John Dee (1527-1609) continues to fascinate and inspire centuries after he entered the court of Elizabeth I.

Our exhibition explores Dee through his personal library. On display for the first time are Dee's mathematical, astronomical and alchemical texts, many elaborately annotated and illustrated by Dee's own hand. Now held in the collections of the Royal College of Physicians, they reveal tantalising glimpses into the 'conjurer's mind'.

Dee's books will be displayed alongside loans from the [Science Museum](#), the [British Museum](#) and the [Wellcome Collection](#) and will include Dee's mirror and crystal ball, and a specially commissioned film by acclaimed artist [Jeremy Millar](#).

Open to all: Monday-Friday, 9am-5pm, free entry

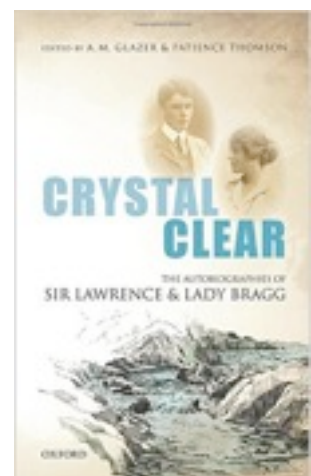
Opening times may vary - check our [visiting page](#) for closure days before your visit

Book: [weekend curator tours & evening events](#)

For further details, contact <http://www.rcplondon.ac.uk/johndee>

Crystal Clear: The Autobiographies of Sir Lawrence and Lady Bragg

Just a century ago in November 1915 William Bragg, just appointed Professor of Physics at University College London, and his son Lawrence Bragg, then serving on the Western Front, learnt that they had been awarded that year's Nobel Prize for Physics. This was for their work, starting in 1912, in showing how X-rays could be used to determine the atomic structure of crystals, one of the key scientific discoveries of the 20th century – more Nobel Prizes (including for the double helical structure of DNA) have been awarded for X-ray crystallography than for



any other subject. Between 1923 and his death in 1942 William Bragg, as

Fullerian Professor of Chemistry and Director of the Davy-Faraday Research Laboratory, built up at the Royal Institution the world's most important X-ray crystallography laboratory.



Between 1954 and 1966 Lawrence Bragg held the same positions as his father had done at the Royal Institution and in addition in 1965 was created the first Director of the Royal Institution as recognition of his turning the organisation around after the Andrade crisis of the early 1950s. Both Lawrence Bragg and his wife Alice Bragg, wrote autobiographies, presumably with a view to publication which for various reasons did not happen during their lifetimes. Both are now published for the first time in an edition edited by A.M. Glazer (emeritus Professor of Physics at the University of Oxford) and Patience Thomson

(Lawrence Bragg's younger daughter). Lawrence Bragg's autobiography covers his upbringing in Australia, service during the Great War, his time as Rutherford's successor at the University of Manchester, Director of the National Physical Laboratory and then of the Cavendish Laboratory in Cambridge, ending just before his move to the Royal Institution. Alice Bragg's covers her childhood in Manchester, as a student in Cambridge (where she met Lawrence), and then the same events, but from a rather different perspective, but including their time at the Royal Institution. Alice Bragg also records her own career, for example serving as Mayor of Cambridge at the end of the war of 1939 to 1945.



These two autobiographies in this single volume, published by Oxford University Press, provide enormously valuable insights into the development of science during the 20th century and its place in broader culture and polity. Furthermore, the royalties from the book will be donated to the Royal Institution.

Prof Frank James, University College London and The Royal Institution



Beckman Center for the History of Chemistry: 2016-17 Fellowships in the History of Sciences, Technology, Medicine, & Industry

The Beckman Center for the History of Chemistry at the Chemical Heritage Foundation (CHF), an independent research library in Philadelphia, PA, invites applications for short-term and long-term fellowships in the history of science, medicine, technology, and industry.

Short-term fellows are particularly meant to use the collections, while long-term fellows' work must help to support the mission of the institution and fit with collections more generally. The research collections at CHF range chronologically from the fifteenth century to the present and include 6,000 rare books, significant archival holdings, thousands of images, and a large artifact and fine arts collection, supported by over 100,000 reference volumes and journals. Within the collections there are many areas of special strength, including: alchemy, mining & metallurgy, dyeing and bleaching, ball-neology, gunpowder and pyrotechnics, gas-lighting, books of secrets, inorganic and organic chemistry, biochemistry, food chemistry, and pharmaceuticals.

We support roughly 25 fellows each year, creating a vibrant international community of scholars whose work is in some way tied to the history of materials and materiality, chemistry, and all related sciences. Applications come from scholars in a wide range of disciplines across the humanities and social sciences. To see this year's list, go to: <http://www.chemheritage.org/research/beckman-center/fellows-and-staff.aspx>.

Senior Fellowships: Applicants for senior fellowships will have had their PhD for more than five years. Senior fellowship stipends, paid in monthly instalments, are for 9 months in residence and total \$60,000.

Postdoctoral Fellowships: Applicants for postdoctoral fellowships must have their PhD in hand before the July prior to the start of the fellowship and must have earned that degree within the last five years. Postdoctoral fellowship stipends, paid in monthly instalments, are for 9 months in residence and total \$45,000.

Dissertation Fellowships: Applicants for dissertation fellowships must be graduate students whose PhD dissertations have been accepted by their respective university departments. Dissertation fellowship stipends, paid in monthly instalments, are for 9 Months in Residence and total \$26,000.

Short-Term Fellowships: Short-term fellowships are available to all researchers and scholars whose work requires use of the collections housed at CHF. Stipends are for 1-4 months in residence, according to the fellowship allocated, and are available at \$3,000 per month. No additional research or travel allowances are available.

Application Deadline: 15 January 2016.

For more information visit:

<http://www.chemheritage.org/BeckmanCenter>

REPORTS

SHAC New Scholar Awards

Thijs Hagendijk **Utrecht University**

Last September I participated in the 10th International Conference on the History of Chemistry in Aveiro, Portugal. It was the first time that I joined such an international event, and I really enjoyed to finally meet the history-of-chemistry community. I was awarded the New Scholars Award by SHAC in order to present a paper at the conference.

The topic for this paper derived from my master thesis, which I recently finished writing at Utrecht University. In my thesis, I explored part of the history of osmosis in the nineteenth century. It appeared that osmosis was of appreciable interest to chemists, physiologists and physicists alike, and it ignited an investigative enterprise that culminated in the first Nobel Prize in the history of chemistry (J.H. van 't Hoff, 1901). More specifically, I investigated the early-nineteenth-century discovery of osmosis by the French physiologist Henri Dutrochet (1776-1847). Unfortunately for Dutrochet – and in sharp contrast with the later and brighter history of the phenomenon – this discovery proved to be a mere source of controversy. People did not agree with his explanations, and the close resemblance of osmosis with other liquid phenomena like absorption and capillarity troubled its acceptance even more. A more profound explanation for the emergence of this controversy is however found in the marginal social position of Dutrochet. A biographical approach reveals that Dutrochet performed a balancing act between his independent position at the outskirts of the scientific community, and his commitment to the French Academy, knowing that he fully depended on the cooperation of his more authoritative opponents in the scientific community to arrange for general recognition of his phenomenon.

Presenting this paper, and especially the accompanying discussion, provided me with useful

insights, which will be processed in a future publication on the subject.

Konstantin Kiprijanov **University of Leeds**

My PhD thesis investigates the development, dissemination and consolidation of visual – or ‘structural’ – formulae between 1865 and 1892 by focusing on the production and circulation of specialised journals and the emergence modern chemical article. The SHAC New Scholar Award has allowed me to explore the different ways that visual representations were handled by editors, referees and printers of the *Philosophical Transactions and*

Proceedings of the Royal Society. Covering the period from 1865 to 1900, I have analysed significant numbers of referee reports on papers from both journals, original



manuscripts of chemical and mathematical articles, the minutes of various editorial committees, as well as correspondence between Secretaries of the Royal Society with authors, referees, and printers.

My research has revealed minute but significant differences between visual formulae in handwritten manuscripts and those which eventually appeared in print in both journals of the Royal Society. Evidence strongly suggests that visual representations of molecular structure were subject to invasive editorial processes. In most instances, proofreader's marks on the submitted manuscripts indicate that editors intended all chemical symbols other than Berzelian formulae to be detached from the text, thus relocating the formulae to a blank space between two paragraphs in the printed article. In the specific case of Edward Frankland's paper 'Contributions to the Chemistry of Storage Batteries. No. 2' (published in *Proceedings* 46, 1889), it becomes evident that the author had arranged the double bonds of his visual formula of a salt of sulphuric acid in a different way than they later appeared on paper. While Frankland exclusively used angles of ninety degrees, the editor realigned two of the bonds to a forty-five degrees angle, thus employing them simultaneously to stress the position of a heteroatom and to emphasise the compound's horizontal axis of symmetry.

