



# HEMICAL INTELLIGENCE

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

No. 19, February 2018

## CONTENTS

SHAC Membership Subs	2
SHAC AGM 2018	2
SHAC Award Scheme	3
Upcoming SHAC Events	4
<i>Ambix</i> Journal	6
Accessing <i>Ambix</i> online	7
Books for <i>Ambix</i> Review	9
Graduate Network	11
Graduate Profiles	15
Other Meetings	15
Calls for Papers	19
SHAC Prizes and Awards	20
Other News and Events	21
Reports	28
New Members	51

## INSIDE

SHAC Spring Meeting
IX SHAC PG Workshop
Joint SHAC/SHI Meeting
New Appointments
Upcoming conferences
Partington Prize Winner
Oxford Part II Prize Winner
Obituary: Prof. David Knight
Books recently published
CHF becomes SHI
11th International Conference on History of Chemistry
IUPAC Panel Report
SHAC Autumn Meeting: Chemistry in Europe
SHAC VIII PG Workshop: (AI)Chemical Laboratories: Imagining and Creating Scientific Work-Spaces
Oxford Seminars

## Editorial

Welcome to this Winter/Spring issue of Chemical Intelligence, which looks back on a hectic schedule of activities, acknowledges a period of transition, and looks forward to an exciting programme of events to engage our interest over the next few months. There have been a number of changes to the composition of the SHAC Council, with several officers and members stepping down after having served the Society for, in some cases, many years. Bruce Moran is taking over from Jennifer Rampling as Editor of *Ambix*, with Vivienne Quirke being appointed as Associate Editor, alongside Alan Rocke. Tillmann Taape is the new Book Reviews Editor, taking over from José Ramón Bertomeu Sánchez, whose eight years of service in the role is acknowledged on page 9. Readers will find details of other new appointments listed in this newsletter, along with expressions of thanks to those friends who have retired. It is a testimony to the strength and commitment of the SHAC community that we continue to find colleagues willing to assume these roles and responsibilities on our behalf. Furthermore, in welcoming the new officers, we need not bid a lasting farewell to former colleagues as they will hopefully be present at meetings and events for many years to come.

Also undergoing a few changes is the Chemical Heritage Foundation in Philadelphia, which, with effect from 1 February 2018, became the 'Science History Institute'. This follows a merger between the CHF and the Life Sciences Foundation, with the new organisation intending to strengthen and broaden its

offer to those interested in the history of chemistry, chemical engineering, and the life sciences. Find out more at page 23 of this newsletter, and visit the Institute's website, from which you will be able to access the new digital collections website, which provides images of rare and fascinating artefacts, 1,000 of which have been released free of copyright.

Reports of SHAC's Autumn Meeting, 'Chemistry in Europe' and the annual postgraduate workshop, '(AI)Chemical Laboratories: Imagining and Creating Scientific Work-Spaces', along with details of the Oxford Seminars' programme, demonstrate the effectiveness of the Society in promoting and supporting the history of alchemy and chemistry as a field of study and interest. Megan Piorko and colleagues are to be commended for the success of the 8th PG workshop, SHAC's first outside Europe. Congratulations also to all who contributed to making the 11th International Conference on History of Chemistry (11th ICHC), in Trondheim, Norway 2017 so successful.

Finally, it is with sadness that we report the death of David Knight, a former member of the SHAC Council, for whom a short obituary appears on page 21.

*Judith Mawer*



SOCIETY FOR THE HISTORY  
OF  
ALCHEMY AND CHEMISTRY



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

## SHAC MEMBERSHIP SUBSCRIPTIONS 2018

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### Important Reminder regarding membership Renewal

Membership subscriptions were **due on 1 January 2018**, and the Membership Secretary, Carolyn Cobbold, has sent out email renewal due notices to those Members (only) whose subscription expires on 31 December 2017. A substantial majority of members are now paid up for 2018 (thank you!).

Members who have still not paid for 2018 and who wish to renew are requested to pay for 2018 now. Details of how to pay – both for renewers and new joiners – are on the website [www.ambix.org](http://www.ambix.org) – but **please do not log in**, as this is only necessary to access the *Ambix* on-line archive. Please note that the website does not register whether you have already paid for 2018, so it does allow you inadvertently to double-pay for 2018. If you have doubts as to whether you have already paid for 2018, contact SHAC's treasurer, Rob Johnstone via [treasurer@ambix.org](mailto:treasurer@ambix.org).

If your email or postal address changes, please email [info@ambix.org](mailto:info@ambix.org) 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**. SHAC prepares address lists for distribution of the journal, so please inform us, 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 2018 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 August 2017 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.**

*\* The student membership rate for 2018 can be paid by all those who held a valid student card at any time during 2017, as well as to those who still hold one!*

*\* Please note that due to changes in the way membership payments are administered it is no longer possible to join or renew for two years at once. We apologise for any inconvenience that this may cause to members.*

*\* Please note that SHAC's membership year runs from 1 January to 31 December – new members who join during the year receive back issues of *Ambix* for that calendar year.*

## SHAC ANNUAL GENERAL MEETING COVERING 2016

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The Annual General Meeting of the Society was held at 12:20 pm on Saturday 30 September 2017 at the Maison Française, 2-10 Norham Road, Oxford, OX2 6SE. There were 27 members present.

Members can view minutes of the AGM on the Society's website by following the link found on <http://www.ambix.org/about/> Copies of the most recent Trustees Annual Report and Annual accounts can also be viewed by following the links on this page.

## SHAC AWARD SCHEME 2018

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### Important Announcement for Members

The Society for the History of Alchemy and Chemistry invites applications for its Award Scheme for 2018. SHAC offers two types of award: support for research into the history of chemistry or history of alchemy by New Scholars and support for Subject Development of either history of chemistry or history of alchemy.

**Opening date for Awards applications: 1 March 2018**

**Closing date for Awards applications: 31 May 2018**

It is expected that applicants will be advised of the outcome of their application by 31 July 2018. The Awards are most suitable for activities to be undertaken in the academic year October 2018–September 2019.

**New Scholars Awards** are open to post-graduate students (both masters and doctoral students) and those who have obtained a PhD since 1 January 2013. Awards of up to **£750** will be made to cover research expenses, including travel, accommodation, subsistence, the reproduction of documents, and library fees. Applications may also include the costs of reproducing images for publication. The Scheme does not fund the purchase of equipment or course fees.

In addition, post-graduate students only may apply for the costs of travel to conferences and accommodation, but only in order to give a paper. The Scheme does not pay conference registration fees.

**Subject Development Awards** of up to **£750** may be made to support activities such as seminars, workshops, colloquia, lecture series, conference sessions, conferences, exhibitions and outreach activities that support either the history of chemistry or history of alchemy as academic subjects.

Please note that activities covered by the Awards do not have to occur in the UK, and that the Awards are open to members of the Society resident both in the UK and elsewhere. Members who have applied to the Scheme in previous years, whether successfully or not, are entitled to make an application in 2018.

Applicants must be members of the Society in good standing at the time of making an application, and, if successful, throughout the period of an award. For more information and application forms, please contact [grants@ambix.org](mailto:grants@ambix.org). Membership enquiries should be made to [newjoiner@ambix.org](mailto:newjoiner@ambix.org)

**An activity report must be submitted at the end of the Award.** This will usually be published in SHAC's *Chemical Intelligence* newsletter.

## UPCOMING SHAC EVENTS

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### 9th Annual SHAC Postgraduate Workshop **Experience and Experiment: Materiality of (al)chemical texts and objects**

*The Royal Institution, London, UK*



June

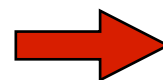
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2018

SHAC's annual series of workshops fosters interdisciplinary exchange among graduate students and early career scholars from any field whose work engages with the history of alchemy and chemistry.

#### **Call for Papers:**

We welcome abstracts that deal with this year's topic within any historical period and geographical region. Projects pertaining to the material aspects of alchemical and chemical books, instruments, manuscripts, structures, substances, and other creative interpretations of this year's theme are encouraged. Please be prepared to give a short presentation of your work and provide feedback for other's pre-circulated papers. There will be a keynote presentation from a distinguished professor as well as interaction with alchemical/chemical texts and objects housed at the Royal Institution.



Please send a 350 word abstract and CV by 31 March, 2018 to SHAC Student Representative, Megan Piorko, at [studentrep\[AT\]ambix.org](mailto:studentrep@ambix.org)

A limited number of travel bursaries are available to participants upon application. Information on these will be circulated in the coming weeks. If you are interested in a bursary, please mention this when you submit your abstract.

Sponsored by the Royal Institution and the Society for the History of Alchemy and Chemistry.

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## SHAC Spring Meeting and AGM, 2018

### Alchemy and Print Culture

*UCL Institute of Education (IOE), London*



The SHAC Spring meeting will take place on **Saturday 30 June 2018** at **UCL Institute of Education, London**. SHAC's AGM will also take place during the meeting. Details of the programme and how to register will be sent to members when they are available and also posted on the SHAC website: [www.ambix.org](http://www.ambix.org).

#### Annual General Meeting

Details of the Society's AGM, scheduled to take place during this meeting, will be circulated to members nearer to the time.

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## Joint SHAC -Science History Institute (formerly CHF) Meeting

### Exploring Historiographies of Chemistry: Working Across Disciplinary Divides

*Science History Institute (formerly CHF), Philadelphia PA*



The history of chemistry and the life sciences has been approached from a number of standpoints: this conference will explore the validity and outcomes of the different approaches. Convening scholars from the many communities that write the history of chemistry, it will address the various backgrounds that each of our communities brings to that historical endeavour, as well as the divides that can impede scholars from working with different traditions. We will address historiographical trends, lacunae, and challenges, in particular looking at topics like the histories of modern industrial chemistry, intersections of chemistry and biology and physics, philosophy of chemistry, recent and contemporary chemistry, instrumentation, and early practices in alchemy and chemistry.



The conference will include nine central papers to anchor discussions, each on an assigned topic. The group will then be invited to discuss each paper and topic broadly and rigorously, thinking about what various disciplinary lenses might add to the subject at hand, challenging each other, and, we hope, building understandings and perhaps even future partnerships along the way. These discussions will take place over three days, but we hope that their impact will be lasting. You may wish to bear in mind that to that end we intend to produce a subsequent publication based on the conference.

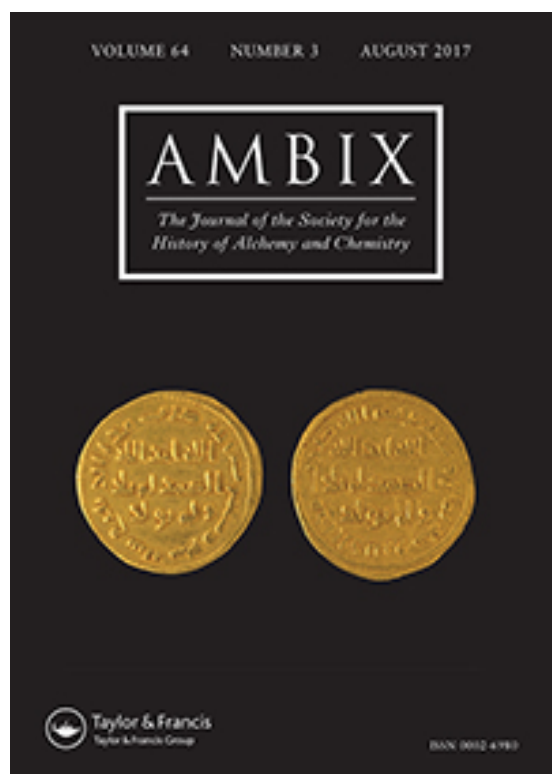
**Further details of this event will be sent to SHAC members in due course.**

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### ***AMBIX: Journal of the Society for the History of Alchemy & Chemistry***

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We are aware that the hard copies of Ambix 2017 have been reaching you later than normal and on behalf of SHAC and its publishers, Taylor and Francis, I apologise for these delays in publication. UK members should now have received the August 2017 issue and it will arrive with overseas members, depending on their location, over the next month or so. Articles, book reviews and other content from the third issue of volume 64 of *Ambix* was published online on 16 January 2018 and may be accessed via the member area at [ambix.org](http://ambix.org).



The August issue includes four research papers, ranging in period from late antiquity to the nineteenth century:

**Athanasios Rinotas**, *Stoicism and Alchemy in Late Antiquity: Zosimus and the Concept of Pneuma*

**George Saliba**, *A New Alchemical Poem Attributed to Khālid b. Yazīd (d. ca. 705)*

**Ignacio-Miguel Pascual-Valderrama and Joaquín Pérez-Pariente**, *The Alchemical Manuscripts of David Lindsay (1587-1641), Lord Lindsay of Balcarres*

**Andrew Lacey**, *The Chemical Club: An Early Nineteenth-Century Scientific Dining Club*

## ***Ambix*: Eightieth Anniversary Issue**

A number of articles from the November 2018 Anniversary issue of *Ambix* are already published online and we expect publication of this issue in March 2018. To mark the occasion, the anniversary issue is on the theme of ‘The Future of the History of Chemistry.’ The February 2018 issue will follow shortly afterwards.

The November issue is Jennifer Rampling’s last as Editor, before Bruce Moran takes the helm in 2018. Appropriate to the theme, it opens with a paper by an early career scholar – Stephen Irish’s Partington Prize-winning paper on early crystallography. This is followed by three commissioned papers, each of which addresses an important question currently facing historians of alchemy and chemistry. In the process, the authors engage with a variety of fields and methodologies – from philology and translation studies, to the history of physics and the life sciences. First, Matteo Martelli considers the vital role of translation in preserving early alchemical writings, using case studies from Arabic treatises to show how Greek texts helped to shape later works. Angela Creager then asks why the history of chemistry is so often missing from the historiography of biology, which tends to privilege histories of evolution over biochemical topics. Lastly, Hasok Chang reflects on what makes chemistry distinctive at all, by showing how chemistry resists reductionism to physics – while pointing to the rich, experiential dimension of working with chemical substances.

