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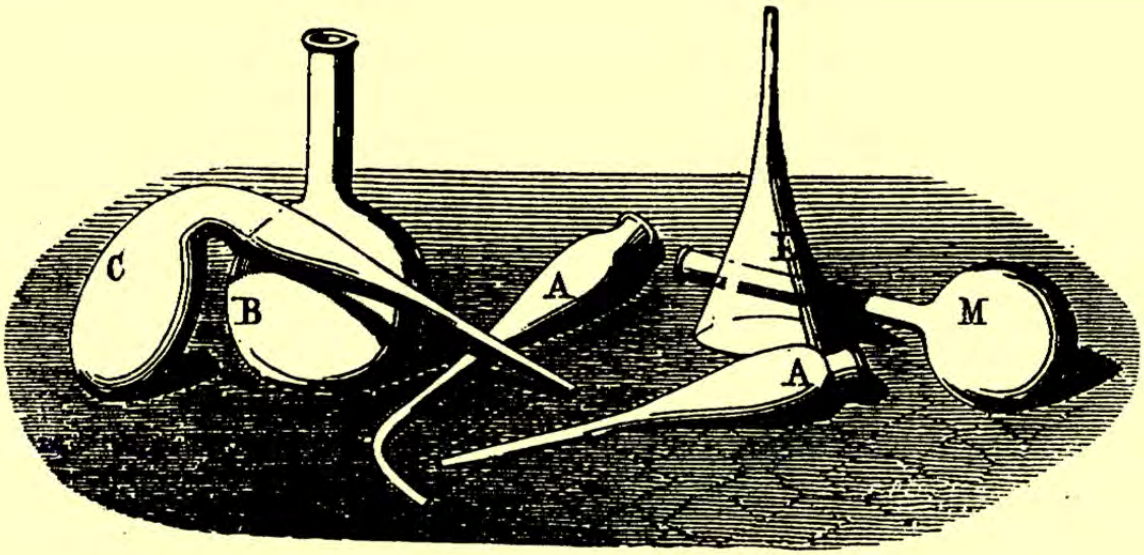
American Chemical Society

# DIVISION OF THE HISTORY OF CHEMISTRY




## NEWSLETTER, PROGRAM & ABSTRACTS

250th ACS National Meeting
Boston, MA
August 16-20, 2015

*S. C. Rasmussen, Program Chair*

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# Mission Statement

The Division of the History of Chemistry (HIST) of the American Chemical Society (ACS) seeks to advance knowledge and appreciation of the history of the chemical sciences among chemists, students, historians of science, and the broader public by

- Encouraging research and scholarship in history of the chemical sciences;
- Providing a welcoming environment for the discussion of history of chemistry in a variety of venues, particularly in symposia at national ACS meetings;
- Serving as a resource for chemical scientists in general, and members of the ACS in particular, who seek to understand the roots of their discipline, sub-discipline, or interdisciplinary subject;
- Recognizing major achievements from the past in the chemical sciences and the individuals who made those achievements;
- Publishing a scholarly journal in history of chemistry;
- Interacting with other organizations interested in the history of science; and
- Adding value to the ACS by helping it achieve its vision and missions.

# Division Governance

## Message from the HIST Division Chair

2015 has been an interesting year. Last year we had a very successful membership drive, driven by the generosity of Mary Virginia Orna. Thus, we were surprised when the powers that be at ACS decided to reduce the number of councilors from HIST from 2 to 1. After a considerable number of challenges by Vera Mainz, they relented and acknowledged our new members. Congratulations to Mary Virginia and Vera!

When the MPPG group is thinking about whom to ask to develop symposia in line with the chosen topic, HIST is high on their list. They even chose to co-opt one of our symposia for Boston: Roger Egolf's effort called "Fifty Years of Innovation: The Legacy of the Westheimer Report." In spite of ACS publicity to the contrary, this is Roger's Symposium and it will be held on Tuesday morning. HIST is also the organizer of the MPPG symposium for San Diego on "A History of Computers in Chemistry."

The HIST Award in the History of Chemistry continues to attract outstanding world leaders in chemical history. The winner for 2015 is Christoph Meinel from the University of Regensburg. In order to facilitate the administration of the award in the future, the committee has been expanded to five members: three former winners, the past HIST Chair , and a person named by the current HIST Chair. The criterion for the Award is simply: the best historian of chemistry never to have won the award. Let's keep up the great choices!

HIST is also reaching out to the CHED Division with a workshop for high school chemistry teachers for the Philadelphia ACS Meeting in 2016. The two divisions were founded by the same people, and history is central to the teaching of chemistry. HIST continues to be active in the IPG game. Jeff Seaman won the first IPG for this year for a project to digitize some of the remarkable films created by members of the Organic Division. The teacher workshop is our submission for the second round.

HIST is the friendliest of all the divisions and I encourage all members to attend ACS meetings and enjoy the great programming and convivial company.

*Gary Patterson, HIST Chair*

# Report of Councilors, Division of the History of Chemistry
## 249th ACS National Meeting – Denver, CO; March 25, 2015

### Election Results

The Committee on Nominations and Elections presented to the Council the following nominees for selection as candidates for President-Elect, 2016: G. Bryan Balazs, Allison A. Campbell, David J. Lohse, and Christopher J. Welch. By electronic ballot, the Council selected **G. Bryan Balazs** and **Allison A. Campbell** as **candidates for 2016 President-Elect**. These two candidates, along with any candidates selected via petitions, will stand for election in the Fall National Election.