In his 2001 article 'Conventionalities in Formula Writing', Pierre Laszlo has already indicated that during the period 1865-1905, visual formulae had gradually changed their appearance within scientific journals. My results now provide sufficient evidence from unpublished sources that these processes were driven by editorial decisions and did not necessarily reflect the way in which formulae were used by authors. The rationale behind these editorial decisions can be explained by the fact that editors treated molecular representations in exactly the same way in which they used to approach mathematical formalisms. Annotated manuscripts show that long before the appearance of novel chemical notations in the 1860s, it was already an established practice to isolate extensive algebraic notations from the text and arrange them in the middle of the printed page. This practice, in turn, was most likely related to the complicated procedures involved in composing mathematical formalisms. The archival sources thus strongly imply that editors did not devise new strategies for handling the novel representations in chemistry, but rather followed established procedures. Overall, my research has demonstrated that the handling of visual formulae in chemistry was based on existing editorial practices, and that journal editors played a major part in the overall development of chemical formalisms during the last third of the nineteenth century.

Hattie Lloyd
University College London

Eleanor Anne Porden (1795-1825) was a poet with a passion for chemistry. The history of chemistry in early-nineteenth century Britain can be enriched by including actors like Porden, who challenged gender barriers to scientific study both explicitly in her correspondence and implicitly in her poem *The Veils, or the Triumph of Constancy*. A



New Scholars Award from SHAC gave me the opportunity to visit her collection of papers at the Derbyshire Record Office in Matlock, England.

My doctoral research concerns the audience of the English chemist Humphry Davy, who lectured at the Royal Institution of Great Britain from 1801-1812. The main thrust of my thesis considers the significance of an early-nineteenth century audience for chemistry that was mostly female, as evidence from contemporary commentators suggests Davy's audience was.

With a little help from her father, Porden ran a small, informal literary society called 'The Attic Chest'. Members of the society were invited to submit writings to the chest to be discussed at the meetings held at the Pordens' home at 59 Berners Street, London. It was here that Porden was able to exercise her intellectual muscles, and chemistry was amongst the topics open for discussion. She submitted essays that reported the latest lectures, for example Davy's 1810 lecture on phosphorus at the Royal Institution.

In *The Veils* Porden gave her work credibility by referring to her attendance at the Royal Institution lectures in the preface. Knowledge acquired in the lecture theatre could not pretend to be 'extensive or profound' in Porden's view, but she believed it had to be correct as it came from the best teachers (citing Davy amongst others). At a time when women were excluded from university in England, Porden called herself a 'Pupil of the Royal Institution', referring to the Royal Institution as her 'Alma Mater' in her later letters to her husband, John Franklin.

A Walter Scott-style tale, *The Veils* describes the plight of three maidens and their stolen veils – in two instances the theft occurs whilst the heroine is undertaking a scientific pursuit. Porden populates an underworld kingdom with magical beings that are minerals and matter personified. Davy's recently isolated sodium and potassium (Davy demonstrated the violent reactions of these metals with water in the lecture theatre) make an appearance in an epic battle against the water nymphs, both burst into flames in mid-combat.

Whilst the use of poetry as a vehicle to popularise chemistry was not a new idea, *The Veils* encapsulated the latest chemical theories. The chemical allegory in *The Veils* can be used to measure the extent of Porden's knowledge of chemistry, and when compared against accounts of Davy's lectures from newspapers and other actors, we can conclude that Porden gained most of her chemical knowledge from her attendance at the Royal Institution lectures. Thus the Royal Institution provided a type of formal education to women in early-nineteenth century Britain when there were scant opportunities to learn chemistry outside of family networks.

Judith Mawer
Goldsmiths University of London

I was privileged to receive an award of £450 from SHAC which enabled me to make two visits to Oxford, during which I was able to conduct research in the archives at Jesus



College and through access to Rare Books and Manuscripts at The Bodleian Library. Biographical information relating to Thomas Vaughan (1621-1666), the subject of my doctoral research, is scant and derives primarily from details recorded in connection with the life of his twin brother, the poet, Henry Vaughan (1621-1695). It is consequently an aim of my research to try to reconstruct the milieu within which Vaughan studied, worked and circulated, in part by identifying the contemporary influences that may have informed the development of his 'theomagical' alchemy. My intention in visiting the archive at Jesus College, where Vaughan studied and was registered as resident between 1638-1648, was to see first hand the few extant records in which he is named, but also to examine records relating to the period, in particular to gather the names of his contemporaries and possible tutors, and to analyse the manuscript catalogues of library holdings for evidence of the types of books to which he would have had access. I was able to capture extensive photographic images of College registers, listing Vaughan and his peers; catalogues of books held and dispersed during the period of the Visitations; handwritten notes recording books borrowed by named individuals; and catalogues of major bequests of books, one gift containing a significant number of alchemical and chymical texts.

My time at The Bodleian Library was spent principally in examining the Ashmole manuscripts, especially as they related to Vaughan's identified sources and source materials. I examined too a relevant selection of alchemical manuscripts and Hermetic, Neoplatonic, Cabalistic and Rosicrucian texts. Several of these texts are potentially illuminating in the context of Vaughan, with items such as John Evelyn's gloss on the *Tabula Smaragdina* of Hermes Trismegistus and alternative English translations of the Rosicrucian *Fama Fraternitatis* and *Confessio* offering the possibility of comparison with Vaughan's own gloss and of the first English translation of the *Manifestos* that he himself brought to publication. Again, I have a vast number of photographic images of this material to process. In addition to the Ashmole manuscripts, I also examined those relating to John Aubrey, a distant relation of the Vaughan's, and the author of *Brief Lives*. Henry Vaughan provided biographical material regarding his, by then, late brother, Thomas, to Aubrey for inclusion by Anthony á Wood in *Athenae Oxoniensis*. There were two personal letters written and signed by Henry Vaughan to John Aubrey in the Aubrey Manuscripts, one being of particular interest to my research through an anecdote relating to the Welsh Bardic tradition that Hutchinson, in his biography of Henry Vaughan, thought stimulated both brothers' interests in nature and magic.

I have yet to analyse the photographic images, but I believe that some material will contribute significantly to my thesis, especially in relation to Vaughan's Oxford.

Hilde Norrgrén
University of Oslo

I received a New Scholars Award of £ 450 which contributed towards financing the research and writing of an article about the Norwegian priest, missionary, and practicing alchemist Hans Egede (1686-1758). The research was done in the National Library in



Oslo. I analysed Hans Egede's reports from Greenland to the Mission College, which were published after Egede's return from Greenland, and his natural philosophical writings about the nature of Greenland and the customs of the Inuits. Included in the reports to the Mission College is an account of an alchemical experiment performed by Egede. In the National Library I also studied alchemical texts in order to identify alchemical literature used by Egede, and looked into how this literature supports a theory about which method he used in his attempt to produce the Philosopher's Stone. The result is an article that I have submitted to *Ambix* with the hope that it will be accepted for publication.

Agnieszka Rec Yale University

A SHAC New Scholars Award enabled me to pursue manuscript research in the Vossiani Chymici Collection at the Leiden University Library. My primary focus was two sixteenth-century manuscripts which contain texts and recipes compiled by a family of Silesian alchemists; they reveal a wide network of practitioners both socially and geographically.

The manuscripts, Voss. Chym. F19 and Q29, are the personal recipe collections of Franciszek Mymer (c.1500-after 1568) and his sons. While his alchemical interests are as yet unrecognized, Mymer is known to scholars as a humanist and lexicographer who worked in then burgeoning book trade in Cracow as a translator and editor.

Examining how and why the Mymers created their collections paints a more nuanced picture of the early modern alchemical marketplace. The family picked up recipes from local adepts as they moved from Cracow and the sons eventually settled in Silesia, Bavaria, and Moravia. In some instances, they travelled in pursuit of recipes to places like Vilnius, and in others they copied short collections from acquaintances who had travelled themselves. The recipes contained in the family's manuscripts often record the name and occupation of their author, as well as the place and date of acquisition, and occasionally the price. This evidence demonstrates that the Mymers were part of a socially varied alchemical network, one which included not only prince-practitioners, but also monks, pastors, Teutonic Knights, professors, drapers, and weavers. In one instance, the procuring of a single recipe involved one Mymer, three goldsmiths, one imperial councilor, and one unnamed Polish voivode.