### **The papers in this issue include:**

- |                         |  |
|-------------------------|--|
| <b>Stephen Irish,</b>   | <i>The Corundum Stone and Crystallographic Chemistry</i>                                     |
| <b>Matteo Martelli,</b> | <i>Translating Ancient Alchemy: Fragments of Graeco-Egyptian Alchemy in Arabic Compendia</i> |
| <b>Angela Creager,</b>  | <i>A Chemical Reaction to the Historiography of Biology</i>                                  |
| <b>Hasok Chang,</b>     | <i>What History Tells Us about the Distinct Nature of Chemistry</i>                          |

### **Free Access to Selected *Ambix* Articles:**

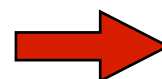
In celebration of *Ambix* achieving its 80th anniversary, Taylor & Francis are offering free access to a selection of articles across a range of subject areas and historical periods. These are available at <http://explore.tandfonline.com/content/est/yamb>

## **ACCESSING AMBIX ONLINE**

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### **Issues with Website**

Please accept our apologies if you have recently encountered any difficulty in accessing your [ambix.org](http://ambix.org) account. We experienced a major problem with our website which, following action, we trust is now resolved.



## Important Reminder to Members

SHAC members have access to all back issues of *Ambix* dating back to 1937 via our website [www.ambix.org](http://www.ambix.org)

### How to Access *Ambix* via the SHAC Website

To access these issues you need to log in as a member on the SHAC website [www.ambix.org](http://www.ambix.org) using your username and password. These were sent to existing members when the back issues were first digitised in March 2013. If you have joined SHAC more recently, the username and password was issued when you joined the Society.

If you don't know your username and password please contact the Membership Secretary, Carolyn Cobbold, via [newjoiner@ambix.org](mailto:newjoiner@ambix.org)

### Priority Access: Register for Alerts

Issues are published online prior to the physical copy being sent out to members. If you would like to receive notification of when a new issue is available online, please register for Table of Contents Alerts via the Taylor and Francis Website. Click on [Register for Table of Contents Alerts](#) or visit <http://www.tandfonline.com/action/doUpdateAlertSettings>

The screenshot shows the homepage of the Society for the History of Alchemy and Chemistry (SHAC). The header features the organization's name and a logo of a sun with chemical symbols. A navigation menu includes links for Home/News, About, Publications, Prizes, Grants, Membership, Meetings, and Contact Us, along with a Log In button. The main content area has a 'Welcome' message dated 06/03/2014 by 'mauber', followed by a detailed introduction to the society, its history, and its activities. Below the text are three promotional images: 'Join SHAC' showing pottery, 'Renew your Membership' showing laboratory glassware, and 'Log in for Members' showing a Bunsen burner. On the right side, there is a 'SHACorg Tweets' section with three tweets and a 'News' section with four recent news items.

**SOCIETY FOR THE HISTORY OF ALCHEMY AND CHEMISTRY**

Home/News About Publications Prizes Grants Membership Meetings Contact Us Log In

Home

### Welcome

Posted on 06/03/2014 by mauber

Welcome to the Website of the Society for the History of Alchemy and Chemistry (SHAC).  
Founded in 1935, SHAC has consistently maintained the highest standards of scholarship in all aspects of the history of alchemy and chemistry from early times to the present. The Society has a wide international membership of over 250 members from 28 countries.

We hold meetings, offer scholarly prizes and grants, and publish the journal *Ambix*. The Society's newsletter, *Chemical Intelligence*, is published twice a year. We have also established the *Graduate Network* to bring together postgraduate students in the field.

Keep up to date with the news and events of SHAC by following us on Facebook and Twitter.

Join SHAC  
Renew your Membership  
Log in for Members

### SHACorg Tweets

- @SHACorg  
SHAC promotes academic scholarship in the field of the history of alchemy and chemistry broadly defined.  
• Alchemy Workshop - Call for Registration Registration is now open to the 'Alchemy, Universal Medicine, and... <https://t.co/fYBaUxU05>  
Thu 5th Jun 16 20:49
- Some of you may be interested in the upcoming Oxford seminar in Early Modern German Cultures, taking place... <https://t.co/jwQ0xyyA>  
Thu 18th Feb 16 23:26
- This job posting might be of interest to some... <https://t.co/UrInVEdIO1J>  
Wed 10th Feb 16 20:13

### News

- SHAC Autumn Meeting, Saturday 12 November 2016: Call for Papers 31/05/2016
- New Website Content Editor 10/05/2016
- Pertington Prize 2016/17 10/05/2016
- Oxford Seminar in the History of



## Ambix BOOK REVIEWS

### Change of Book Reviews Editor for *Ambix*

After eight year's in the role, Professor José Ramón Bertomeu Sánchez of the Institut D'Història de la Medicina i de la Ciència 'López Piñero', University de València, stood down as Book Reviews Editor for *Ambix* at the end of 2017.



In a letter notifying members of the transition to a new editor, José thanked colleagues and reviewers for their 'kind collaboration' and remarked that it had been 'a pleasure to work with you in making the section of *Ambix* reviews'.

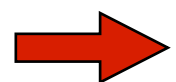
It is to José himself, however, that thanks are due: his committed service as Book Reviews Editor has been greatly appreciated by readers and by all involved in the production of *Ambix*. We wish him well as he continues his academic career.

SHAC is pleased to announce that Dr Tillmann Taape has been appointed to take over from José from the beginning of 2018. Upon graduating, Tillmann took up a postdoctoral position last Autumn with 'The Making and Knowing Project' at Columbia University, where he is a lecturer in History. In a message to friends and colleagues at SHAC, he tells us:

'I am delighted to join the editorial team of *Ambix* as the new book reviews editor, taking over from José Bertomeu-Sánchez. Seeing as the SHAC community is a large proportion of our readership as well as a teeming pool of first-class expertise, I would very much appreciate your input regarding new books in the field which you would like to review or see reviewed in *Ambix*. Also, if you haven't written a review for us before but would like to be on our list of potential reviewers, please feel free to write to me, indicating your field of expertise. I look forward to hearing from you!'

**Tillmann may be contacted at:** [tillmann.taape@cantab.net](mailto:tillmann.taape@cantab.net)

Although a number of readers may know Tillmann, in particular through his contribution to the graduate network of SHAC, and his support of the



postgraduate workshops, for the benefit of those yet to be acquainted, there is a brief profile in our 'News' section on page 25

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## Books Received for *Ambix* Review

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The books listed below were all allocated for review prior to José leaving office:

**Lux in Tenebris: The Visual and the Symbolic in Western Esotericism.** Edited by Peter Forshaw, illus., index. Brill: Leiden. 2016. €168. ISBN: 978-90-04-33494-6.

**A Chemical Passion. The Forgotten Story of Chemistry at British Independent Girls' Schools 1820s-1930s.** By Marelene Rayner-Canham and Geoff Rayner-Canham. UCL Institute of Education Press: London. 2017. ISBN: 978-1-78277-188-3.

**When Historiography Met Epistemology.** By Stefano Bordoni. Brill2017. \$172. ISBN: 978-90-04-31522-8.

**Science Museums in Transition: Anglo-American Cultures of Display in the Nineteenth Century.** By Carin Berkowitz and Bernard Lightman. 2017.

**Kunskap och kemisk industri i 1800-talets Sverige.** By Anders Lundgren. Pp. 398. 2017.

**Fictional Matter: Empiricism, Corpuscles, and the Novel.** By Helen Thompson. Pp. 359, illus., index. University of Philadelphia Press: Philadelphia. 2017. \$59.95. ISBN: 978-0-8122-4872-2.

**Nützliches Wissen. Die Erfindung der Technikwissenschaften.** By Ursula Klein. Pp. 216, illus., index. Wallstein Verlag: Göttingen. 2016. ISBN: 978-3-8353-1958-5.

**Alchemy, Medicine, and Commercial Production. A Codicological And Linguistic Study of the Voigts-Sloane Manuscript Group.** By Alpo Honkapohja. Pp. 248, illus., index. Brepols: Turnhout. 2017. €80. ISBN: 978-2-503-56647-4. Ref: Ambix1361

**A History of Technoscience.** By David Channell. Routledge2017.

**About Method. Experimenters, Snake Venom, and the History of Writing Scientifically.** By Jutta Schickore. Pp. 316, illus., index. University of Chicago Press: Chicago. 2017. \$50. ISBN: 978-0-226-44998-2.

**Synthetic. How Life Got Made.** By Sophia Roosth. Pp. vi + 252, illus., index. The University of Chicago Press: Chicago. 2017. ISBN: 978-0-2264-4033-3-2.



**Wilhelm Ostwald. The Autobiography.** Edited by Robert Smail Jack and Fritz Scholz. Pp. xiv + 688, illus., index. Springer: Cham. 2017. ISBN: 978-3-319-46953-9.

**Artisanal Enlightenment: Science and the Mechanical Arts.** By Paola Bertucci. Yale University Press: New Haven. 2018.

**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: Tillmann Taape ([tillmann.taape@cantab.net](mailto:tillmann.taape@cantab.net))**

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## GRADUATE NETWORK

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### SHAC Postgraduate Workshops

The 8th Annual SHAC Postgraduate Workshop, which took place at the Chemical Heritage Foundation (now Science History Institute) Conference Centre in Philadelphia on 1 & 2 December, 2017, was the first to be organised by Megan Piorko in her role as SHAC Student Representative. A short account of the event, which took as its subject, ‘(Al)Chemical Laboratories: Imagining and Creating Scientific Work-Spaces’ may be found on pages 48-50.

Readers will have noticed that, following the success of this event, Megan has acted promptly to set about organising the 9th postgraduate workshop, and your attention is drawn to page 4 of this newsletter, where the call for papers is advertised. The workshop, on the theme of ‘Experience and Experiment: Materiality of (al)chemical texts and objects’, will be taking place at The Royal Institution in London, on 29 June 2018. **Please note that the deadline for responding to the call for papers is 31 March, 2018.**

### Aims & Objectives of the Graduate Network

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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.

## SHAC Student Representative

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The current SHAC Student representative is Megan Piorko, a PhD candidate at Georgia State University, who may be contacted via email ([studentrep\[AT\]ambix.org](mailto:studentrep@ambix.org)).

## Contributions to *Chemical Intelligence*

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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, Editor, *Chemical Intelligence*: [jmawe001\[AT\]gold.ac.uk](mailto:jmawe001@gold.ac.uk)

**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

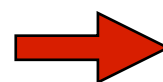
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The graduate profile is always a popular and important feature of *Chemical Intelligence* introducing, as it does, new (or at least relatively new) colleagues and their research interests. If you would like, or at least be willing, to share your own profile with readers, please submit your details to the SHAC student representative, Megan Piorko, [studentrep\[AT\]ambix.org](mailto:studentrep@ambix.org), who I am sure would be delighted to hear from you. Please follow the format used below, restricting your profile to one A4 page and including a photograph of yourself.

**Gina Surita**  
Princeton University

### Self Introduction

I received my B.A. in Biological Sciences and Science and Technology Studies from Cornell University in 2016. My Senior Honors Thesis examined debates about the origin of pathogenic bacteria among clinicians and bacteriologists around the turn of the twentieth century in the United States. The thesis focused on differing theories of bacterial transmutation proposed by clinicians and bacteriologists and the relationships of these theories to different forms of clinical and laboratory practice.





Currently, I am a second-year graduate student in the Program in History of Science at Princeton University. At Princeton, my work has been focused on the history of steroid hormone research in the United States in the post-World War II decades. I am especially interested in tracing changing understandings of the mechanism of steroid hormone action, the history of steroid hormone receptors, and the development of the field of molecular endocrinology. My first research project on steroid hormones described organic chemists, biochemists, and molecular biologists' attempts to elucidate the mechanism of estrogen action in the postwar decades, which resulted in the identification of the estrogen receptor. My current research project traces the development of the concept of hormone-dependent cancers, and focuses on the changing relationship between estrogenic compounds and breast cancer. As I move forward in my graduate career, I plan to choose a dissertation project at the intersection

of the history of biology and the history of medicine.

### **What is the greatest challenge you faced as a postgraduate student?**

During my first year and a half as a postgraduate student, my greatest challenge has been learning how to balance the demands of coursework with those of research and other commitments/academic requirements. I have found that taking a full course load makes it quite difficult to find large blocks of time to dedicate to reading secondary literature, tracking down primary sources, visiting archives, writing, and revising. Although I enjoy taking courses, I look forward to finishing my coursework, progressing to the later stages of my graduate career, and having the opportunity to spend more time working on my research projects.

**Umberto Veronesi**  
University College London

### **Self Introduction**

I like looking at objects, interrogating them and tell the story of the people that once made and used those objects. I have started my university studies back in Italy where I completed my BA in archaeology at Sapienza University of Rome in 2009 with a dissertation on bronze and iron age Etruscan ceramics. I then decided to give things a shake and I moved to London where I entered an MSc in technology and analysis of archaeological materials at the Institute of Archaeology, University College London.



This change of perspective, from more traditional fieldwork archaeology to much more lab-based work, got me in contact with a whole new way of investigating the past. Looking at how people make things can tell us a lot about their knowledge and worldview. During the masters I became very fascinated by ancient glass and glassmaking, which became the topic of my thesis. What I discovered is that glass had always fascinated humans, so much so that through the ages it had often been the focus of natural philosophy and matter theories. Glass was a perfect embodiment of the alchemical idea of art imitating nature and resulted from the transmutation of humble materials into something beautiful and precious.

This is how I got involved in the history of science, and especially in issues of early chemistry and scientific development during the Renaissance, my current research topic as a PhD student at UCL. The project I am working on is aimed at using the archaeological remains of early modern laboratories as a source of information to explore questions relevant to the history of science and technology. What did making science mean? Which materials and processes were alchemists experimenting with? What were their aims and underlying knowledge? I believe that the 'archaeology of alchemy and chemistry' can be an important tool in addressing such questions, to reveal how alchemical practice fostered scientific advancements and influenced the modern scientific method.



**What is the greatest challenge you faced as a postgraduate student?**

Definitely being able to move between disciplines, which I also consider very stimulating. My background is in archaeology and I consider myself primarily a scientific archaeologist, but during my studies I have come in contact with other disciplines, some of which I eventually absorbed in my research as I realised that they had important things to say and that I found them extremely fascinating. The history of science is one; I loved the idea of studying technological progress and its role in how people made sense of the world around them. But I do not have a formal education as a historian and therefore being able to say something meaningful and relevant about it is a great challenge, one that pushes me to always expand my horizon.