This alchemical network spread throughout Central and Eastern Europe, from Nuremburg in the west to Königsberg and Riga in the north and Olomouc to the southeast. The family and their manuscripts thus enrich the geography of alchemy in the region, which has long been dominated by the activities of the imperial court of Rudolf II in Prague and only recently expanded through studies of alchemy in Hungary and Poland. Furthermore, it is significant that the Mymers chose to look east for their recipes and found alchemists there to supply them: they not only confirm the importance of the 'fringes' of alchemy, but suggest that perhaps they weren't fringes at all.



While in Leiden, I also took the opportunity to examine the other pre-1600 holdings in the Vossiani Chymici collection, primarily to contextualize the Mymer manuscripts. In closing this report, I'd like to call attention to the richness of the collection, which is as yet rather underutilized. Particularly notable is the presence of several pairs or groups of related manuscripts that would support, as the Mymer manuscripts do, studies of collecting and/or reading practices, as well as the exchange of scientific knowledge. Some of these were owned by Emperor Rudolf II himself, while others come from the libraries of Bohemian noblemen Petrus Vok of Rosenberg (1539-1611) and Jan IV Zajíc z Hazmburka (1486-1553), as well as the German merchant Sebald Schwertzer (1552-1598). They would yield fruitful results through closer study.

David Singerman

Massachusetts Institute of Technology; Postdoctoral Researcher

My book project, entitled *Purity and Power in the American Sugar Empire*, traces struggles over knowledge about sugar's substance and value from the Caribbean to the Pacific. In particular, I am interested in the way that chemical science rather than artisanal knowledge became the means by which sugar was valued—a shift, as I argued in my 2014 PhD thesis, that emerged from struggles over skilled labor in U.S. custom houses, Glasgow machinery workshops, and Caribbean sugar factories. In transforming my thesis into a book, I hoped to link this Atlantic story to Hawai'i, which after 1875 became perhaps the most productive and technically advanced sugar-growing region on the planet.

With the support of the Society I was able to travel to Hawai'i for two weeks during August of 2015, to use the Special Collections Library at the University of Hawai'i's flagship campus at Manoa (UHM) in Honolulu. UHM holds the voluminous Plantation Archive of the Hawaiian Sugar Planters' Association (HSPA), composed of many hundreds of linear feet of records from 19th and 20th-century sugar companies.

The Plantation Archive proved an outstandingly rich source for my project. The collections are astonishingly detailed. A folder in the Olaa Sugar Company (OSC) collection identified as 'Sugar Sales 1904-1908,' for instance, contained receipts, invoices, manifests, and—crucially—chemical test results for every cargo of sugar shipped during those years, showing just how much the tiny variations in chemical practice by a laboratory in New York could matter to sugar producers halfway around the planet. Likewise, 'Mill Department' records in the decades after Olaa's incorporation in 1899 contain dozens of individual applications for positions as assistant chemist, along with comments and memos by OSC officials about the precise qualifications and training desired. And an entire folder of memos from the early 1920s was devoted to attempts by the Company's engineers and chemists to figure out why a certain run of production seemed so much less chemically pure than all the others. Over the next few months, I plan to process all the material I gathered over those two weeks, and in doing so I will also reconsider the level of temporal and material specificity of the questions I can ask of such an immensely detailed archive.



This research answered more than satisfactorily the question of whether Hawai‘i itself could profitably be included in my project. The UHM’s are the most complete archives of which I am aware for studying how the sugarcane plant was shaped into one of the most important commodities of modern history. Indeed, it now seems impossible not to imagine a work on the chemical transformation of sugar that does not include these archives. I fully expect to return to Honolulu several more times before completing my book manuscript, not just to use the resources at UHM but also to explore the islands’ other publicly- and privately-held collections, and I am grateful to SHAC for expanding the bounds of my project.

Joppe van Driel
University of Twente

Chemistry and resource management in the eighteenth century, report on a research project.

Chemical fertilizers and preservatives today stand among the most disputed chemical materials. Nowadays often made subservient to corporate profit or denounced by scientists and environmentalists for wreaking havoc on ecosystems and public health, the histories of fertilizers and preservatives as objects of chemical inquiry reveal that different values once were at stake. Emerging as objects of inquiry and commerce at the onset of the industrial revolution, their histories show chemists deeply involved in the politics of resource management. While engaging with fertilizers and preservatives, eighteenth-century Western-European chemists participated in national programs to recycle nutrient-bearing wastes and extend the shelf life of commodities to make long-term access to resources possible from within state borders. During my residence at the Max Planck Institute for the History of Science in Berlin I studied these dynamics, between chemistry, commodities, wastes and state politics. I was part of a working group on the *Histories of Planning*. The facilities in Berlin allowed me to examine fertilizers and preservatives in eighteenth-century Dutch and German settings. I found out that chemical classifications of manures and soils developed by prominent German chemistry teachers like Gmelin and Wiegleb were adopted by Dutch state officials to inform national legislature geared to re-allocate urban wastes in arable agriculture in the newly unified Netherlands around 1800. Meanwhile, Dutch entrepreneurs designed procedures to couple salt refining to the reclamation of soda and sal ammoniac from salty leftovers; processes in turn studied by Prussian officials. Studying the history of chemistry as part of *Histories of Planning* makes one receptive to the political nature of these endeavors. I learned to understand these forms of chemical inquiry as explicit attempts to plan what eighteenth-century actors called a ‘durable’ national resource management that would foster state independence.

The research activities that I undertook in Berlin unfolded at three levels:

Sources. The library services allowed me to study not-yet-digitalized primary sources – such as Gmelin’s *Einleitung in die Chemie* (1780), extensively cited in Dutch sources – as



well as obscure secondary literature, like the *Bulletin des Engrais* (1937), describing the discovery and chemical assessment of special fertilizing coal ashes in the 1750s.

Historiography. I attended a masterclass by Kathleen Morrison on methodology in environmental science and history. Colleagues from environmental history drew my attention to the agency of soils, crops and wastes, as chemists tried to master their properties in the hopes of shaping a collective future.

Collaboration. I teamed up with dr. Bertrand Guillaume, who works on the history of geo-engineering and sustainability. We plan to write an essay for the journal of industrial ecology on the long-term history of resource management and recycling.

All in all, in Berlin I learned to appreciate the hybrid historical identity of fertilizers and preservatives, as simultaneously epistemic objects, marketable commodities and subjects of environmental change.

Other Reports

09-12 September 2015

Tenth International Conference for the History of Chemistry (10ICHC)

Chemical Biography in the 21st Century

University of Aveiro, Portugal



The **Tenth International Conference for the History of Chemistry (10ICHC)** of the Working Party on the History of Chemistry (EuCheMS) was held on 9-12 September 2015 at the University of Aveiro, Portugal. The theme of the meeting was ‘Chemical Biography in the 21st Century’. Biographies—whether in the form of books or articles—have always been an important genre in the history of chemistry. General histories of chemistry have indeed often taken a biographical approach. Many chemists have written autobiographies, which, along with the formal obituaries produced by national academies of science, have formed an



important source of information for historians of chemistry. This conference was an opportunity to critically examine how the genre evolved and explore ways in which the biographical approach can be fruitfully employed by historians of chemistry and chemists, especially at a time where manuscript and typed documents are disappearing, and dealing with problems historians can face with the migration to electronic communication where it is also possible to make sources disappear at a button click.

The conference was a successful event, and gathered more than 60 participants from 21 countries and 3 continents. Most participants came from European countries, but there were also participants from USA, Japan, Colombia and Brazil. Even more encouraging was the stronger presence of the younger generation, new faces from countries that were not yet represented and the presence of colleagues from the Division of the Chemical Education.



The program combined keynote lectures and thematic sessions with shorter papers. The opening session at the Fábrica Centro Ciência Viva, Science Center of the Aveiro University, was attended by the Rector of the University of Aveiro, Professor Manuel

Assunção, who welcomed the participants, and the President of the Portuguese Chemical Society, Professor Maria José Calhorda, and the key-lecture that followed featured the reputed Portuguese chemist Jorge Calado (Technical University of Lisbon) who gave a lecture entitled 'Ghost Science. Writing the history of 21st century science'. In her key-note 'Towards a Biography of Carbon at the Intersection Between Nature and Culture', Bernadette Bensaude-Vincent (University of Paris 1 Panthéon-Sorbonne) explored how

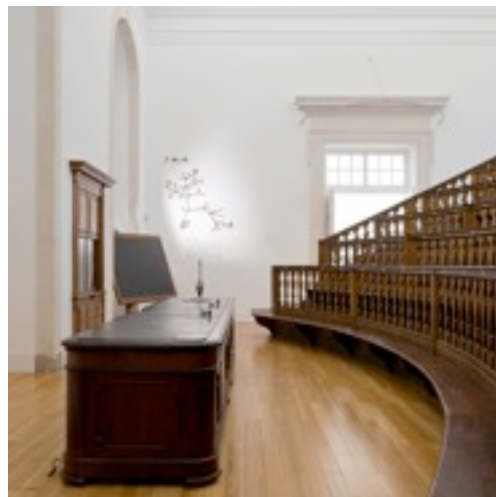


choosing to write a biography of a scientific object might add to the usual narratives in the history of chemistry and get deeper into the specific essence of the science. By asking 'Who Doesn't Get a Biography in the History of Chemistry?', Michael Gordin (Princeton



University) analyzed the reason why certain important figures such as Paul Walden, or Wilhelm Ostwald, as well as other less known but nevertheless crucial actors, are still missing a decent biography.

The remaining part of the two and half days was split into two parallel sessions that hosted 50 papers, concentrated on a wide range of themes, including Translation, Textbooks, Oral and Digital Sources for Recent History, Controversies and Autobiographies, Myths and Misrepresentations, Prosopography, Dictionaries and Sets of Biography, Historiography, Discipline Building, Biography and History of the Laboratory, Biographies and History of Chemical Engineering. The detailed program and conference book can be found at <http://10ichc-2015.web.ua.pt/>



The social programme included visits to the beaches of Costa Nova and Barra, the ‘moliceiro’ ride through the urban channels of Ria as well as the traditional conference

dinner, but the high point remained the visit to the Museum of Science, the former Laboratório Chimico, the Cabinet of Physics (18th and 19th centuries instruments beautifully preserved) and University of Coimbra, as well as the cellars ‘Caves Aliança’ and Berardo collection. An extra excursion was made to the Douro region.



Dr Brigitte Van Tiggelen, Director of Operations and Outreach, Chemical Heritage Foundation; Chair, Division for the History of Chemistry of EuChemS



17 September 2015

Humphry Davy's Apprenticeship in Penzance Celebrated

Like several members of the SHAC Council, I am also a member of the Historical Group of the Royal Society of Chemistry (RSC). In the latter capacity, I had the pleasure in September of acting as master of ceremonies at the presentation of a blue 'National Chemical Landmark' plaque in Penzance, Cornwall, the south-west extremity of the British mainland.

The plaque now adorns the building where from 1795 to 1798 Humphry Davy was apprenticed to an apothecary. The plaque's acknowledgement of Davy's master, John Bingham Borlase, is fitting: Borlase, recognising Davy's outstanding talents, generously gave Davy early release from his indentures so that he could begin his career in scientific research.

The RSC is a large organisation (over 50,000 members and an income exceeding £50M) and its remit includes promoting chemistry and the chemical profession to the general public. Unlike SHAC, which is small

and exclusively scholarly in its aims, the RSC can justify generous funding – exceeding £2000 – for such an event as this. The event, which involved about 40 people, including prominent local figures, was followed by a reception, and was 'trailed' and reported by the local media. In the following group photograph taken in front of the town's imposing statue of Davy – and including the Mayor of Penzance and the Head Girl and Head Boy of the local Humphry Davy School – the building on which the plaque has subsequently been installed is the white-painted corner building to the left of the picture. The building was a pharmacy from the time of Borlase and Davy until 2011.

As well as serving a promotional function for the RSC, the event served a scholarly one by providing the occasion for a lecture by Frank James (professor at the Royal Institution and at UCL, a SHAC Council member, and third from the right in the group photograph). In his





lecture, Frank examined how Penzance influenced Davy, imbuing him with a Romantic spirit and, when he was in London at the Royal Institution, giving rise to a sense of alienation.

The RSC plaque scheme, which began in 2001 with a plaque at the Johnson Matthey Research Centre in Berkshire, England, complements at a different level work which has been published in *Ambix* and presented at SHAC meetings under the banners ‘Sites of

chemistry’ and ‘Situating chemistry’. A list of RSC plaques can be found at https://en.wikipedia.org/wiki/List_of_blue_plaques_erected_by_the_Royal_Society_of_Chemistry The design of the plaques has changed several times over the years (the early ones being rectangular, black on silver, such as the one at Moss Bros, 299 Oxford St, London identifying the location of the Royal College of Chemistry up to 1872).

Michael Jewess, SHAC Treasurer

30 October 2015

**6th SHAC Postgraduate Workshop:
Alchemy & Chemistry in Sickness & in Health
*Maison Française d' Oxford***

Having enjoyed the hospitality of the University of Amsterdam for last year's postgraduate workshop, as part of a new initiative to alternate locations between the UK and continental Europe, it was the Maison Française d' Oxford that this year provided the venue and acted as generous hosts for this annual event. The postgraduate workshop is an important feature of the SHAC calendar, bringing together graduate and postdoctoral researchers, along with colleagues in the field, to focus on a theme which, this year, was an exploration of how alchemy and chemistry have impacted, both intentionally and unintentionally, on the health and wellbeing of the population.

The workshop provides a safe and supportive environment that enables researchers, relatively new to presenting, to gain useful experience; it is a great opportunity to meet,



learn from, and share ideas with others; and it provides access to scholarship in the history of alchemy and chemistry, both from peers and from established academics. This year, we were again successful in attracting over twenty participants.

The morning session was devoted to a history of chemistry panel and first to present was postdoctoral researcher, Dr Elena Serrano. Elena's paper examined, through the example of the adaptation by the Spanish government of Louis-Bernard Guyton de Morveau's (1737-1816) fumigating machine, how the new chemistry was, by the turn of the nineteenth century, being employed as a political tool to convey a progressive and reformist image of the monarchy. Guyton's fumigating machine, which he had developed in collaboration with Paris-based instrument makers, the Dumotiez brothers, acted by dispersing a controlled emission of an 'oxygenated acid', intended to destroy contagious miasmas. With the outbreak of Yellow Fever in 1804, the government in Spain sought to have the machine adapted for widespread use, thereby introducing the notion of public health protection and promotion. Reliant on Lavoisian chemistry, which had identified the oxidation properties of acids, the fumigating machine exemplifies how chemists and chemistry were emerging as 'modern' solutions to the spread of contagion. Equally, the case demonstrates how medical and technological advances offered political capital and enhanced popular support for those individuals or governments seen as effecting their introduction, for the public good.



Catherine Rushmore's (*Oxford Brookes University*) paper brought us forward to the twentieth century, more specifically the period between 1930 and the 1980s, when chemicals increasingly became part of the domestic environment. Products were manufactured and sold for use in the home and garden; to kill germs, remove limescale, lift dirt, eradicate weeds, process photographic film, and many other everyday purposes, but to a consumer who had little knowledge of their potential danger. As a consequence, chemicals could be misused accidentally, while the absence of appropriate regulation meant they might also be used with the deliberate intention of threatening or causing harm. Catherine's presentation examined how, through increased recognition of the need to educate the public in the safe use of chemical products, and to control access to or the ready availability of particularly hazardous chemicals, industry regulation emerged,



alongside enhanced labeling, public information strategies, and the creation of bodies to oversee health and safety. With the requirements and motivations of a range of stakeholders to consider, this proved to be a complex and fascinating episode in the commercial history of chemistry.

Presenting the keynote paper and bringing the history of chemistry panel to a close this year was Professor Robert Flanagan of King's College and King's College Hospital NHS Foundation Trust, London, where, in 2007, he was appointed Consultant Clinical Scientist and Director of the Toxicology Unit. A Fellow of the Royal Society of Chemistry and the Royal College of Pathologists, and an Honorary Fellow of the Royal College of Mental Health Pharmacists, Prof Flanagan's eminent career also saw him elected President of the British Academy of Forensic Sciences between 2013-2015.



In his presentation to the workshop, Prof Flanagan used the example of the drug, Clozapine, used to help alleviate the symptoms of schizophrenia, to illustrate how pharmaceutical chemists strive to develop or refine medications, based on the effectiveness or reported negative side-effects of previous treatments. Clozapine emerged in the 1970s as a successor to Chlorpromazine, which had first been synthesised in 1951, and was classified as a typical antipsychotic medication. While Chlorpromazine was, and continues to be, helpful in managing the symptoms of psychosis in some people diagnosed as having schizophrenia, the nature of psychiatric symptoms is such that drugs will seldom be successful in all cases and that, for many, the side-effects may compromise physical health and wellbeing. Prof Flanagan explained how, using what they knew and understood about the chemical composition and effects of Chlorpromazine, chemists strove to synthesise a drug that might be more effective in ameliorating psychosis and produce fewer health-compromising side-effects. The resulting medication was Clozapine.