## OTHER MEETINGS

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### Royal Society of Chemistry Historical Group Symposium Some Chemical Consequences of WW1

*Burlington House, Piccadilly, London*



The programme for the Spring symposium of the Royal Society of Chemistry Historical Group has been announced, and is given below. There is no charge for this meeting, but prior registration is essential. If you wish to attend, please notify Professor John Nicholson to this effect either by emailing [jwnicholson01\[AT\]gmail.com](mailto:jwnicholson01@gmail.com) or writing to the professor at 52 Buckingham Road, Hampton, Middlesex, TW12 3JG. Please provide details of your name, postal and email address when registering. This is a popular meeting so, should you find that you are unable to attend, please notify Professor Nicholson at the earliest opportunity.

#### Programme

10.30 -11.00. Registration, Tea or coffee

#### Session Chairman: John Hudson

11.00 John Nicholson, *The consequences of World War I on the education of chemists.*

11.30 Brian Balmer, *Porton Down after World War I.*

12.00 Alan Dronsfield, *Fighting cancer with chemicals – The mustard gas connection.*

12.30 – 14.00 Lunch. This is not provided but there are several pubs and eating places nearby.

#### Session Chairman: Alan Dronsfield

14.00 Mike Sutton, *Munitions, Mergers and Military Imperatives: from WW1 to ICI.*

14.30 John Hudson, *James Morton and the formation of Scottish Dyes Ltd.*

15.00 Cliff Lea, *WW1 – The catalyst which spurred the development of Britain's first onshore oil wells.*

15.30 – 16.00 Tea.

#### Session Chairman: John Nicholson

16.00 Peter Morris, *Ersatz rubber in Germany.*

16.30 Peter Reed, *The hesitant emergence of chemical engineering in the aftermath of the chemists' war.*

17.00-17.10 Concluding remarks.

Institute of Physics (London and Southeast Branch)  
**The Newtonian Moment**

*Franklin Room, Institute of Physics HQ, 80 Portland Place, London, W1B 1NT*

**Speakers:** *Drs Anna Marie Roos and Fabian Pailluson*

March

21

2018

In this public lecture, the humanities and the sciences meet. Historian, Dr Anna Marie Roos, will shed some light on the discovery of Newton's laws, some of the most famous and important in

physics. These laws not only ushered in modern physics and technology, but also have changed the way we think about human society and the Universe.

**Lectures start at 6.30pm, with refreshments served from 6.00pm.**

**Please register to attend this event by visiting:**

<https://www.events.iop.org/e/the-newtonian-moment-3b5cdf926c5400dac95242cb76f1be7/page.html>



British Society for the History of Science

## Postgraduate Conference

4th - 6th April 2018

#bshspg2018



*Centre for the History of Science, Technology and Medicine (CHSTM)  
 (University of Manchester)*

April

4-6

2018

Registration is now open for the BSHS Postgraduate Conference, which this year is being held at the Centre for the History of Science, Technology and Medicine, at the University of Manchester. The registration fee for PhD students is £30 and for Masters students, £20. Further details, including how to register, can be found by visiting the conference website at: <https://chstmphdblog.wordpress.com/events/bshspg2018/>. **Registration closes on 28 February 2018.**



## British Society for the History of Pharmacy Annual Conference

*Best Western Yew Lodge Hotel, Kegworth*

Taking place in the East Midlands, this year's conference themes embrace both the local, Nottingham being home to *Boots*, and the historical, it being the 400th anniversary of the London Pharmacopoeia.



The programme includes short members' papers, our Burnby Memorial Bursary talk, and a visit to the Boots Archive (Saturday afternoon). The Society is also delighted to welcome guest speakers Professor John Beckett and Dr Anna Greenwood (Nottingham University) to speak on different aspects of Boots' history, and Patrick Chiu from the Hong Kong Pharmacy History Society to talk about the territory's colonial pharmacy history.

Although this has been organised as a residential conference, there are opportunities also to attend on a non-resident basis. Further details of the programme, booking arrangements, and fees are available at: <http://www.bshp.org/events/ShowEvent.asp?E=5>. **Students can register to attend the lecture sessions free of charge.**

## 7th Scientiae: Disciplines of Knowing in the Early Modern World

*University of Minnesota, Twin Cities, Minneapolis, USA*



**Keynote Speakers:** Surekha Davies, Western Connecticut State University

Vladimir Urbanek, Academy of Sciences of the Czech Republic

The major premise of the Scientiae Conference series is that knowledge during the early modern period was pre-disciplinary, 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. The conference and the sessions are interdisciplinary and intended to foster debate, one of Scientiae's defining values.

Further details are available at: <http://scientiae.co.uk/conferences/minnesota-2018/>

The International Society for the Philosophy of Chemistry  
**22nd Annual Conference: The Concept of the Chemical ‘Element’**

*Faculty of Arts, University of Bristol*



**Keynote Speakers:** Elena Ghibaudi, University of Torino, Italy

Robin Hendry, University of Durham, UK

Jean-Pierre Llored, Linacre College,  
Oxford and Laboratoire Sphère, Paris 7

Eric Scerri, University of California, Los  
Angeles, USA

The International Society for the Philosophy of Chemistry (ISPC) is devoted to the international exchange of ideas concerning the philosophical foundations of the chemical sciences and related areas. This exchange fosters discourse between chemists, biochemists, philosophers, historians, sociologists and educators. See: <https://sites.google.com/site/socphilchem/> . Philosophy of chemistry concerns both internal questions arising from the methods, concepts, and ontology unique to chemistry and chemical research, as well as traditional questions in the philosophy of science, addressed from a chemical perspective.

The 2018 conference will be open to the full range of topics and views within the overall subject. For information about previous contributions, please see the volumes of Foundations of Chemistry which include papers from previous conferences. See: <http://www.springer.com/philosophy/epistemology+and+philosophy+of+science/journal/10698> . There will also be the special topic of the concept of chemical “element”. Discussion of this topic potentially brings in a number of issues in the philosophy of chemistry, as well as examples from the full range of the history of chemistry, including the ideas on this topic, for example, of Aristotle, some alchemists, chemists in the seventeenth and early eighteenth centuries, Lavoisier, Mendeleev, IUPAC and Paneth. The conference will offer the opportunity for contributors to the forthcoming edited book of studies on this topic to present preliminary versions of their papers, if they wish to do so, and/or to become acquainted with the material included in the papers by other contributors, as well as the opportunity for other participants to become acquainted in detail with this very interesting topic.

The conference is organised by Dr Geoffrey Blumenthal, University of Bristol, and will be co-hosted by Vanessa Seifert, University of Bristol.

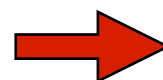
**The scientific committee for determining the programme of the conference includes the following:**

Marina Banchetti-Robino, Florida Atlantic University, USA.

José Antonio Chamizo, Universidad Nacional Autónoma de México, Mexico.

Michele Friend, Georgetown University, USA.

Elena Ghibaudi, University of Torino, Italy.



Clevis Headley, Florida Atlantic University, USA.  
Robin Hendry, University of Durham, UK.  
Jean-Pierre Llored, Linacre College, Oxford and Laboratoire Sphère, Université Paris 7.  
Olimpia Lombardi, Universidad de Buenos Aires, Argentina.  
Hirofumi Ochiai, Nagoya Bunri University, Japan.  
Guillermo Restrepo, Universidad de Pamplona, Colombia.  
Klaus Ruthenberg, Hochschule Coburg, Germany.  
Eric Scerri, University of California, Los Angeles, USA.  
Tami Spector, University of San Francisco, USA.  
Brigitte van Tiggelen, Chemical Heritage Foundation, USA, and Mémosciences, Belgium.

**For further details are available at:** <http://www.bristol.ac.uk/arts/events/2018/philosophy-of-chemistry-conference.html>

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## OTHER MEETINGS: CALLS FOR PAPERS

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**European Society for the History of Science Biennial Conference and British Society for the History of Science Annual Meeting  
'Unity and Disunity'**

*University College London, Institute of Education*



The organising committee of ESHS 2018 invite proposals for individual papers to be presented at the conference. The organisers will aim to organise submissions into coherent strands.

In selecting papers for the conference, the organisers will give preference to those that address, in some way, the conference theme of 'Unity and Disunity'. This can be interpreted very broadly, to address, amongst other topics, unity and disunity within and across diverse sciences, nations, periods, and historiographies; unity and disunity as ideals and realities; and unity and disunity as characterising relations between the sciences and politics, technology, economics, and the arts.

Submissions, including an abstract no longer than 300 words in either English or French, should be made, via the conference by 23.59 GMT on 28 February 2018. Note any individual may speak only once, that is if someone is accepted for a symposium (which will be announced by the end of January), any paper submitted individually will be rejected. For further details please contact the Programme Co-ordinator, Frank James: [fjames@ri.ac.uk](mailto:fjames@ri.ac.uk)

**Further details are available at:** <http://eshs2018.uk/index.php/individual-papers/> .

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## SHAC PRIZES AND AWARDS

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### 2018 Morris Award: Call for Nominations

The Society for the History of Alchemy and Chemistry solicits nominations for the 2018 John and Martha Morris Award for Outstanding Achievement in the History of Modern Chemistry or the History of the Chemical Industry. This award honours the memory of John and Martha Morris, the late parents of Peter Morris, the former editor of *Ambix*, who has contributed the endowment for this award. The recipient chosen to receive the Morris Award will be expected to deliver a lecture at a meeting of SHAC, where the awardee will be presented with an appropriate framed photograph, picture or document and the sum of £300. The award is international in scope, and nominations are invited from anywhere in the world. The first Morris Award was given to Professor Raymond Stokes (University of Glasgow) for his path-breaking work on the German chemical industry. The second award was given to Professor Mary Jo Nye (Oregon State University) for her work on physical chemistry and the boundary between physics and chemistry in the twentieth century. The third award was given to Dr Anthony S. Travis (Hebrew University of Jerusalem) for his contributions to the history of the chemical industry (history of the dye industry and Henrich Caro) and the history of modern chemistry (history of chemical instrumentation and the history of groundwater pollution).

#### A complete nomination consists of

- a complete curriculum vitae for the nominee, including biographical data, educational background, awards, honours, list of publications, and other service to the profession;
- a letter of nomination summarising the nominee's achievements in the field of history of modern chemistry and/or the history of the chemical industry and citing unique contributions that merit this award; and
- two or more seconding letters.

Only complete nominations will be considered for the award and the nomination documents must be submitted in electronic form. All nomination materials should be submitted by e-mail to Peter Morris at [doctor\[AT\]peterjtmorris.plus.com](mailto:doctor@peterjtmorris.plus.com) and a separate email which indicates that the material has been submitted should be sent to the same address (a precaution in case of incomplete transmission of documents) **for arrival no later than 1 May 2018.**

## OTHER NEWS, EVENTS AND GRANTS

### Obituary

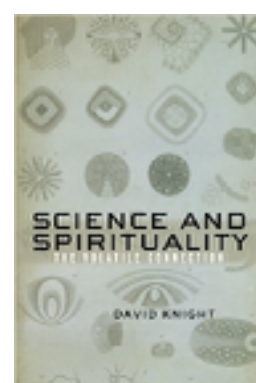
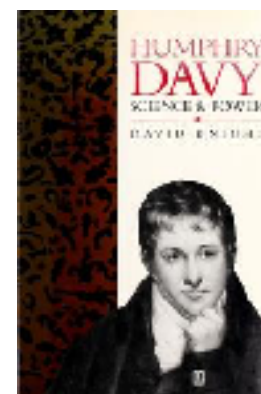
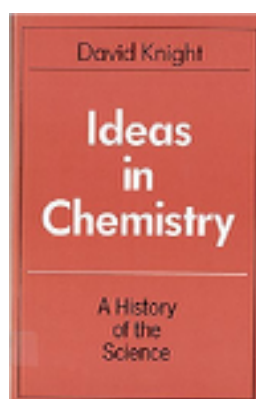
#### Prof. David M Knight, Durham University

It is with great sadness that we learnt of the death of David Knight on Friday 19 January 2018. Eminent as an historian of chemistry and of the links between science and Romanticism, especially in the work of Humphry Davy, David served as Professor of the History of Science at the University of Durham and Editor and President of the British Society for the History of Science.

David was the author of a series of well-received books, including: *Ideas in Chemistry. A History of the Science* (London: Athlone Press, 1992); *The Making of the Chemist: The Social History of Chemistry 1789-1914* (Cambridge: Cambridge University Press, 1998); *Science in the Romantic Era* (Aldershot: Ashgate Variorum, 1998); *Humphry Davy: Science and Power* (Cambridge: CUP, 1998); *Science and Spirituality: the Volatile Connection* (London and New York: Routledge, 2004); and *The Making of Modern Science: Science Technology, Medicine and Modernity 1789-1914* (Cambridge: Polity, 2009). He served on the editorial boards of *Annals of Science*, *Ambix*, *Foundations of Chemistry* and *Interdisciplinary Science Reviews*.

David's first paper in *Ambix* appeared in 1967. He was a member of SHAC Council from 1974 until 2013 and also served as the Book Reviews Editor of *Ambix* from 1998-99. An Eloge will appear in a future edition of *Ambix*. David will be greatly missed by all who had the privilege to know him and work with him.

Bill Brock, Frank James & Anna Simmons



## Partington Prize 2017

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### Stephen Irish

Stephen Irish, previously of Hughes Hall, Cambridge, was the winner of the Partington Prize for 2017 for an essay entitled ‘The Corundum Stone and Crystallographic Chemistry.’ It was presented by Robert Anderson following SHAC’s AGM on 30 September 2017, as the photograph records.

**Stephen’s prize-winning essay will be published in the November 2017 Anniversary Issue of *Ambix*.**

## Oxford Part II Prize

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### Andrew Eve

The Oxford Part II Prize for 2017 was awarded to Andrew Eve of Christ Church, Oxford for a thesis entitled ‘Contraceptive and abortifacient drugs from antiquity to “the pill”: A case for the power of traditional medicine in 21st century bioprospecting’. It was presented by Robert Anderson following SHAC’s AGM on 30 September 2017.

Andrew Eve’s supervisor, Dr Allan Chapman attended the presentation. Allan has now supervised over 100 students for the History of Chemistry Part II at Oxford University. He is pictured here along with Andrew Eve (one of his most recent students), Peter Morris (one of his first students) and Anna Simmons (who was his student somewhere in between!)





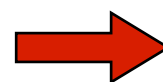
From left to right: Andrew Eve, Allan Chapman, Anna Simmons and Peter Morris

## Chemical Heritage Foundation is now Science History Institute



With effect from 1 February, 2018, The Chemical Heritage Foundation (CHF), which came into being 35 years ago, changed its name to the Science History Institute, heralding the news with the following press release:

This change follows the 2015 merger with the Life Sciences Foundation (LSF), an organisation that focused on the history of the life sciences and biotechnology. The new organisation focuses on the history of chemistry, chemical engineering, and the life sciences. At the end of 2015 the boards of CHF and the San Francisco-based LSF approved a merger of the two organisations. Meetings between CHF and LSF revealed plans and ambitions that were remarkably similar. Rather than continue on parallel paths, leadership on both sides decided to bring the two organisations together. However, the name Chemical Heritage Foundation didn't fit the new focus of chemistry, chemical engineering, and the life sciences. The new name, Science History Institute, describes what the organisation does today (studies the history of the chemical and molecular sciences and accompanying engineering fields) and leaves room to explore emerging fields as they develop.



The Science History Institute's president and CEO, Robert G. W. Anderson, the former head of the British Museum, said, "This is a thrilling moment in the history of our organisation. Our collections and our interests are broadening, and the new name will be very useful to us in the future."

Along with the new name, the Institute is debuting its new digital collections website at: <https://digital.sciencehistory.org> featuring more than 5,000 items, including books, photographs, museum objects, letters, and advertisements. The site, which is available on the Institute's new website, <https://www.sciencehistory.org/home>, is composed of highlights from the Institute's museum, library, and archival collections.

More than 1,000 of these images, primarily of rare books and museum objects, are being **released as public domain, free of copyright, and may be used without requesting permission**. "Users will see culturally and intellectually significant items related to the history of science from the Roman Empire through the 21st century," said Michelle DiMeo, the Science History Institute's director of digital library initiatives. "For the first time ever, select items from our museum, library, and archival collections appear together in one database, so one could view a pH meter instruction manual held in our archives alongside the actual pH meter object in our museum."

## About the Science History Institute

Formed by the merger of the Chemical Heritage Foundation and the Life Sciences Foundation, the Science History Institute collects and shares the stories of innovators and of discoveries that shape our lives. We preserve and interpret the history of chemistry, chemical engineering, and the life sciences. Headquartered in Philadelphia, with offices in California and Europe, the Institute houses an archive and a library for historians and researchers, a fellowship program for visiting scholars from around the globe, a community of researchers who examine historical and contemporary issues, an acclaimed museum that is free and open to the public, and a state-of-the-art conference centre.

In a personal message to our Society, Michelle DiMeo said; 'SHAC members will be pleased to know that we have many high resolution images in the history of chemistry and alchemy available for free download. **I'd love to hear any feedback you have as we continue to improve the site.**'

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## Introducing Tillmann Taape, New Book Reviews Editor for *Ambix*

As promised at page nine above, we are delighted to introduce Tillmann, the new book reviews editor for *Ambix*, and he has kindly provided the following brief profile:







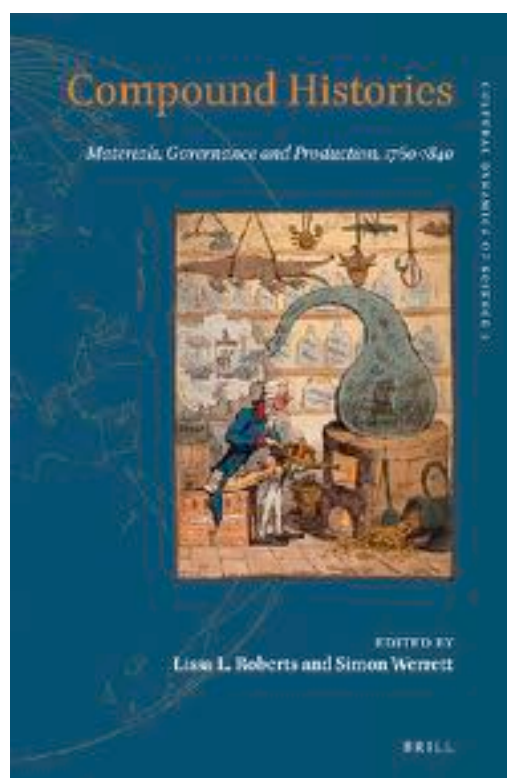
I completed my PhD in History and Philosophy of Science at the University of Cambridge, investigating the hands-on medical alchemy of the German surgeon-apothecary Hieronymus Brunschwig, and his early printed books on distillation (around 1500). As of September 2017, I am pursuing my interest in the intersection of artisanal, occult, and learned knowledge at the ‘Making and Knowing Project’ Columbia University. I am delighted to join the editorial team of *Ambix*, and look forward to keeping myself and our readers abreast of the latest books in our field.

Readers interested in learning more about the ‘Making and Knowing Project’ should visit the fascinating website at: [makingandknowing.org](http://makingandknowing.org).

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### **New Book: ‘Compound Histories: Materials, Governance and Production, 1760-1840’, edited by Lissa L Roberts and Simon Werrett**

A new book edited by SHAC’s secretary Simon Werrett and Lissa Roberts was published by Brill in December 2017, and is now **available for free via Open Access at <http://booksandjournals.brillonline.com/content/books/9789004325562>**. *Compound Histories: Materials, Governance and Production, 1760-1840* offers a new view of the period during which Europe took on its modern character and globally dominant position. By exploring the intertwined realms of production, governance and materials, it places chemists and chemistry at the centre of processes most closely identified with the construction of the modern world. This includes the interactive intensification of material and knowledge production; the growth and management of consumption; environmental changes, regulation of materials, markets, landscapes and societies; and practices embodied in political economy. Rather than emphasise revolutionary breaks and the primacy of innovation-driven change, the volume highlights the continuities and accumulation of incremental changes that framed historical development. Contributors include Robert G.W. Anderson, Bernadette Bensaude Vincent, José Ramón Bertomeu



Sánchez, John R.R. Christie, Joppe van Driel, Frank A.J.L. James, Christine Lehman, Lissa L. Roberts, Thomas le Roux, Elena Serrano, Anna Simmons, Marie Thébaud-Sorger, Sacha Tomic, Andreas Weber, and Simon Werrett.

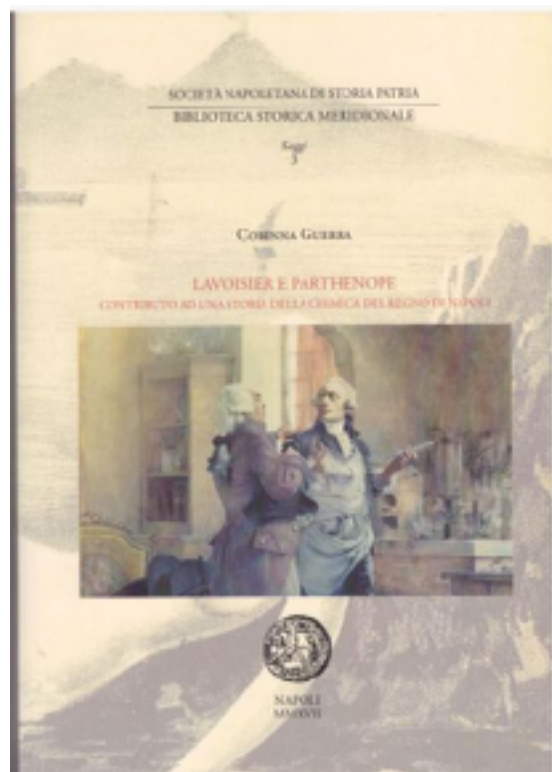
***Compound Histories: Materials, Governance and Production, 1760-1840***, ed. by Lisa L. Roberts and Simon Werrett (Brill: Leiden, NL), 2017, xiv, 388 pp. ISBN: 9789004325494

## **New Book: Lavoisier e Parthenope. Contributo ad una storia della chimica del regno di Napoli**

The French Revolution inexorably marked the year 1789 as a turning point in European history, but it wasn't the only revolution that year that began in France and went on to shake the world. The Chemical Revolution, led by Antoine Lavoisier, dramatically reorganised the discipline of chemistry with new methodological premises and new discoveries. Like all revolutionary movements, the *nouvelle chimie* was not accepted or acted upon in the same ways or at the same times by communities of scholars as it swept across Europe. The enormity of its impact on chemists in the Kingdom of Naples was no exception. The largest kingdom in Italy at the time, and the site of Parthenope, the third largest city in Europe, with a name that linked it to the myth of the sirens, Naples already had a long tradition of research and publication.

The author, examining the printed and manuscript texts derived from the work of a diverse set of scholars in the fields of pneumatic, volcanological and medical-pharmaceutical

chemistry, gives us a compelling and deeply researched portrait of the Neapolitan chemists who confronted the new theory in their efforts to adopt or refute it. The result is a lively recounting of the scientific life of Parthenope in the second half of the 18th century. The author illuminates the chaotic tangle of personalities who carried out experiments guided by these new principles, who struggled with issues of chemical analysis and who taught the new discipline. She ably demonstrates how the peculiar geochemical properties of the area, dominated by Mount Vesuvius, and the political turmoil of the day, such as the Neapolitan Revolution of 1799, conditioned the history of chemistry in the kingdom.



In September 2017, the book received financing from the Italian Ministry of Cultural Heritage for publications of significant cultural interest.



Corinna Guerra currently pursues her research on Vesuvius as natural laboratory as an honorary research associate at the Laboratoire d'Excellence HASTEC (Histoire et Anthropologie des Savoirs, des Techniques et des Croyances) and at University College London. She is a graduate in Philosophy at the University of Bari (Italy), where also she obtained her PhD in the History of Science. From 2011 to 2013, she was a fellow of the Italian Institute for Historical Studies (Istituto Italiano per gli Studi Storici) and a fellow of the Neapolitan Society of National History (Società Napoletana di Storia Patria). In 2016, she was a post-doc researcher at the Centre Alexandre Koyré (EHESS-CNRS- MNHN) in Paris.

**Guerra Corinna, *Lavoisier e Parthenope. Contributo ad una storia della chimica del regno di Napoli*, Naples, Società Napoletana di Storia Patria & Istituto Italiano per gli Studi Storici, 2017, 400 pp., ISBN 9788880440857**

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## Jennifer Rampling to Deliver Plenary Lecture at ESHS Conference

We are pleased to note that Jenny Rampling, until recently the editor of *Ambix*, has been accepted as an Early Career Plenary Lecturer at the conference of the European Society for the History of Science in London, later this year. Jenny was nominated by the British Society for the History of Science and will be joined by Stephanie Dick (University of Pennsylvania) and Antonio Sánchez (Universidade de Lisboa).

Further details of the conference, which takes place 14-17 September, 2018, may be found on page 19 above.

Congratulations to Jenny on being awarded this honour.




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## New Members of SHAC Council

A number of new appointments to the SHAC Council have been approved during the last year, and ratified at the AGM in September. They are as follows:

Bruce Moran	(Editor, <i>Ambix</i> )
Viviane Quirke	(Associate Editor, <i>Ambix</i> )
Tillmann Taape	(Book Reviews Editor, <i>Ambix</i> )
Robert Johnstone	(Treasurer)
Carolyn Cobbold	(Membership Secretary)
Sophie Waring	(Council Member)

We warmly welcome our new members and offer sincere thanks to all outgoing members and office-holders, whose service over the years has been much appreciated.

## REPORTS

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### Subject Development Award

*Fabrizio Bigotti, Wellcome Trust Fellow, Centre for Medical History (CMH)  
College of Humanities, University of Exeter, UK*

Fundings provided by the SHAC in form of SHAC Award were used to support travel expenses and connections for 4 keynote speakers during the international conference *Humours Mixtures and Corpuscles: A Medical Path to Corpuscularism in the Seventeenth Century*, organised by Fabrizio Bigotti and Jonathan Barry in Pisa (Italy) 18-20 May 2017. The conference, the first to be dedicated to the legacy of the Italian physician Santorio Santori (1561-1636), explored the dissemination of corpuscularism in the fields of medicine, natural philosophy and technology.

It was attended by a range of outstanding international scholars as well as keynote speakers, including Christoph Lüthy (Radboud University), Georgiana Hedesan (Oxford University), William Newman (Indiana University), Vivian Nutton (UCL Emeritus), and Matteo Valleriani (Max Plank Institute for the History of Science). A publication of the conference proceedings by Springer is foreseen for 2018 with the title *Santorio Santori and the Doctrine of Effluvia: Corpuscularianism, Quantification and Experimentation in Early Modern Medicine and Natural Philosophy (1614-1784)*. A follow up of the conference is anticipated for 2019.

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### SHAC New Scholar Awards 2017

*Konstantin Kiprijanov, PhD Candidate, Centre for the History and Philosophy of  
Science, University of Leeds, UK*

The SHAC New Scholar award offered me the unique opportunity to present the results of my PhD research project at the 11<sup>th</sup> International Conference on the History of Chemistry 2017 (#11ICH) in Trondheim, Norway. My thesis investigates how structural formulae – or line-and-letter formulae, as I prefer to call them – became established as the default symbolic language of organic chemistry during the last third of the nineteenth century. Focusing on the period 1857 to 1892, my dissertation provides an alternative account of the evolution of modern chemical language by outlining the different communication practices which were driving the conception, dissemination, and appropriation of structural formulae in Britain, France, and Germany. By tracing the circulation of chemical representations across three countries, I demonstrate that the establishment of the new notation depended on the complex interaction of such factors as the function of print media in university education, typographical constraints, and the active role of authors, publishers, and readers in shaping national and international markets for scientific print.



The paper which I presented at the international conference in Trondheim investigates the emergence and early use of line-and-letter formulae in Germany. The paper argues that it was not primarily through textbooks, but through periodical literature that German university students learned about the new notation. My paper demonstrates that foreign-language textbooks with early line-and-letter formulae, such as Edward Frankland's Lecture Notes (1866), were generally not available from German booksellers or academic libraries, whereas scientific periodicals proved to be much more accessible to university students. The paper concludes that it was due to this good availability of periodical literature, together with the requirement to engage with the latest research in their field, that prompted German students to employ periodicals as learning resources. Paying close attention to educational practices thus allows us to see that the way in which line-and-letter formulae were circulated in Germany was different from the way in which the formulae were disseminated and received in Britain and France, thereby also further broadening our historiographical approach to the making of the modern language of chemistry.