In the absence of a fuller understanding of the impact of schizophrenia on brain chemistry, or of the processes by which certain chemicals act to relieve symptoms, the evidence for the effectiveness of drug treatments must largely be empirical. Prof Flanagan explained how, recognising that Clozapine was neither successful nor tolerated in all cases, chemists had, over the years, experimented with making adjustments to the compounded elements, but had not arrived at a formula that was more effective, or had fewer negative side-effects, for the treatment of psychosis. The presentation offered a fascinating insight into the history and complexity of developing drug treatments for the management of distressing psychiatric symptoms.



The afternoon History of Alchemy panel began with a presentation by Lyke de Vries (*Radboud University Nijmegen*) on a hitherto unexamined report, commissioned by the Congregation for the Index of Forbidden Books, into the works of the controversial physician, Paracelsus (1493/4-1541). Paracelsus had alienated many physicians by his attempts to overthrow the prevailing ancient and eminent medical authorities, Galen and Avicenna, thereby attracting negative interest in his ideas and practice. His primary innovation lay in his espousal and use of chemical medicine, but it was his overt challenge to orthodoxy and his subversive nature that led to his works being placed on several sixteenth-century indices of forbidden books.



Having set this context, Lyke's paper explained how it was the German physician and papal botanist, Johannes Faber (1574-1629), who was chosen by the Congregation to investigate more thoroughly Paracelsus' German works. In examining the resultant report, she identified that, unlike inquiries made in the sixteenth century, Faber did not

investigate Paracelsus' work solely from a confessional perspective, but rather he looked too from the perspective of doctrinal medicine and natural philosophy. In consequence, Faber's report adopted a more moderate and balanced position in relation to the works of the notorious physician.

Elisabeth Moreau (*Université Libre de Bruxelles/Radboud University Nijmegen*) also touched upon the Paracelsian challenge to Galen in her examination of the chymical nature of the bodily vital principle, which had been the subject of extensive debate in the medicine and chymistry of the late Renaissance. Where Galen had related the vital principle to innate heat, Paracelsus had proposed the notion of balsam and vital sulfur. The two definitions were not, however, exclusive and Elisabeth sought to demonstrate this by examining how two philosophically divergent chymists expressed the features of the vital principle. The chymists she chose were the Danish physician Peder Sørensen or Severinus (1540-1602) and the German physician Andreas Libau or Libavius (1555-1616). By considering specifically the chymical account of elements, *tria prima* and seminal virtues expounded in



Severinus' *Idea medicinae philosophicae* (1571) and Libavius' *De medicina veterum tam Hippocratica quam Hermetica tractatus* (1599), the mutual influence of physiology and chymistry became apparent, along with their impact on early modern matter theories. While Severinus promoted a *prisca medicina* rooted in Hippocrates and Paracelsus, Libavius adopted a compromise between Galenic medicine and medieval alchemy. Nonetheless, both chymists provided a description of the components of the healthy human body, in connection with the vital principle.

Curtis Runstedler (*Durham University*) took us back to the alchemy of late medieval England with his examination of the subject as expressed in the *Confessio Amantis* of John Gower. His particular focus was the moral practice of alchemy during a period when it was often perceived in clerical circles as fraudulent, yet could equally be praised elsewhere for its potential for spiritual transformation. Gower himself praised alchemy as virtuous, celebrating it as the highest form of human labour. In the *Confessio Amantis*, Runstedler argues, alchemy is depicted within a moral framework wherein it is important both as a physical science and a philosophy for healthy living. It is greed that misleads the alchemists into misusing their craft for immoral practice.

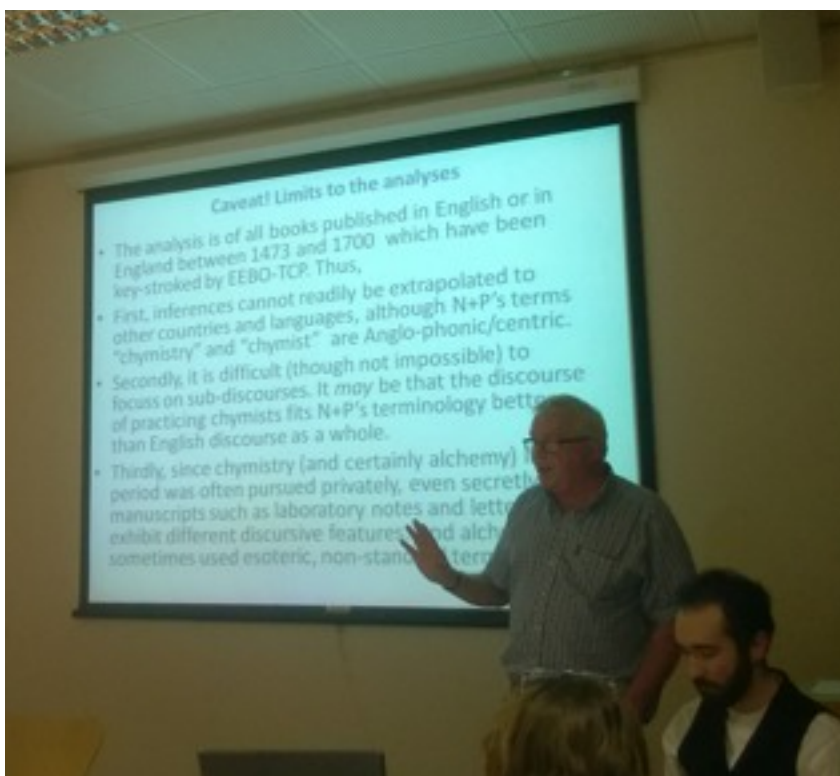
Used with good moral intentions, however, it is possible, through contemplation, virtuous study, and good economic sense, for alchemists to acquire spiritual well-being. The presentation described, by reference to Gower, how alchemy in the late medieval period could be perceived as a philosophical activity that encouraged the betterment of human behaviour and positive spiritual growth. What he was offering was a moral *exemplum* that illustrated the potential for alchemy to reveal divine truths so that, when used with virtuous intent, spiritual well-being would be enhanced.

Workshop participants enjoyed listening to a selection of readings from the *Confessio Amantis* in which Curtis demonstrated his mastery of Middle English.



The final paper of the day came from our second keynote speaker, Dr Stephen Pumfrey (*Lancaster University*), who was supported in his presentation by graduate student, Paul Ashcroft (*Lancaster University*). In a very lively session, Dr Pumfrey introduced participants to the work that they have been undertaking at Lancaster, using Computer Corpus Linguistics to interrogate key-stroked searchable texts.

In order to illustrate the contribution he believes this methodology can make to a more historically accurate understanding of contemporary language, Dr Pumfrey chose to examine the case, made by William Newman and Lawrence Principe, for the use of the term 'chymistry'. SHAC itself has been at the forefront of debates around how to approach the similarities, differences and tensions between 'alchemy' and 'chemistry' in early modern



Europe. The presenters claimed that Newman and Principe's argument suggested that historians of English alchemy and chemistry should adopt 'Chymistry' as an actors' category, thereby addressing the common perception of alchemy as pseudo-scientific, and prior to the more modern and scientific discipline of chemistry.

Paul, who is undertaking postgraduate research on alchemy in seventeenth-century England, presented an introduction to the principles of computer

corpus linguistics. Using the key-stroked and searchable texts of Early English Books Online (EEBO), work has been undertaken at Lancaster University to transform these texts into a corpus which can be interrogated, thereby facilitating the analysis of language employed in works produced within a specified period. Employing this methodology, it had been possible to examine the texts for evidence of the historical use of the term 'chymistry'.

In presenting the results of their textual analysis of the EEBO corpus, Dr Pumfrey pointed out that the term 'chymistry' appeared not to be in popular use in the English language during the seventeenth century, evidence he interpreted as suggesting that the corpus linguistics methodology might offer a significant challenge to Newman and Principe's thesis. He went on to suggest that this analytical method could be used to evidence the



seminal role played by Robert Boyle in the creation of early modern scientific language.