I was thrilled to see that the papers presented in the conference's three highly stimulating sessions on historical and new approaches to chemistry teaching (sessions B4 to B6) shared many of my research interests in visual representations, pedagogical strategies, and the proliferation, reception, and use of various forms of didactic literature. Discussing the findings of my research with leading scholars in the field gave me the unique opportunity to further develop my methodology and to broaden my historical perspective, and provided me with invaluable pointers toward additional historical evidence for my argument. Taking part in the subsequent discussions of the themes addressed in those sessions also allowed me to understand how my own research can contribute to the further advancement of scholarship in the areas of chemistry education and the communication of chemical knowledge. I would like to express my gratitude to the Society for the History of Alchemy and Chemistry for its generous support of this project in the form of this grant and its continuous assistance through a vast network of international scholars in the discipline.

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*Kristen M. Schranz, PhD Candidate, University of Toronto, Canada*

I am grateful to the Society for the History of Alchemy and Chemistry for its generous funding of conference travel. The New Scholars Award enabled me to participate in the 11th International Conference on the History of Chemistry in Trondheim, Norway (29 August – 2 September 2017). Here I presented a paper, "Dr. Carmichael Smyth's Nitrous Acid Fumigation: The Chemical Testimony of James Keir," in a themed session on boundary work.

In the late 1700s, the Scottish physician James Carmichael Smyth (1741-1821) proposed that contagious fevers in ships and hospitals be countered with nitrous acid vapour fumigations. The process was not widely known or accepted in Britain until a House of Commons committee determined Smyth's proposal deserved a national award in 1802. The



public testimonies and letters of physicians, surgeons, and chemists during the committee proceedings demonstrated a growing separation of medical and chemical authority at this time. My talk argued that chemists occupied a distinct sphere of expertise when it came to stating the safety and efficacy of the fumigation process. For example, only chemists like Humphry Davy (1778-1829) and the Scottish manufacturer and writer, James Keir (1735-1820), were trusted to confirm the safety of the procedure and to use chemical principles to explain its efficacy, while physicians and surgeons presented mere personal observations about the process. My talk concluded that although chemistry was intimately bound up with medicine, particularly in Britain at this time, the rise of the new theoretical chemistry in France increasingly delimited the types of witnessing and expertise that defined medical and chemical authorities.

Other papers in the same session also demonstrated how chemists increased the boundaries of their credibility in the nineteenth century, through agricultural reforms and positions in customs offices. These talks provided a wider context for my localised claim and brought up relevant questions about the reputation of chemists across Europe.

The conference afforded excellent networking opportunities with senior scholars and postgraduate peers. Conversations with several professors honed my conceptions of themes in eighteenth century chemistry. I am equally grateful for the new acquaintance of researchers with access to scientific objects and texts, which may prove helpful for my wider thesis project on the chemical manufacturing of James Keir. The conference was also beneficial for new postgraduate contacts. A fellow student and I are already planning an eighteenth century chemistry panel for the 2018 History of Science Society meeting and I benefitted from discussions on research content and methodologies with several doctoral colleagues.

I am deeply indebted to SHAC for the opportunity to share my research and enrich my scholarly connections. The New Scholars Award has helped me access a wise and diverse community of historians of chemistry, and I know these connections will foment an ongoing intellectual and material exchange for years to come.

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## **OXFORD SEMINARS IN THE HISTORY OF ALCHEMY AND CHEMISTRY, 2018**

The Oxford seminars, usually held each year in May-June, were moved forward to January 2018, in order to coincide with the visit to the Maison Française d'Oxford (MFO) in January-February 2018 of a colleague, the distinguished historian of chemistry Professor Emeritus Bernadette Bensaude Vincent (Université Paris 1 Panthéon Sorbonne). All the seminars were kindly hosted by the Maison Française (2-10 Norham Rd., Oxford), and supported by SHAC. Attendance is free, and all with an interest in the history of alchemy



and chemistry are welcome, particularly postgraduate students and other younger scholars. The programme was as follows:

### 17 January, 2018

Sofie Jaeger ( KCL), *“Pulling the Receipts”*: gender, alchemy and intellectual networks in early modern England.

Mariana Sanchez Daza (Paris Diderot), *Alchemy in the Viceroyalty of Peru in the seventeenth-century*.

### 24 January, 2018

Julia Carr-Trebelhorn (University of Oxford), *“Powers of Perfection”*: the chemical and material mastery of Alexandre Brongniart.

Cat Rushmore (Oxford Brookes), *The uses and misuses of carbon tetrachloride in British homes from the 1930's to the 1980's*.

### 31 January, 2018

Carolyn Cobbold (University of Cambridge), *How chemists sought to regulate food in France, Germany, Britain and the United States, 1800-1914*.

Karoliina Pulkkinen (University of Cambridge), *Values and uses: how Mendeleev's valuing of completeness supported predicting*.

**The organisers of the seminars, to whom our thanks are extended, were: Marie Thébaud-Sorger (CNRS,MFO), John Perkins (Oxford Brookes), and John Christie (University of Oxford).**

On 23 January, 2018, Professor Bensaude-Vincent delivered a Public Lecture at the MFO, as part of their focus for the month of January on the History of Chemistry, taking as her subject; *Chemistry without borders: The role of chemists in 20th century technologies*. In outlining her lecture, the professor explained:

While today chemists are working in a variety of professional domains - ranging from medicine and pharmaceutical companies to nuclear technology, bio and nanotechnology - students are taught chemistry as if it were a unified discipline with a specific *territory* and a common language shared by all chemists. The chemists' imaginary is shaped around an image of a diaspora: a scattered population of former inhabitants of a homeland immersed in foreign countries and yet retaining their cultural identity, after moving away from home.

In her lecture, Professor Bensaude-Vincent suggested an alternative perspective on the basis of four different case studies of engagement of chemists beyond the traditional turf of chemistry: nuclear technology, materials science and engineering, synthetic biology, and nanotechnology. Instead of assuming that there was a pre-determined territory of chemistry, she argued that the epistemic profile of



chemistry was shaped by the various ‘terrains’ (or fields) where chemists are working. The image of a family tree deeply rooted in a soil, she proposed should be substituted for that of a large and loose rhizome network.

SHAC is grateful to Professor Bensaude-Vincent, the Maison Française d’Oxford, the individual speakers, and all involved in organising the seminars and public lectures, for providing such a stimulating start to the year.

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## Rutherford’s Chemists, Glasgow

**15-16 July 2017**

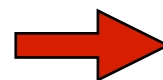
Readers will find a report of this joint meeting between the RSC Historical Group and the History Group of the Institute of Physics at [http://www.rsc.org/images/historical-group-newsletter-winter-2018\\_tcm18-250051.pdf](http://www.rsc.org/images/historical-group-newsletter-winter-2018_tcm18-250051.pdf), where they will also find many other items of interest.

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## 11<sup>th</sup> International Conference on History of Chemistry (11<sup>th</sup> ICHC), Trondheim, Norway 2017

**29 Aug-2 Sept, 2017**

The 11th International Conference on History of Chemistry (11ICHC) of the Working Party on the History of Chemistry (EuCheMS) was held in Trondheim, Norway, during 29 August-2 September, 2017. The local host of the conference was the Department of Teacher Education, NTNU – Norwegian University of Science and Technology, in collaboration with the Norwegian Chemical Society. The main sponsors were the NTNU, the Research Council of Norway, the Chemical Heritage Foundation, Sintef Materials and Chemistry, Ineos/Inovyn, the SHAC, and the division for history of chemistry of the Norwegian Chemical Society.





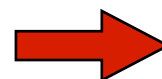
The 11th ICHC was attended by 111 participants, making it one of the highest attended conferences in the history of the ICHC. Participants came from Australia, Taiwan, Japan, China, Mexico, Canada, USA and most European countries. Historians and philosophers of science, professional chemists, current and prospective science teachers, came together to present and discuss ongoing research in the history of chemistry.

The programme (<https://www.ntnu.edu/web/11th-international-conference-on-the-history-of-chemistry-11ichc-/scientific-program>) consisted of three plenary lectures, 17 parallel sessions with 73 oral presentations, one film screening, and a concluding discussion panel, in addition to a social programme with excursions. In contrast to previous ICHC conferences there was no call for contributions on a specific theme. Instead, the three keynote lectures were meant to inspire panel and individual submissions from a range of areas within the history of chemistry. Hasok Chang from the University of Cambridge spoke about ‘What history tells us about the nature of chemistry’, Maria Rentetzi from the National Technical University of Athens gave a lecture on ‘Living with radiation: What historians of chemistry have to do with science diplomacy and international organizations’, while Anders Lundgren from the University of Uppsala presented on ‘Science in chemical industry – what did it do?’.

The 17 parallel sessions covered the following topics: ‘Chemists and the IUPAC: Taking Responsibility and Taking Actions’, ‘The Chemical Innovation Systems in the “Third Reich”’, ‘Elements and the Structure of Matter’, ‘Alchemy and Early Chemistry’, ‘Women in Chemistry’, ‘Dyes and Pigments in History’, ‘Recent Chemistry: New Methodological Approaches’, ‘Toxic Products: Communicating Toxicity’, ‘Toxic Products: Toxic Risks’, ‘Science Teaching: Historical Perspectives’, ‘Chemistry Teaching: New Approaches’, ‘Boundary Work: Chemistry and Economy’, ‘Relating Chemistry: Translating Chemistry across Linguistic, Disciplinary and Physical boundaries’, ‘Biographical Approaches’, and ‘Polymers and Plastics’, ‘All Things Bakelite’. Finally, a round table titled ‘What Future for the History of Recent Chemistry and Molecular Sciences? New Challenges in the History of Chemistry and the Molecular Sciences’, concluded the conference.

The social programme included a demonstration of a 15th Century distillation furnace at the University Museum, an excursion to Sverresborg Open Air Museum, an organ concert at the Nidaros Cathedral, conference dinner, a stroll along the Trondheim fjord, and a full-day excursion to the UNESCO World Heritage Site of Røros, a 17th century mining town.

The case studies and research discussed during the conference show the vitality of the history of chemistry broadly construed and the existence of a vibrant community of scholars interested in the discipline. Of course, there is still room for new studies, opened to wider geographic and chronological frameworks, to enrich the area, offering a richer view of the historical connections between chemistry and society. This is why we look forward to the next conference: the **12th ICHC that will take place in Maastricht, The Netherlands, 6-9 August 2019.**





More details of the 11th conference at Trondheim may be found at: <https://www.ntnu.edu/11ichc>

With thanks to Annette Lykknes for providing this report.

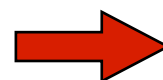
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Panel at the 11<sup>th</sup> International Conference on the History of Chemistry, Trondheim, organised by D.M.E. Fauque ((Univ. Paris Sud, Orsay, F and Groupe d'histoire de la chimie, Société chimique de France, F) and B. Van Tiggelen (Chemical Heritage Foundation, US/ Mémosciences, B)

## **Chemists and the International Union for Pure and Applied Chemistry. Taking Responsibility and Taking Actions**

**30 August, 2017**

Since its foundation in 1919, many famous chemists have contributed to the International Union for Pure and Applied Chemistry (IUPAC), with the drive to improve standardisation of methods, nomenclature, units and standards, among other things. Without a doubt, progress was made, despite power struggles, uncompleted projects and unproductive commissions. The Trondheim session was aimed at shedding light on the activity of chemists invested with responsibilities in the IUPAC, whose actions are often overlooked in national biographical dictionaries. The session fell into the broader project on the centennial of the IUPAC, in 2019.



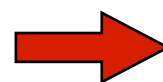
As a fitting introduction, Ron Brashear (Arnold Thackray Director of the Othmer Library, Chemical Heritage Foundation, US) presented the history of the IUPAC archives kept at the Chemical Heritage Foundation. The records span from its inception in 1919 through 1995, counting 388 boxes: that is more than 220 linear feet (or 65 linear meters), as well as 150 photographs. All the following papers of the session made extensive use of these archives.

Yoshihiko Kikuchi (Nagoya University of Economics, J) focused on the figure of Joji Sakurai, professor at the Tokyo Imperial University, in his talk 'Japan's Engagement with International Chemistry, 1900-1930'. Sakurai's involvement with the international community dated back to 1900, when he opposed the decision to keep two reference tables for atomic weights. Japan participated from the start to the International Research Council (IRC) and became a member of IUPAC in 1921, of which Sakurai was elected vice president twice. Through the prominent role of his country in a mostly Western union, Sakurai managed to unify the national community, and prompted the creation of a national research council. Kikuchi also proved how Sakurai's personal position regarding Germany and its allies strained the relationship between the IRC and IUPAC, the latter welcoming the former enemies despite IRC's policy in the matter.

In her paper 'Order and Discipline: W. Conard Fernelius and the Nomenclature of Inorganic Chemistry', Ann Robinson (Univ. Mass. Amherst, Mass., US) focused on W. Conard Fernelius (1905-1986), who became president at the time that the Commission on the Nomenclature of Inorganic chemistry (CNIC) was revising the Red Book (guidebook for inorganic nomenclature). Appointed as an observer to CNIC as early as 1951, Fernelius realised the need for institutional memory if discipline and method are to rule. He proposed a systematic nomenclature for Transferrmium elements, to prevent rushed decisions. His simple program, confronted with the many diplomatic levels involved (tension between USSR and US), underlines the complexity of the functioning of an IUPAC commission, the decisions or recommendations of which were re-discussed in the Bureau, despite the agreement met inside CNIC.

Soviet chemists played an increasing role after Stalin's death, and Elena Zaitseva (Univ. Moscow, RU) showed in her paper, 'Russian Presidents of the International Union of Pure and Applied Chemistry until 1995', how two Russian presidents favoured interdisciplinary work through structural alterations that changed the face of IUPAC profoundly. Victor N. Kondratiev, restructured several commissions and was involved in the founding of CODATA (Committee on Data for Science and Technology, now attached to ICSU), an interdisciplinary committee devoted to fundamental physical constants. Twenty years later, Valentin A. Koptuyg (1988-1989) stressed the crucial importance of chemical education and introduced the Chemistry and Environment program, now a IUPAC Division. This also opened up the Union to a more responsible and proactive attitude in the face of global challenges.

In her paper 'French Chemists in IUPAC after the Second World War: a Strong Engagement', Danielle Fauque concentrated on the second Secretary General, the Frenchman, Raymond Delaby, who succeeded Jean Gérard (1919-1944), also French. Delaby restructured the Union according to the latest developments in the chemical



sciences, securing the presence of new topics such as macromolecular chemistry and spectroscopy. He was also eager to reintroduce the industrial and applied chemistry that had disappeared around 1930. To ensure the flow of information in an ever-growing international body, he initiated a newsletter, the *Circulaire d'information*, the precursor of *Chemistry International*. While Delaby did not favour his homeland, he actively enrolled French chemists in the Union.