The presentation provoked a lively debate, with participants seeking to clarify Dr Pumfrey's interpretation of Newman and Principe's thesis and exploring both the utility and the consequences of employing computer corpus linguistics in historical research. This debate, which engaged all participants and proceeded to occupy the entire roundtable discussion session, even spilled over into the post-workshop networking, with Dr Pumfrey kindly joining us in a local hostel. It was a stimulating end to an excellent workshop.

The workshop, which was organised by the SHAC Student Representatives, Judith Mawer (*Goldsmiths, University of London*) and Mike Zuber (*University of Amsterdam*), was the subject of positive feedback and reinforced the value of these SHAC events. The organisers would like to thank John Christie, colleagues at the Maison Française d' Oxford, keynote speakers, presenters and all participants for making this such a successful event.

Judith Mawer, *Goldsmiths, University of London*

Photographs: Mike A. Zuber, *University of Amsterdam*

30 October 2015

SHAC Autumn Meeting:
Chemistry and its Audiences
Royal Institution, London

The Society for the History of Alchemy and Chemistry were again guests of the Royal Institution for the AGM, which was organised alongside a day of workshop presentations focused on the audiences that chemistry has attracted and continues to attract. The event attracted an audience of over thirty people, who were welcomed by SHAC's Chair, Dr Robert Anderson.

The first presentation was delivered by **Oliver Marsh** (University College London), who brought the subject right up to date by examining audiences for chemistry in the 21st century. In his research, Oliver has returned to basics in order to analyse definitions relating to the language used in this field, asking fundamental questions, such as 'what is an audience', in the context of chemistry. This has enabled him to develop a methodology that will allow an objective and unambiguous assessment of trends. It also considers the impact of ethnography and sociocultural factors, establishing the significance, within audience research, of context. The 21st century, characterised by an ever-increasing range of digital, web 2.0 based and social media options, both for disseminating and contributing to knowledge and learning, has enhanced access and revolutionised the means by which audiences for chemistry 'gather'. Examining their motivations for doing so, Oliver draws the conclusion that, in the 21st century, audiences themselves are broadly similar in composition to those of previous eras, and that only rigorous research will inform change.



Hattie Lloyd (University College London), chose in her presentation to explore the composition for Humphry Davy's audiences, looking in particular at the period 1801-1812, during which he lectured at The Royal Institution. Hattie has been making a detailed study of the Manager's Minutes at the R.I. in order to examine the popular claim, that women formed a significant element of Davy's audience, because they were attracted by his good looks. The Minutes, however, record mainly the names of men, largely from fashionable Mayfair addresses, their womenfolk, who accompanied them, not being listed. Hattie's thesis is that the historical narrative is misleading and that there is evidence to corroborate the view that many women were in attendance through a genuine interest in chemistry. She cites in particular the case of Eleanor Anne Porden, whose small literary society, *The Attic Chest*, demonstrates a real engagement with the by women with the subject matter of Davy's lectures. Eleanor herself contributes a report about Davy's lecture on phosphorous and writes poetry about science and chemistry. She suggests too that the Napoleonic Wars had sparked an upsurge in patriotism amongst women, and an antipathy towards the French chemistry of Lavoisier, countered by a concomitant championing of Davy. Hattie concluded her presentation by showing a contemporary cartoon, from which it was apparent that the women in Davy's audience were attending to, rather than swooning at his words, and that the defamation might instead have been a product of the Romanticism prevailing at this time.

The gender balance and motivation of the audience for chemistry was also a key consideration for **Dr Robert Anderson** (Clare Hall, Cambridge) in his presentation on the chemistry lecture theatre. Women could attend public lectures in chemistry, but they were not to be seen entering by the front door. Again, the inference was that women were attending because of the attraction of the male lecturers. These public lectures, delivered by figures such as Sir Thomas Hope, who succeeded Black, in Scotland; Rotherham at St Andrews; and the blind Henry Moyes, a Scotsman, who moved from Manchester to lecture in Boston, New York and Philadelphia, were hugely popular and attracted audiences of up to 1200 people. There was a strange connection evident between chemistry and fashionable society and chemistry, as epitomised by Davy at The Royal Institution.

In cartoon accounts of public chemistry lectures, men are shown taking snuff in order to stay awake, while smartly dressed women are shown attentively taking notes. In illustrations dating from 1825, a couple are depicted canoodling during a lecture at Anderson's Institution while, at the Mechanics' Institution, the all-male audience comprises men from the lower strata of society. By 1878, men and women were being taught together at university, while at Cambridge, Miss Freunot would at a later date, lecture in chemistry to mixed classes. By the 19th century, there was a fall in interest in chemistry amongst the general public and, where in 1799 only 18% of the audience for a chemistry class were medical graduates, this had risen dramatically during the eighteen hundreds. It seems that other attractions, such as great exhibitions, had now become the fashionable places for society.



John Perkins (Oxford Brookes University) transported participants to 18th-century Paris in his presentation, to examine how the audiences for chemistry influenced its development. The provision of chemistry courses saw a surge between 1761, when there 1150, and 1786, when the number rose to 3490, François Rigaut reporting in 1788 that around 45,000 people had studied chemistry in Paris since 1740. In analysing the composition of the audience, John identified the largest group as comprising those attending public courses in search of spectacle, while there was another group of individuals who paid to learn privately: in both cases, neither group sustained their interest. Another group were the students of medicine, pharmacy, and surgery, who attended to satisfy their course requirements. A fourth group, numbering around 300 in 1786, were the serious students of chemistry.

John described the social organisation of chemistry, which continued to include privileged groups of distinguished individuals, for whom new forms of scientific sociability emerged; but also saw the creation of public chairs in chemistry, increased systematisation of practice, and the emergence of career opportunities. New courses in chemistry arose in prestigious venues across Paris and chemistry became less hierarchical, more accessible and understood as being modern and up-to-date. This progressive model for chemistry changed with the fragmented politics of France in the 1780s, the Académie and the emergence of Lavoisier marking a reassertion of control, away from public arbitration.

The Chemical Revolution (1785-1790) was relatively short-lived and had not, in effect, started in 1785, around 8,000 people having been exposed to Lavoisian chemistry between 1777 and that date, with up to 1,000 remaining actively engaged. The adoption and rejection of elements of Lavoisian chemistry created a lack of coherence and caused turbulence in Parisian chemical circles. Nonetheless, there was a rapid growth in the chemical industry emerging in France, and centered on Rouen, Paris, Lyon and Marseille.

John concluded that the audiences for chemistry in Paris, and especially those for the public courses, played a crucial role in advancing chemistry in France and in many ways shaped its development.

Following the presentation of the SHAC prize for the best History of Chemistry Oxford Part II Thesis, 2015, to Ms **Mahnoor Naeem** (Keble College), reported on page 16, the final paper of the day was given by **Melanie Keene** (Homerton College, Cambridge). From Paris, we returned not just closer to home, but to home itself, as the family became a site for chemistry in the 19th century. Here the chemistry of everyday life took the form of cooking, cleaning and maintaining health and with this, a genre of books emerged to educate the family in this new science. Melanie offered a number of examples, starting with the snappily titled *Conversations on Chemistry in which the Elements of that Science are Familiarly Explained and Illustrated by Experiment* (1832). These texts frequently employed a child asking questions of an adult, as in *Breakfast-table Science* by J.H. Wright (1840) of *The Chemistry of a Candle*, in which a child has attended Faraday's lectures and 'has been full of it ever since'. In this instance, it is the boy, Harry, who, having attended



the lectures, is the authority and could be achieving so much more, if only he had the right equipment. In consequence, he is promised a galvanic battery for his next birthday.

It is apparent from this literature, and its allusions to items of contemporary interest, that the need for the young generation to learn about science is imperative, and that this ought to be a family pursuit. Young people, such as the Darwin brothers, Charles and Erasmus, and Isabella Herschel, daughter of Astronomer, William, provide examples from real life, modeling intergenerational learning and the desirability of, what is essentially, this middle-class attainment.

Dr Keene's presentation, complete with attractive illustrations, provided an entertaining, as well as informative end to a very stimulating workshop.

Judith Mawer, Goldsmiths, University of London

19-22 November 2015

HSS (History of Science Society) Annual Meeting *San Francisco, USA*

On 19-22 November, nearly 800 registrants from many countries gathered in San Francisco for the annual conference of the History of Science Society. It was one of HSS's largest meetings in recent years, and the history of chemistry and alchemy was well represented. The conference began with a delightful opening plenary entitled 'Passing the Book: Bringing Early Modern Readers to Life.' The audience was treated to a mini-play reconstructing and re-enacting the formation of a landmark collection of annotated chymical books in colonial New England, the library of John Winthrop, along with associated events in England. Dramatis personae included various members of Winthrop's family, as well as Elias Ashmole, Edward Howes, and John Dee and his son. The players were Jennifer Rampling (as John Dee), Ann Blair, Frederic Clark, Anthony Grafton, Madeline McMahon, and Richard Calis. The event was carried off with panache, and it received rave reviews.