In her commentary, Brigitte Van Tiggelen reminded us that, by focusing on individual actions, the aim of the session was to get a better sense of articulation between the local and the international, and how this articulation was constructed through the work and actions of chemists dispersed across the world. The panel very fittingly followed Maria Rentetzi's key-note lecture, 'Living with radiation: What historians of chemistry have to do with science diplomacy and international organisations', in which she argued that the present scientific knowledge and standards of radiation protection have been shaped by diplomatic, social, economic, and political concerns. Bringing the history of nuclear science together with the history of international organisations and diplomatic relations, Rentetzi claimed, marks a "diplomatic turn" in the history of science.

The history of IUPAC definitely calls for such a diplomatic perspective, looking at the Union as an institution that is both the product and the maker of scientific diplomacy. While the International Atomic Energy Agency (IAEA) focuses on a confined techno-scientific domain, IUPAC is faced with the problem of the identity of chemistry, and its mutation over a century. The insights gained from diplomatic histories of 'focused' and somewhat geographically localised agencies like the IAEA will no doubt help to find threads in IUPAC's complex maze as a delocalised and multi-topic international structure.

**With thanks to Brigitte Van Tiggelen for providing this report.**

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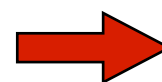
## SHAC Autumn Meeting Chemistry in Europe

*Maison Française, 2-10 Norham Road, Oxford, OX2 6SE*

**30 September, 2017**

The SHAC Autumn Meeting, which included the Society's AGM, attracted an enthusiastic audience with its theme of 'Chemistry in Europe'. The programme was divided into three panels, chronologically ordered to feature papers tackling the theme through events in the eighteenth, nineteenth, and twentieth centuries.

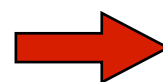
Dr Simon Werrett (UCL) opened the meeting, welcoming participants and thanking our hosts at the Maison Française for their generous hospitality. The first panel was chaired by Dr Robert Anderson (CHF/Science History Institute), who introduced **Marie Thébaud-Sorger (CNRS/Centre Alexandre Koyré, Paris/**



**Maison Française D' Oxford)** to present the opening paper; **'Houses which couldn't burn: Research on coating and fireproof materials in eighteenth-century Europe (Germany, Belgium, France, England)'**. In a fascinating presentation, Dr Thébaud-Sorger examined the context which led chemists in eighteenth-century Europe to make fire, and its prevention, a primary focus of their work. In addition to a material concern for public buildings, made more pressing by developments in the insurance system, mastering fire represented a political metaphor for controlling the elements causing social concern during this period.



Experiments aimed at understanding the principles of combustibility proliferated during the eighteenth century and, starting by describing the 'firebomb', developed by the German chemist, Ambrose Godfrey-Hanckwitz (1660-1741) as a chemical means of extinguishing flames, Dr Thébaud-Sorger proceeded to trace how chemists across northern Europe engaged with the challenge of mastering fire. One interesting facet of their experimentation was the chemists' use of model houses, purpose-built in public places for the trialling of chemical extinguishers. Fire was a subject of some interest to the public at this time, as evident from reports in contemporary newspapers, and the trials drew large audiences. Ambrose Godfrey, who had arrived in London in 1679, was employed as an assistant to Robert Boyle, his work on phosphorus informing his developments in the chemical control of fire. In addition to extinguishing flames, chemists were also active in seeking to make buildings safer by developing methods of fireproofing. David Hartley (1732-1813) applied iron cladding to his experimental replica house on Wimbledon Common, while Viscount Mahon FRS (1753-1816) produced a cheaper alternative in the form of a mortar, applied both inside and outside the house.



The work carried out in England formed part of a survey of fireproofing systems across Europe conducted by Abbé Mann (1735-1809), an English-born scientist and man of letters who had retired to monastic life at Chartreuse. Responding to Mann's observations, which identified, as the aim of fireproofing, the separation of combustible material from air, Jean-Baptiste Brequin de Demenge (1712-1785) and Joseph Decreux (1735-1802) repeated in Vienna the experiments of Mahon and developed a fireproof clay. This attracted the interest of academies in France and Germany. Dr Thébaud-Sorger's final example was the German physician, Johann Friedrich Glaser (1707-1789), who was active across Europe, from Paris to St Petersburg, having developed a chemical treatment for fireproofing wood to be used as a building material.

The second paper looking at eighteenth-century chemistry in Europe was presented by **John Christie (Oxford)**, who chose as his topic, '**Alum Analysis in Germany, Sweden and France, 1750-1810**'. The presentation examined the shift in the perception of alum production from a natural historical process to one of analytical chemistry. Writing to Henry Oldenburg in 1675, Newton had described Nature as a perpetual circulatory worker, the inference being that Nature was herself a chemist. John illustrated this by reference to the production of Roman Alum at Solfatara, near Naples, where the ground at the volcanic summit is covered with alum, while sulphur bubbles beneath. Here Nature is at work creating Alum Sulphate. To replicate this natural process and ensure crystallisation, the chemist had to engage in careful measurements of temperature and specific gravity. The German chemist, Andreas Marggraf (1709-1782), had recognised that excess acidity prevented the crystals, used as a mordant to heighten colour in the dyeing process, from forming. It was necessary, therefore, to add an alkali, seaweed being used as a vegetable source of potassium carbonate.

John's paper went on to describe how chemists in Sweden and France engaged in efforts to refine the process through analytical approaches. In Sweden, Bergman realised the link between excess acid and the failure of the crystallisation process, but his solution - adding more argillaceous earth, rather than the potassium alkali, proved to be the wrong conclusion. In France, Chaptal and Vauquelin were able to develop new production methods as a consequence of their laboratory analyses of the crystallisation process. They calcined balls of clay, rather than rock, treating them with sulphuric acid fumes, before adding a vegetable alkali. Crucially, their analyses led to the conclusion that alum was a triple salt and that the addition of potassium was not merely necessary for the neutralisation of excess acid, but required for the crystallisation process itself.

A final example highlighting the transition to analytical chemistry was the work of French chemists, Thenard and Roard, who investigated the impact of alum on dyes. Recognising that the removal of iron was a significant aim of the purification process, they developed analytical methods to detect very small quantities present in the alum. While in French alum, iron comprised one part per thousand, the figure reduced to one part per two thousand in Tolfa alum, from Italy. This distinction was sufficient to explain the dyers' preference for Tolfa alum and to support John's conclusion that increased commercialisation was driving the demand, and thereby the advance, in precision analysis.



Frank James took the chair for the next session, which focused on the nineteenth century. First to present was **Karoliina Pulkkinen (History and Philosophy of Science, Cambridge)**, whose paper examined ‘**Language Games in the periphery of European Chemistry**’. Referencing a work of 2015 by Michael D. Gordin, *Scientific Babel: The Language of Science from the Fall of Latin to the Rise of English*, Karoliina used the situation in nineteenth-century Finland to illustrate how language could be used politically to promote the advancement of science, and in this case, chemistry.

In 1809, Finland, which had hitherto been part of the Swedish Empire, became an autonomous Grand Duchy of the Russian Empire. Eager to avoid closer ties developing between Finland and Sweden, Russia was happy to support the adoption of Finnish as the language of the educated in the Duchy. The University, which had been founded by Queen Christina of Sweden in 1640, transferred from Turku to Helsinki in 1828, having received substantial funding from the Russian Emperor Alexander I. In recognition of this benefaction, it was named the Imperial Alexander University of Finland.

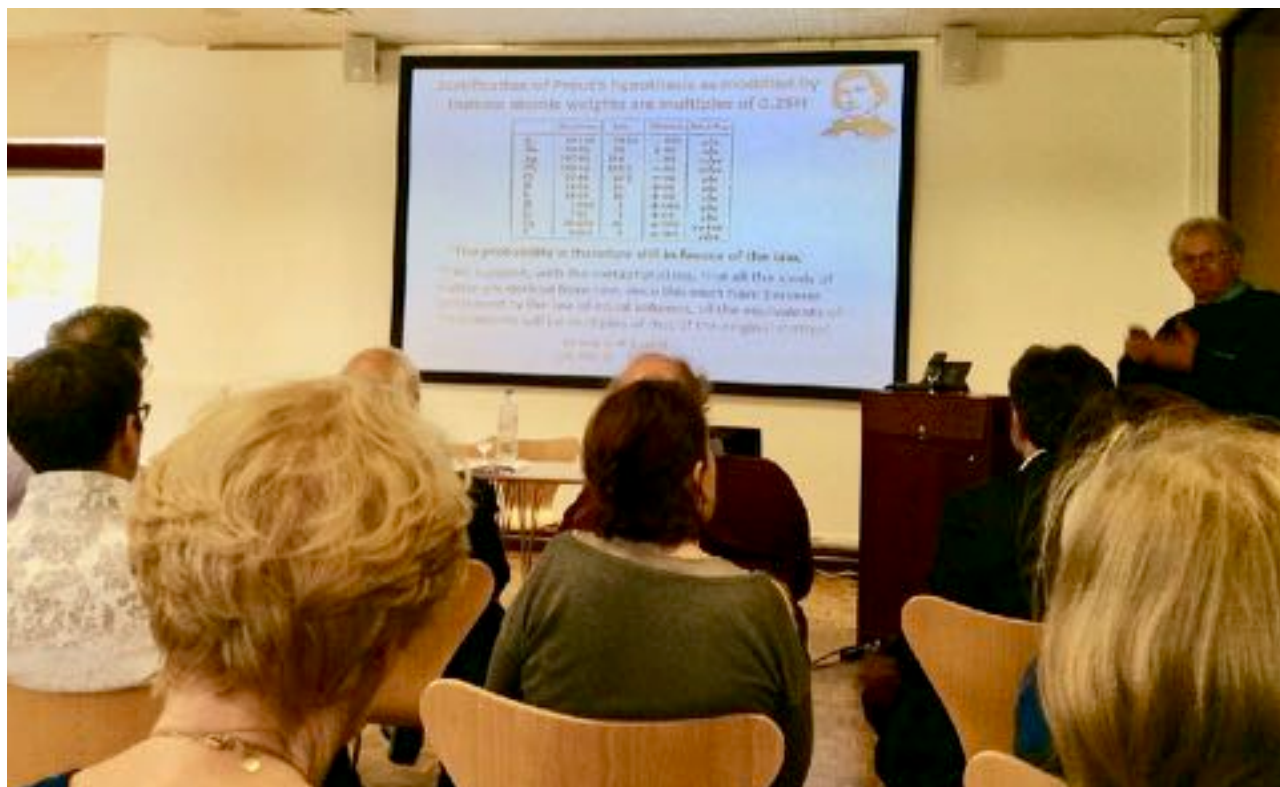
The central figure in Karoliina’s paper was the Finnish chemist, Adolf Edvard Arppe (1818-1894). Arppe had worked with the German chemist, Friedrich Wöhler, who had been a great influence and stimulated his interest in organic chemistry. He also worked with Justus von Liebig at Giessen and was eager to work with the Swedish chemist, Berzelius. Arppe published works in Finnish, Latin and Swedish, and attracted praise from Berzelius for their content. The Swedish chemist was critical, however, of his use of Latin, which he claimed was not suited to the science of chemistry. Students of chemistry, it seemed, needed to learn indigenous languages; Finnish, Swedish, and, to a lesser extent, Russian, in order to progress in their discipline.

The new university at Helsinki did not have a dedicated chemistry laboratory and, once appointed rector there, Arppe developed a proposal and a plan for a modern laboratory similar to those at Giessen and Munich, and including apartments for the chemistry professor. The decision resided with the Russian authorities in St Petersburg. Arppe, who was once liberal, had become increasingly pragmatic and conservative and had managed, through his promotion of the Finnish language, to gain favour with the imperial overlords, resulting in his ennoblement. The plans for the laboratory were accordingly approved in 1866 and the laboratory was completed in 1869 and named the Arppeanum.

As rector, Arppe’s popularity dwindled and he was required to maintain a delicate political balance in order to receive the funding necessary to secure and promote the development of chemistry at the university. His strategy continued to rely on the astute employment of language, calculated to appeal to whichever audience he needed to satisfy. Speaking in Finnish became more prevalent at the university as Russian disapproval of the Scandinavianists, and their support of Sweden, grew. Eager to appease, Arppe gave a rector’s speech consciously promoting the Finnish language as the language of the people. Meanwhile, eager to attract funding for the work of his chemistry laboratory from a broader range of sources, his speech was written down in Swedish. Understanding the power and politics of language was, it seems, key to generating interest, support, and resources for developing chemistry on the periphery of Europe.



**Chris Campbell (Science and Technology Studies, UCL)** presented the second paper in the session on nineteenth-century chemistry, taking as his topic, ‘**The Prout Principle**’. Chris chose to explore a fundamental question: when can it be said that the data ‘proves’ a theory to be correct? The subject of his exploration was the hypothesis put forward by the Edinburgh physician, chemist and natural theologian, William Prout (1785-1850). Prout had put forward the theory that the atomic weight of each chemical element was a multiple of the atomic weight of hydrogen. In the years to come, this hypothesis was to be put to the test by several prominent chemists, their analyses leading to ever more accurate measurements of atomic weight.



One such chemist was Jean Baptiste André Dumas (1800-1884), who adopted the metaphysical position that matter had all derived from one original *prima materia*. Dumas' logic applied the law of equal volumes, concluding that as this matter condensed, each element formed must be a multiple of that primary matter. His analysis of the atomic weights of a selection of elements led him to conclude that they were each multiples of 0.25 of hydrogen. The ratios were not, however, mathematically precise and therefore some chemists strove to bring greater accuracy to the measurement of atomic weights. In 1862, the American philosopher, chemist and polymath, Charles Sanders Peirce (1839-1914), writing on the chemical theory of interpenetration, examined Prout's law, as modified by Dumas, looking at the data gathered by the Belgian chemist, Jean Servais Stas (1813-1891), and taking the most accurate measurements of atomic weight derived from other European chemists. This work led Peirce to produce his own table of elements by atomic weight in June 1869, just four months after Mendeleev.