Three sessions were sponsored by the Society's chemical interest group, the Forum for the History of the Chemical Sciences (FoHCS). The first of these, organized by Carin Berkowitz, was entitled 'Chemistry in (Practical) Context: Connecting Eighteenth-Century Chemistry to its Uses.' It featured talks by Charlotte Abney Salomon on chemists and cartographers in Sweden; by Simon Werrett on Lomonosov's mosaics factory; by John Stewart on chemical physiology in the Scottish Enlightenment; and by Lissa Roberts on coal and its contexts.



The other two sessions sponsored by FoHCS were a two-part symposium organized by Yoshiyuki Kikuchi entitled ‘After Ypres: The Integration of Science into War.’ The first part focused directly on chemists and chemistry, and featured presentations by Kathryn Steen on the U.S. role; by Etienne Aucouturier on the French story; by Matthew Shindell on Harold Urey and pacifism; and by Jeffrey Johnson on Fritz Haber. The second of the two connected sessions focused on reactions to the use of chemical warfare: Molly Girard Dorsey spoke on the Geneva Protocol; Robert Bud on discourses in 1920s Britain; and Walter Grunden on the Japanese story. (See **expanded report**, pp. 43-46)

At least three additional sessions had alchemical and chemical themes. The session ‘Chemistry in Action’ featured Ruben Verwaal speaking on the chemistry of blood in 18th-century medicine, Marieke Hendriksen on Boerhaave’s mineral pharmaceuticals, Kristen Schranz on James Keir, and Molly Laas on Eben Horsford’s consulting role regarding Union rations in the American Civil War. In ‘The Sciences of Taste’ we heard Nadia Berenstein on taste panels as laboratory instruments, Steven Shapin on the chemistry and connoisseurship of wine, Christopher Phillips on Maynard Amerine and the statistical measure of expertise, and Sophia Roosth on molecular gastronomy and the biochemistry of cuisine. And in ‘Panaceas, Preparations, Poison, and Proof: Universal Remedies in Early Modern Europe,’ talks included Fred Gibbs on 16th-century poisons, Alisha Rankin on antidotes and panaceas, Bruce Moran on Leonhard Thurneysser, Joel Klein on potable gold, and Michelle DiMeo on Boyle’s medical recipes.

Even this was not the end of the riches, for there were a number of additional presentations on chemical topics in mixed sessions. For instance, Mary Jo Nye and Catherine Jackson both participated in a roundtable session on the role of biography in the physical sciences; Peter Ramberg presented a paper on Johannes Wislicenus; Matthew Sargent spoke on chemistry and commerce in the Dutch East Indies; John Powers gave a paper on thermometry and the chemical arts in 18th-century Britain; and Catherine Jackson presented a talk on chemists’ histories and the history of chemistry.

The meeting was so lively and diverse, and the representation in history of chemistry and alchemy was so full, that I am sure that I must have inadvertently neglected some presentations that should have been included in this summary. What is certain, though, is that our community got full value of intellectual treats at HSS in San Francisco—which went along with beautiful autumn weather in the City by the Bay.

Prof. Alan J. Rocke, *Case Western Reserve University, Cleveland, Ohio*



19-22 November 2015**FoHCS (Forum for the History of Chemical Sciences) in Action
at HSS Annual Meeting
*San Francisco, USA***

Attendees at the annual meeting of the History of Science Society, held in San Francisco this past November 19-22, witnessed the vibrant activities of the Forum for the History of Chemical Sciences (FoHCS). This year's Programs Committee (Yoshiyuki Kikuchi, chair, Jennifer Rampling, and Carin Berkowitz) organized several well-attended sessions, including 'Chemistry in (Practical) Context: Connecting Eighteenth-Century Chemistry to Its Uses'; and two sessions co-sponsored with the Commission on the History of Modern Chemistry and the Forum for the History of Chemical Sciences: 'After Ypres: The Integration of Science into War, Part I: Chemistry and Chemists through War' and 'After Ypres: The Integration of Science into War, Part II: Reactions to the Integration of Science into War.' At the annual FoHCS business meeting, the audience received a rousing set of three 'quick-fire' presentations, refereed by Jennifer Rampling. Donna Bilak kicked off the two-minute 'tell us why your field is the most interesting one to study in the history of science' tourney, with a speed-read through Emblem 17 from Michael Maier's *Atalanta fugiens* (1618). Bilak demonstrated how this emblem's image of four fiery interlocking spheres (as an allegorical depiction of a sublimating furnace) allegorically described the operation of sublimation, used as a laboratory process of purification in making the philosophers' stone. Evan Hepler-Smith (and this year's winner of Nathan Reingold Prize) provided 120 seconds on a central feature of chemical sciences: chemical names. His presentation featured a history of ideas regarding chemical representation and classification, a political history of the national and international organization of chemistry, and a history of scientific information technology in and beyond the chemical sciences. The winning presentation, offered by Charlotte Abney Salomon, focused on the chemical sciences in Gustavian Sweden, and the significant political impact upon mineralogical chemists working within the government Bureau of Mines, and in turn, their own impact upon political debate.

Plans for the Three Societies Meeting are underway, in which FoHCS will host a submitted paper session on 'Chemistry at the Guillotine' that examines chemistry and politics in the context of early nineteenth-century Europe, following the political upheavals of the American and French Revolutionary Wars. The session was organized by Charlotte Abney Salomon of Yale University and Hattie Lloyd of University College, London and will feature papers by them and also by Frank A. J. L. James of University College, London.



The Forum currently has plans for hosting a co-sponsored roundtable forum with the Society for the History of Physical Sciences and paper session for next year's annual meeting in Atlanta, Georgia. In addition, the Executive Committee, Robert Bud and Margaret Garber (chair) thanked the energy of Carin Berkowitz on the Programs Committee and Executive Committee members Peter Ramberg (chair), John Powers, and Evan Hepler-Smith, all of whom stepped down after two years service. The Forum welcomes Joel Klein onto the Programs Committee and Donna Bilak, and Charlotte Abney Salomon, onto the Executive Committee.

Dr Margaret Garber, Associate Professor, *California State University, Fullerton*

19-22 November 2015

Commission of the History of Modern Chemistry (CHMC), International Union for the History and Philosophy of Science and Technology, Division of the History of Science and Technology (IUHPST-DHST), sessions co-sponsored by the Forum for the History of Chemical Sciences (FoHCS), at HSS Annual Meeting:

After Ypres: The Integration of Science into War
San Francisco, USA

The aim of this two-part symposium was to investigate how the first gas attack, launched in Ypres, on 22 April, 1915, impacted on the involvement of chemists and more generally scientists in times of conflict, and how the image of science, in the public's opinion, was affected by these involvements. For this reason, while starting with World War I, the papers also covered later periods, touching upon nuclear weapons and the aftermath of the second world war, as well as international efforts to ban chemical and biological, as well as nuclear, weapons.

Part I of the session concentrated on the dual role of chemists and dual use of chemistry through wartime.

Although chemical warfare had a negative reputation by the time the United States joined the war, American chemists and chemical engineers saw opportunities in World War I to raise their profession's prestige. Mobilising for war gas production posed a challenge for Americans, however, not least because gases were products Americans never made or sold to the Europeans prior to April 1917. In her paper, **U.S. Chemical Warfare in World War I: The Gas Networks**, **Kathryn Steen (Drexel University)**, described how several networks emerged and evolved that linked academic and industrial chemists to one another, according to patterns that diverged from mobilising other war material.



When, in 1905, Trillat became head of the Pasteur Institute's applied hygiene research department, his main engineering activities consisted in producing chemical disinfection devices. In the course of his researches, he created an original epidemiological theory of aerosols, that proved useful when the research programme integrated the design of biological and chemical agents before and during World War I, as **Etienne Aucouturier (University of Ghana and French Ministry of Foreign Affairs)** showed in his paper; **Auguste Trillat and the Foundations of the French Biological and Chemical Weapons Program**. In this sense, Auguste Trillat is exemplary of the early XXth century interconnection between science, engineering and modern warfare in France, as his role was jointly political and scientific.

In his contribution, **A Man of Peace in Times of War: Harold C. Urey, Pacifism and National Service in the Two World Wars**, **Matthew Shindell (Harvard University)** sketched the shaping of Urey's actions and speeches through and after two world wars in which, despite his peace church upbringing and his life-long commitment to pacifism, he participated as a scientist preparing explosives or leading the uranium separation efforts for the Manhattan Project. Both war efforts allowed him to achieve a new self-definition – important to a man self-conscious about his ethnic German heritage and his “peculiar” religious upbringing, and this redefinition benefited Urey's further career.

Should Fritz Haber have been tried as a war criminal? This is the question and subtitle of **Jeffrey Allan Johnson (Villanova University)**'s paper entitled **On the Social Responsibility of the Scientist in Wartime**. While this question might seem counterfactual, and therefore outside the historian's scope, it is relevant as an intellectual exercise within the larger perspective on how scientists situate themselves in time of conflict and how this role is perceived by the public. Fritz Haber's role as the scientific leader of the German chemical warfare effort is exemplary within several broader contexts and his case has to be analysed. To be taken into account here are the prewar context of international law in regard to chemical warfare, the unraveling of scientific internationalism under the impact of war, the wartime work of academic and industrial scientists, including Haber, the conduct of the war by both German and Allied political and military leaders, and the postwar settlement, including the chemical-warfare provisions of the Versailles Treaty and the impact of the Allied arms-control regime.

In **Part II**, the papers focused on the reaction to the integration of science into war.

The first and overwhelming reaction across all countries and public opinions was horror and fear. In her paper **In Fear of Science: Lay and Diplomatic Doubt about the Geneva Gas Protocol and Efforts to Ban Gas Effectively in the Interwar and World War II**, **Molly Girard Dorsey (University of New Hampshire)** showed how fear and distrust towards sciences undermined the hope for international legal actions against chemical warfare.

According to her analysis, in many nations people felt that science had unleashed something that could not be restrained by a treaty, or their impact reduced by technology. Since those terrifying weapons could be used in times of conflict, despite such international agreement, much effort was devoted to prevention (gas masks and training of the people), and in some



cases, even research on poison gas was advocated, as the pamphlet of J.B.S. Haldane's *Callinicus*, illustrates.

The use of poison gas became emblematic of wartime development in science, and outlived largely the aftermath of World War I. Indeed, as **Robert Bud (Science Museum, London)** argued in his paper **The British Experience and Reaction of Public Opinion to the Use of Blowing Gas across Discourses about Science in 1920s Britain**, the response to the atomic bomb was framed by what he calls, a template created by the precedent of using scientific progress to serve war efforts, and in this case cause human suffering and destruction on a larger scale than ever before. As a counterpoint to this, many attempts, like the Museum of Science in Oxford for instance, to promote the humanistic side of science, and the scientific contribution to civilisation, can be interpreted as echoes to the shock chemical warfare triggered in public opinion.

In his paper, **The Rabbits of Okunoshima: Public Memory and the Legacies of Chemical Warfare in Japan**, **Walter E. Grunden (Bowling Green State University)** described how in Japan, the majority of research, development, and production of chemical weapons, was undertaken by the military services within their own institutions, including laboratories, training schools, and arsenals. This eased the demobilisation of chemical weapon production facilities, such as the factory on Okunoshima Island, and explains how Japan's wartime chemical weapon history faded easily in public memory. Eventually, the environmental legacy of these weapons became an unavoidable issue of public health in the latter part of the twentieth century.

In his comments, **Michael D. Gordin (Princeton University)** stressed how a perspective in the long *durée* was still very much needed in order to analyse the combination of science and war, from combat gas to nuclear weapons. Far from a coherent and easy to grasp overview on this process, the panel had raised more questions and introduced further complexity to the matter, the papers, when brought together, having provided many insightful and challenging observations.

The first was the question of differentiation of the process in national contexts. Allies do not seem to share much information, and this is particularly striking when compared with the race for the making of the first nuclear weapon. In each national context emerges a very composite balance between the central bureaucracy, the chemical industry, and a more or less common pedagogical framework in the chemical sciences.

Secondly, the question of the non-use of chemical weapons during World War II still remains unanswered, especially in the light of the huge discussions it triggered in the interwar period. Japan seems to be an exception in that regard, maybe because they had not combatted during WWI.



Thirdly, the panel also concentrated on a few individual figures (Trillat, Urey, Haber), and brought in the biographical dimension. That allowed a more detailed analysis of how and why (or for what immediate purpose) the chemists/scientists lost the moral high ground, but also how these individual trajectories in turn shaped the moral debates after the two world wars.

Last but not least, the material at stake also raised some intriguing questions: why, for instance, is Napalm *non grata* only after the Vietnam war, whereas it had been used in Tokyo and Dresden during WWII? Why is the sharing of information different according to different materials? The US and the UK, for instance, share their knowledge about explosives, but not on chemical weapons. Even the attitudes of the militaries seem to be different when it comes to chemical weapons, which require more tedious planning and safety procedures, for which they feel unprepared.

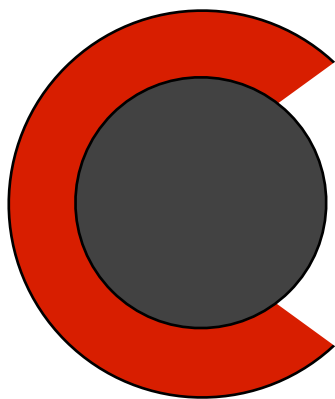
The panel was o-organized by **Yoshiyuki Kikuchi, FoHCS, SOKENDAI (The Graduate University for Advanced Studies)** and **Brigitte Van Tiggelen, CHMC (Chemical Heritage Foundation)**. For those who would want to continue the discussion on this matter, there will be a session devoted to a similar topic at the **Three Society Meeting in Edmonton, Alberta, Canada, 22-25 June 2016**. Contact Andre Ede for any information.

Dr Brigitte Van Tiggelen, Director of Operations and Outreach, Chemical Heritage Foundation; Chair, Division for the History of Chemistry of EuCheMS

NEW MEMBERS

SHAC welcomes the following new members:

Vincenzo Carlotta	University of Pavia, Italy
Travis Dow	California, USA;
Allen Driggers	Tennessee Technological University, USA
Oliver Dufault	Ludwig-Maximilians University Munich, Germany
Henrik Kylin	Linköping University, Sweden
John Macmillan	London, UK
Curtis Runstedler	Durham University, UK
Klaus Ruthenberg	Coburg University of Applied Sciences, Germany
Marie Thébaud-Sorger	CNRS, Centre Alexandre-Koyré, Paris, France
Steven Turner	Smithsonian Institution, USA
Cristina Viano	CNRS, Centre de recherches sur la pensée antique Bibliothèque Léon-Robin, University of Paris, IV, Sorbonne, France



We welcome any contributions that newsletter readers might wish to make to *Chemical Intelligence*. This includes, but is not limited to:

- Upcoming Conferences or Meetings
- Publications
- Conference or Meeting Reports (these should not normally exceed 1,000 words)
- News Items or Announcements
- Grants, Fellowships or Awards
- Reviews of Websites, projects or blogs of interest (up to 500 words)

The Editor retains the right to select those contributions that are most relevant to the interests of the Society's members.

We also wish *Chemical Intelligence* to provide a platform for interaction between members. We therefore encourage you to submit:

- Questions you may wish to put to other members
- Materials that you are working on and wish to share
- Suggestions for improvement

For any queries regarding the content of *Chemical Intelligence*, or to propose material for inclusion in future issues, please contact the Editor:

Judith Mawer, Email: chemintel@ambix.org

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Society for the History of Alchemy and Chemistry

The Society for the History of Alchemy and Chemistry has a longstanding tradition in the field, organising colloquia, publications and promoting the interdisciplinary study of the history of alchemy and chemistry from its early beginnings to the present. The Society offers support to its members, including an award scheme, regular meetings and events, graduate network, and the triennial Partington prize for original academic writing on any aspect of the history of alchemy and chemistry. It offers a forum for advertising forthcoming events, both within

the United Kingdom and internationally, and its website provides a portal to resources relating to the history of alchemy and chemistry. Members receive the Society's journal *Ambix*, the leading scholarly journal in the field of history of alchemy and chemistry. *Ambix* is published by Maney Publishing and appears quarterly from 2013. Members also receive the Society's newsletter, *Chemical Intelligence*, twice yearly, and any new editions from the *Sources of Alchemy and Chemistry* volume.

Application forms and membership information may be found on the Society's website, <http://www.ambix.org/>, under 'Membership'.

For all membership questions, please contact the Membership Secretary, Dr Anna Simmons.

E-mail: a.simmons@ucl.ac.uk