Also engaged with Prout's hypothesis was the American scientist, Josiah Parsons Cooke (1827-1894) who, having calculated his own measurements of atomic weights





for a range of elements, concluded in his *Principles of Chemical Philosophy* (1882) that the slight numerical fractions by which the weights differed from whole numbers were due to experimental error in the laboratory. With a little rounding up or down, Prout's hypothesis was supported by the evidence, although the atomic weight of Chlorine appeared anomalous. As time passed, however, and measurements in chemical analysis became ever more accurate, tolerance of the discrepancies could not be sustained. Cooke questioned whether there was a constant error in the measurements leading to the mean ratio of atomic weights between oxygen and hydrogen, as determined by trustworthy scientists, being 16:1.0025, rather than the 16:1 required for conformity to Prout's theory. Working with fellow American, Theodore William Richards (1868-1928), the two chemists sought to achieve a precise ratio by mixing hydrogen and oxygen and weighing the hydrogen used in the resultant combustion, and the water formed, to determine the mass of the oxygen used.

Cooke and Richards found that the purity of the hydrogen used effected the accuracy of their results. By employing the purest hydrogen, they were forced to conclude that it combined with oxygen to form water in a ratio of 2:15.953, to within an error far within the 1/100 of a single unit. Insofar as the purity of the hydrogen would allow, the figures did not uphold Prout's hypothesis. Mendeleev had concluded in 1871 that, as Stas had demonstrated, while ever the differentials between measurements of atomic weights did not provide any rational fractions, Prout's theory could not be proven, and had therefore been overstated.

Nonetheless, Prout's hypothesis was still under discussion in 1917 when, making his presidential address to the Royal Society of Chemistry, Alexander Scott reflected on how neither the attempt of Swiss Chemist, Jean Charles Galissard de Marignac (1817-1894), who suggested making 0.5 of the hydrogen unit as a divisor, nor Dumas' proposal of 0.25, could confirm the theory, once atomic weights came to be measured with greater precision.

The final panel of the day consisted of three papers examining Chemistry in Europe during the twentieth century, and was chaired by Carolyn Cobbold. Presenting first, **Robert Fox (Oxford University)** chose as his topic '**The Marcellin Berthelot centenary, 1927: the rhetoric and realities of international chemistry after the Great War**'. Just as Karoliina's paper had explored the political machinations employed to support the development of chemistry in nineteenth-century Finland, Robert's paper sought to show how the centenary of French chemist Berthelot's birth was used politically to restore collaborative relationships between chemists in the countries of western and central Europe, fractured by the Great War of 1914-1918.

Although Berthelot (1827-1907) had accomplished many notable achievements, by 1927, twenty years after his death, his star was waning and therefore the scale of the centenary celebrations might seem, on the surface, to be disproportionate. Berthelot was a philosophical positivist and therefore opposed atomic speculation and vitalism. He was a public personality but, relative to the scale of events four years' earlier, marking the centenary of Louis Pasteur's birth, those proposed for Berthelot appear excessive. Pasteur had been honoured with a monument placed opposite the entrance to Strasbourg University in May 1923. Significantly, no Germans were invited to that event. The centenary was ,



nonetheless, marked by the issuing of France's first commemorative stamp, an honour also afforded Berthelot. However, the celebrations for Berthelot, which started with a great ceremony at the Sorbonne, far exceeded those of Pasteur. All the addresses, sent from around the world, were gathered and bound in one volume, sold at a cost of sixty francs. Images of the chemist became the subject of elaborate bronzes and busts.



In exploring the possible motive behind the decision to celebrate Berthelot's centenary on such a grand scale, an answer might lie in the need to address the political breakdown of the international community of chemists, which had resulted from the divisions caused by the Great War. In the wake of the War, the Allies had set up an International Research Council, but Germany and the Central European countries had been excluded. The rules of the IRC applied to international congresses and the use of the German language was banned. Prior to the War, around forty-five percent of papers presented at such congresses had come from Germany, Austria and Switzerland. Germany was now beginning to collaborate with nations to the east, especially Russia, and such divisions were seen as a loss in the context of the transnational tradition of pre-war science.

By 1926 Germany had been readmitted as a member of the League of Nations and had the support of neutral Sweden. It was in the best interests of science for the situation to be resolved and the nations reconciled. During the period of Germany's exclusion, France had gained prominence and Jean Gérard (1890-1956) had become the first Secretary General of the International Union of Pure and Applied Chemistry, established in 1919, serving until 1944. Gérard's proposal of a Maison de la Chimie, housing a



library of books, journals and papers focused on chemistry, offered a possible solution by which the international community of chemists might be brought back together. This was not a new idea, the German chemist, Wilhelm Ostwald (1853-1932) having proposed a plan for a similar Institute of Chemistry prior to the War, but Ostwald was now ostracised, leaving the way open for France to seize the initiative.

In concluding his paper, Robert expressed his belief that the Berthelot centenary was used as a diplomatic effort to establish this international society of chemists in France. The proposal attracted some sizeable donations, including over one million francs from Great Britain, but most European countries did not contribute, although they did agree to attend the celebrations. The foundation stone for the elaborate art deco masterpiece housing the Maison de la Chimie was laid in Paris in 1927. It became the Headquarters for IUPAC, the French Chemical Society and a World Library.

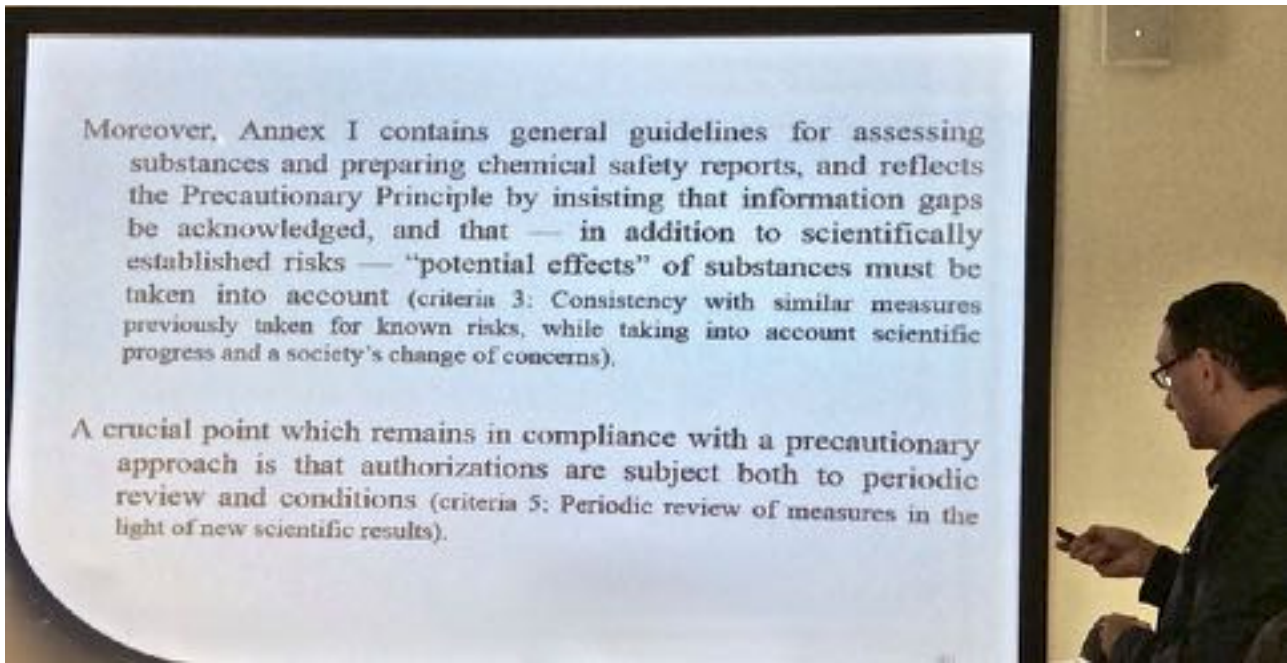
**Jean-Pierre Llored (Linacre College, Oxford)** presented his paper on ‘**Chemical Regulation in Europe (1970-1017): A Historical Survey of the Interrelations between Ethics, Politics, and Chemistry in the European Union**’. He started by looking at the specificity of risks, first defining the key health and safety terms; risk and hazard, by reference to their legal definitions. Where chemical bodies are concerned, however, the risk is context-specific and knowledge of ingredients, quantities and structure do not explain the chemical individuation exhaustively, e.g. in the instance of variables such as pH. In chlorofluorocarbons, for instance, chemists could not have been expected to predict, from a basic knowledge of the composition, structure, and familiar chemical reactions of chlorodifluoromethane, that it could cause ozone depletion. Chemistry is therefore a continual source of new unknowns, with each new substance produced having undetermined properties and the potential to react with already existing substances. Awareness of risks is consequently a priority.

The assumption made by industrial societies for over a century was that Nature was both the source of resources and the dumping ground for waste. It is now recognised that waste, and especially chemical waste, cannot always be eliminated safely by natural processes and that there can and have been dangerous environmental consequences and damage to human health. The curative model of policy assumes that, through human intervention, chemical damage can be repaired or replacements made. In circumstances where damage is irreversible, and reparation impossible, the policy model changes from curative to preventative. The assumption here is that science can determine precisely the level of damage beyond which the restoration of ecosystems and species is compromised and prevent that point being reached. If we neither know nor understand the impact of chemical substances, or their release into the environment is outside our control, however, the preventative model lacks reliability. Preventative policy can only be effective where science *is* a precise solution to the problem, risks are known and quantitative estimates can be made, allowing for a full risk assessment.

A further policy model is required when new types of risks emerge: the anticipatory model is needed to address potential risks or hypothetical hazards or threats, i.e. risks suggested by uncertainty, plausibility, and probability. Variables, such as geographical scope, or



the temporal duration of chemicals, create uncertainty of impact and, against this context, a new anticipatory environmental policy based on the 'Precautionary Principle' is emerging. This assumes that uncertainty, including the absence of irrefutable proof that damage will occur, should not be a barrier to the timely adoption of measures intended to anticipate environmental degradation.



Having introduced the concept of the 'Precautionary Principle', Jean-Pierre described its origins in a range of European and international initiatives aimed at achieving a collective approach to minimising the damage to species and the environment from chemical risk. At the forefront of these measures has been the European Union, which is the sole region to enshrine the precautionary principle in case law. The 'REACH Regulation' (Registering, Evaluating, Authorising - or forbidding - CHEMical substances) requires companies to propose risk assessments and is unprecedented as a form of chemical regulation. Judgements within the European Courts of Justice have extended the legal force of the 'Precautionary Principle' beyond environmental impacts to areas such as food and health safety, and by inference, sanitary safety. As the value of and need for precautionary approaches to risk have been recognised, they have been adopted to protect against an evolving range of threats e.g. persistent organic pollutants, and harmful organotins in anti-fouling paints.

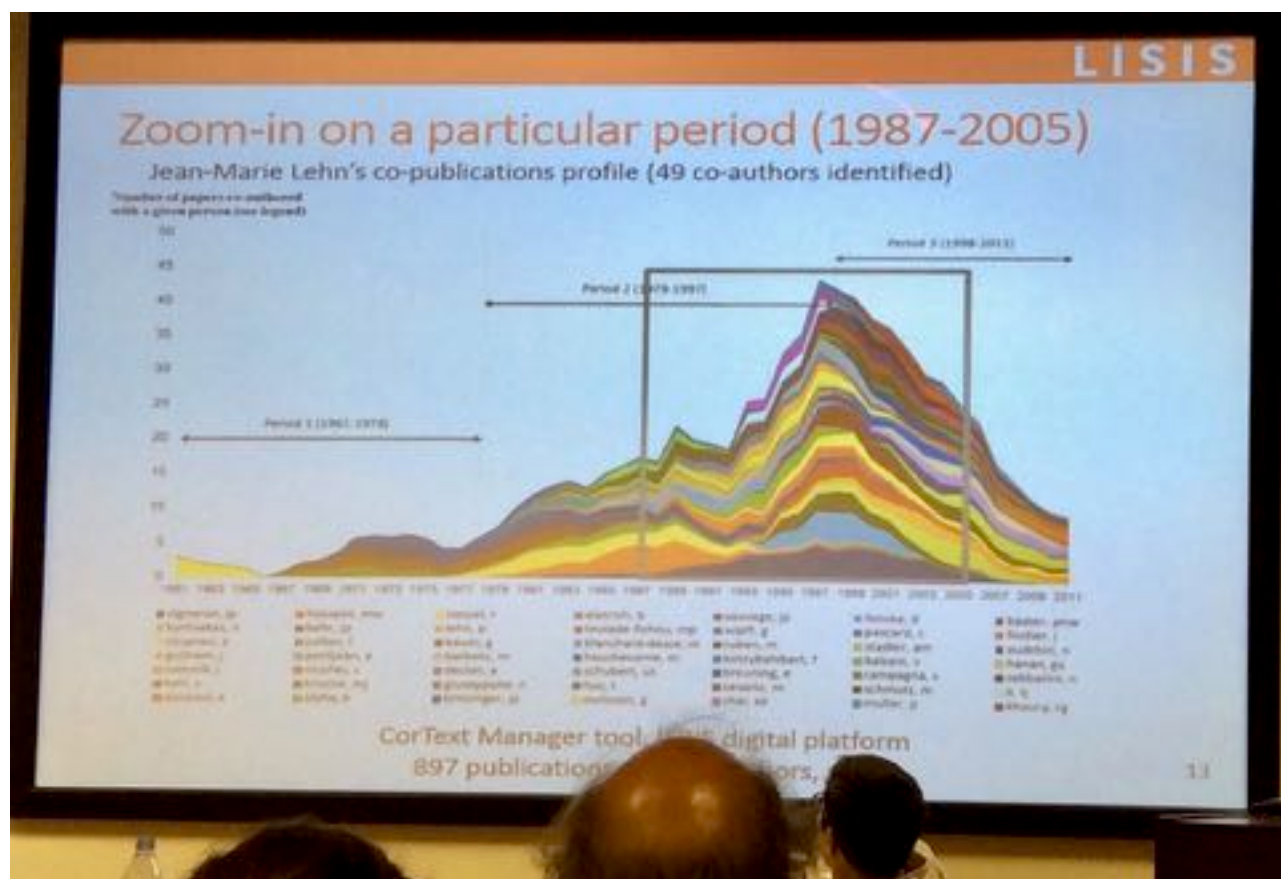
The REACH Regulations have placed the onus on EU industry and importers to prove that substances intended for the market are safe for human health and for the environment. They devote special attention to chemicals classified as Carcinogenic, Mutagenic or Reprotoxic, and to POPs. Furthermore, where safer alternatives exist they should be substituted, and 'Substances of Very High Concern' must be phased out. Processes of Registration, Evaluation, with compliance assessments undertaken by the European Chemical Agency (ECHA), and Authorisation establish that risks are adequately controlled and place the responsibility for this on the manufacturers, importers and downstream users of



the substance they produce or use.

The presentation concluded with some reflections on the administration of the REACH Regulations and the extent to which they embodied the 'Precautionary Principle'. Because of the ever-developing and emergent nature of chemical products and knowledge relating to them, authorisations must be subject to regular review and evaluations revisited as new knowledge emerges. The anticipatory model, and the shifting of the burden of responsibility for risk assessment and compliance onto manufacturers, importers and downstream users, while not wholly addressing issues such as conflicts of interest, have managed to translate concerns about the environment and human health and safety into a legislative framework for the control of hazardous chemicals.

Bringing to a close the panel on Chemistry in Europe in the twentieth century was **Marianne Noel (Université Paris-Est, Laboratoire Interdisciplinaire Sciences Innovations Sociétés (CNRS-ESIEE-INRA-UPEM) & IFRIS)**, presenting a paper on **'Made in Europe for the World': Making a claim for a European chemistry in the 1990s**. This was an update on the report from a four-year collective study (ANR PrestEnce 2010-2013) of the organisational construction of academic quality in high-performing departments, citing Paradeise & Thoenig, 2016. Marianne's research looks at socio-historical changes in the academic study and practice of the chemical sciences, examining in particular the role of scholarly journals, and the impact of Open Access policies. In setting the context, she quoted a range of sources in order to illustrate the hybrid nature of chemistry, when compared to the other sciences, particularly physics, and how this can be reflected in the diminished status it is sometimes afforded.



The speciality chosen as the focus for research into these issues is supramolecular chemistry (SMC), a discipline that has grown considerably over the last forty years and now produces between 20% - 30% of the published content of journals for the chemical sciences. The Nobel laureate, Jean-Marie Lehn, had been a key figure in the emergence of SMC, but its development had resulted from a networked approach by scientists, the University working in partnership with the CNRS, and engagement and support with the Alsace region. Although the study focused on Lehn's work in Strasbourg, Marianne's approach was socio-historical and assumed supramolecular chemistry to be both a concept and a social object, embedded in an institutional context, and shaped by professionals and scientific policies. Her analytical and sequential model charted Lehn's co-authorship profile in three specific periods.

Having defined supramolecular chemistry, the presenter went on to identify the scientists who contributed to its evolution (Peterson, 1967; Lehn, 1969; and Cram, 1973), leading to the awarding of the 1987 Nobel Prize for Chemistry 'for their development and use of molecules with structure-specific interactions of high selectivity', and to list the prestigious awards that the work in Strasbourg has attracted in more recent years (Nobel Prizes in Chemistry were awarded to Martin Karplus, 2013 and Jean-Pierre Sauvage, 2016; and in Medicine to Jules Hoffmann, 2011; and ISIS received a visit from French President, François Hollande, 2014). An analysis of the factors that contributed to this success revealed, paradoxically, the importance of a community of scientists with both locational rootedness and international openness. Added to this were the institutional structures, in this case, the Supramolecular Science and Engineering Institute (ISIS - originally RTRA). This local, national and international context proved crucial to the emergence of new ideas, with ISIS positioned as a mediator between scientific practices and politics.

Using supramolecular chemistry as the exemplar, could it be said that there is a distinctly 'European chemistry'? Aside from the community network emanating from Strasbourg, and its specific instruments, e.g. 'Co-operation in Science and Technology' (COST), a significant marker was the development of journal publication, evidenced graphically through the analysis of Jean-Marie Lehn's publishing profile, which identified co-production with 49 authors between 1987-2005. This spike in activity came after a period in which European chemistry had struggled to establish a coherent voice, representative of its stakeholders, and identifiable through a high-profile, prestigious journal. Marianne set the context, describing the challenges of the 1970s and 1980s, when journals had proliferated, leading to a position in which, rather than chemistry being represented by a European journal, a plethora of small-circulation commercial journals, each with a national focus, comprised the market. The two top-rated journals were the German Chemical Society's *Angewandte Chemie* and, in the UK, the Royal Society of Chemistry's *Chemical Communications* but, in the absence of a European equivalent of the American Chemical Society (ACS), no one journal had continent-wide reach in terms of stakeholders.

Lehn's suggestion was that a European journal could exist alongside *Angewandte Chemie* and *Chemical Communications*, but that smaller journals would have to be subject to rationalisation, with each nation being asked to sacrifice one of their publications.



Where previous attempts, dating back to the 1970s had failed, after discussions in Munich in 1993, *Chemistry - A European Journal*, described by Lehn and P. Göllitz as ‘European in spirit and international in appeal’, was published in 1995. Its originality lay in its publication of full papers from all disciplines of chemistry, and in its introduction of ‘concept papers’.

In concluding her presentation, Marianne illustrated the success, over twenty-five years on, of *Chemistry*, emphasising how it countered the hegemony of a US-dominated chemistry through its European spirit, but international reach. Critical to this formulation had been the development of the collaborative model that had established Strasbourg as the laboratory of Europe. This collective approach was exemplified by the transformation in 2005 of the Federation of European Chemical Sciences into the European Association for Chemical and Molecular Sciences (EuCheMS). The outcome for established and new scholars alike has been to raise the profile and status of chemistry in all its forms and to offer a distinctly European focus while attracting and welcoming international engagement.

### **Outgoing Council Officers and Members Line Up**

The Autumn Meeting and AGM brought together five officers and members of SHAC Council who have decided to resign their positions after many years of dedicated and much-valued service. We look forward to their continuing presence at SHAC meetings and events.



**Pictured above from left to right are Mike Jewess (outgoing treasurer), Robert Anderson (outgoing chairman), Bill Brock (retiring Council member), Peter Morris (retiring Council member), and Simon Werrett (outgoing secretary).**

## 8th Annual SHAC Postgraduate Workshop (A)Chemical Laboratories: Imagining and Creating Scientific Workspaces

*Chemical Heritage Foundation Conference Centre, Philadelphia, PA*

**1&2 December, 2017**

The SHAC postgraduate workshop crossed the Atlantic for the first time in December 2017, the Chemical Heritage Foundation (now Science History Institute) in Philadelphia playing host to this popular annual event. The Society is grateful to Robert Anderson and Jenny Rampling for their contributions in support of this event, and to the SHAC Student Representative, Megan Piorko, for her hard work and enterprise in organising the workshop.

Robert Anderson, the President and CEO of the CHF welcomed participants to the workshop and, after his introduction, the first panel took place, addressing the theme from an alchemical perspective and comprising the following papers:

**George Elliott (Brown University),** *Gershom Bulkeley and Alchemy in Colonial Connecticut*

**Justin Niermeier-Dohoney (University of Chicago),** *A Laboratory in the Field(s): Gabriel Plattes, Alchemy, and Agricultural Improvement, ca. 1640-1660*

**Magdalena Luszczynska (University of Amsterdam),** *Imagined Laboratory and Alchemical Epistemology in Michael Sendivogius's Dialogue between Mercury, Alchemist, and Nature*

After lunch, **Professor Lawrence Principe (Johns Hopkins University)** presented a keynote lecture titled; *The Most Magnificent Laboratory Chymistry Ever Had': Wilhelm Homberg's Laboratory at the Palais Royal*. This was followed by the second postgraduate panel featuring presentations by:

**Elisabeth Berry Drago (Chemical Heritage Foundation),** *The Meaning of Mess: Broken Vessels, Curious Work* and

**Umberto Veronesi (University College London),** *The material side of scientific workspaces: Chemical glassware from Oberstockstall, Austria*



George Elliott



Justin Niermeier-Dohoney



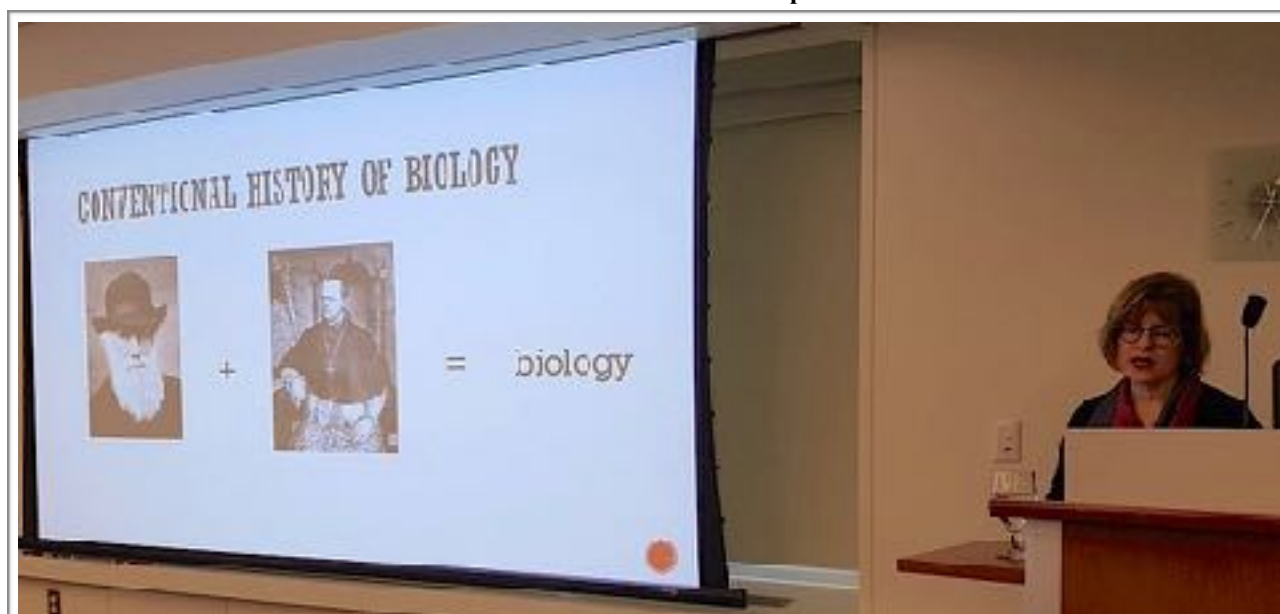
Magdalena Luszczynska







Professor Lawrence Principe



Professor Angela Creager

The afternoon ended with a **Simulation Demonstration** by **Nicole Cook** and **Elisabeth Berry Drago** of the **Chemical Heritage Foundation**, titled *Age of Alchemy*.

The next day began with a second keynote lecture, this delivered by **Professor Angela Creager (Princeton University)**, who took as her topic; *A Chemical Reaction to the Historiography of Biology*. This was followed by a postgraduate panel focused on the theme from the perspective of the history of chemistry. Here, the papers were delivered by:

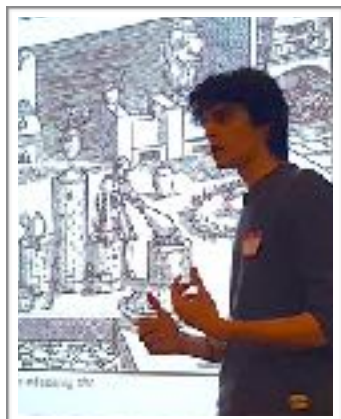
**Gina Surita (Princeton University)**, *Steroid Hormones, Specificity, and Elwood V. Jensen's Discovery of the Estrogen Receptor*, and

**Lijing Jiang (co-author with Vivian Ling) (Chemical Heritage Foundation)**, *Laboratories that made the first synthetic protein: Insulin Synthesis during the Great Leap Forward*.

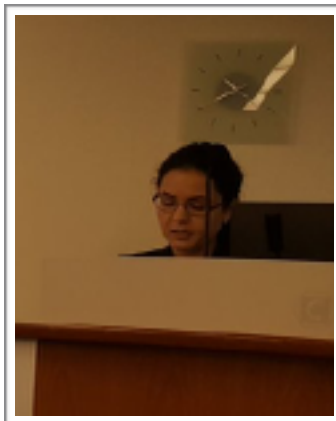




Elisabeth Berry Drago



Umberto Veronesi



Gina Surita



Lijing Jiang

The workshop concluded with a return to alchemy and a presentation by **Professors Lawrence Principe and Jennifer Rampling (Princeton University)**, titled *Making the Vegetable Stone*.



Lawrence Principe and Jenny Rampling

This eighth SHAC postgraduate workshop again proved the value of bringing together scholars and early career academics to present papers, share ideas and network with colleagues engaged in the history of alchemy and chemistry. It was also an opportunity to meet and learn from established academics,



and the presence of Professors Principe, Creager and Rampling provided wisdom, excitement and inspiration. Having offered her closing remarks, Megan Piorko (Georgia State University) brought the event to an end, knowing that she would be able to build on this successful experience as she moves on to plan the ninth SHAC postgraduate workshop, details of which appear in this newsletter, at page 4 above.

Photographs courtesy of SHAC webpages at #shacpostgrad2017: <https://twitter.com/hashtag/shacpostgrad2017?f=tweets&vertical=default&src=hash>

## NEW MEMBERS

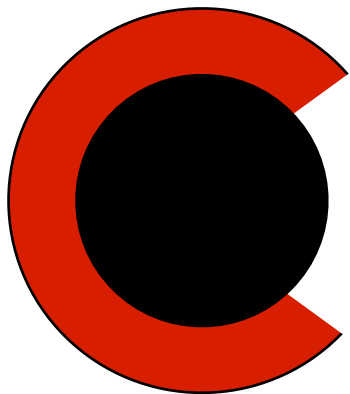
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### SHAC welcomes the following new members:

Ali Akil	Department of Chemistry, University of Southern California
Jim Baldwin	Wichita, KS, USA
Andrew Eve	Christ Church Oxford, Alumnus
Robert Johnstone	Department of Science and Technology Studies UCL
Kurmo Konsa	Tartu Art College, Estonia
Pamela Melliar	Independent Group of Analytical Psychologists, London
Paul Sampson	Rutgers University (History Department)
Fred Thibault-Starzyk	CNRS - Maison Française d'Oxford
Tony Travis	Hebrew University of Jerusalem
David Wondrich	Brooklyn, NY, USA

### Joined in 2017 for 2018:

Claire Sabel	University of Pennsylvania
Marco Panciroli	



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: [jmawe001@gold.ac.uk](mailto:jmawe001@gold.ac.uk)

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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 Taylor & Francis and appears quarterly. 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 Carolyn Cobbold**. E-mail: [info@ambix.org](mailto:info@ambix.org)