The Committee on Nominations and Elections announced the results of the election to select candidates from the list of nominees to serve as Directors from District I and District V on the Board of Directors for the term 2016-2018. By internet ballot, the Councilors from these districts selected **Thomas R. Gilbert** and **Laura E. Pence** as **District I candidates**; and **John E. Adams** and **Kenneth V. Fivizzani** as **District V candidates**. Ballots will be distributed on October 2, 2015 to all ACS members in District I and District V for election of a Director from each District.

### Candidates for Directors-at-Large

The Committee on Nominations and Elections announced the selection of the following candidates for Directors-at-Large for 2016-2018 terms: **Willem R. Leenstra**, **Ingrid Montes**, **Mary Jo Ondrechen**, and **Thomas W. Smith**. The election of two Directors-at-Large from among those candidates and any selected via petition will be conducted in the fall. Ballots will be distributed to the Council on October 2, 2015.

### Committee Continuance

As part of a regular performance review, the Council voted unanimously to continue the Committees on Ethics and on Science. Continuation of the Committee on Science also requires Board concurrence.

### 2016 Member Dues

The Council voted to set the member dues for 2016 at the fully escalated rate of $162. This rate is established pursuant to an inflation-adjustment formula in the ACS Constitution and Bylaws.

### National Meeting Long-Range Financial Plan

Following a discussion on the revenue supporting National Meetings, the ACS Council respectfully requested that the Board of Directors delay the implementation of the technical meeting additional fee to the meeting registration fee, until the Board presents an analysis (preferably at the Boston national meeting) of the projected break even fee, including and excluding the net revenue from the National Meeting Exposition.

### New International Chemical Sciences Chapters

On recommendation of the Committee on International Activities and subject to the concurrence of the Board of Directors, the Council voted to approve petitions to charter the India International Chemical Sciences Chapter and the Taiwan International Chemical Sciences Chapter.

## Reports of Elected Committees (Highlights)

### Council Policy (CPC)

As required by the Society's Bylaws, CPC has set the divisors which will be used to determine how many Councilors each Local Section and Division is entitled for 2016-2019. Official notification will be sent to Local Sections and Divisions within two weeks of the Council meeting, well in advance of the Bylaws required May 1 deadline, in order to accommodate the units' conduct of their elections in 2015. CPC's Long Range Planning Subcommittee is forming a task force to consider whether changes are in order for the calculations and policies, and to implement any recommendations in time for the 2020 election cycle.

In its continuing efforts to assist the Society in finding ways to reduce expenses, CPC is considering alternatives to reduce the printing and mailing costs of the Council Agenda. CPC will be conducting surveys to evaluate potential strategies.

### Committees (ConC)

All Councilors, including new Councilors, are reminded to complete their online committee preference form for 2015, during the period March 30 – June 5, 2015 at https://www.yellowbook.acs.org (log in required).

### Nominations and Elections (N&E)

The committee introduced the candidates for Directors-at-Large, 2016-2018: Willem R. Leenstra (Green Mountain Section), Ingrid Montes (Puerto Rico Section), Mary Jo Ondrechen (Northeastern Section), and Thomas W. Smith (Rochester Section).

N&E solicits Councilors' input of qualified individuals for President-Elect and/or Directors for future consideration. Suggestions may be sent to nomelect@acs.org.

## Reports of Society Committees and Committee on Science (Highlights)

### Budget and Finance (B&F)

In 2014, ACS generated a Net from Operations of $17.9 million, which was $4.2 million favorable to budget. Total expenses were $499.0 million, $0.7 million or 0.1 percent higher than budget. Expenses ended the year at $481.1 million, $3.5 million favorable to the budget. This variance was largely attributable to a continued emphasis on expense management across the Society. Despite favorable operating results, the Society's financial position weakened in 2014, with Unrestricted Net Assets declining $62.3 million, to $144.7 million at year-end.

Additional information can be found at www.acs.org, at bottom, click 'About ACS', then 'ACS Financial Information'. There you will find several years of the Society's audited financial statements and IRS 990 filings.

### Education (SOCED)

SOCED reported that more than 1,900 individuals have joined the American Association of Chemistry Teachers (AACT) which launched last year, 88 percent of whom are K-12 teachers of chemistry. The Dow Chemical Company was announced as the Sole Founding Partner of AACT with a gift of $1 million.

### Science (ComSci)

ComSci has collaborated with several ACS committees to develop five public policy statements which were approved by the Board in December 2014. More recently ComSci led the development of a new draft ACS policy statement on hydraulic fracturing, which will be considered by the Board. Current collaborations include revising ACS policy statements on energy, climate change and forensic science.

## Reports of Standing Committees (Highlights)

### Committee on Meetings and Expositions (M&E)

M&E recommends that the Early Member Registration Fee for 2016 national meetings be $415, per the National Meeting Long-Range Financial Plan.

As part of the continuing ACS sustainability effort and to encourage the use of the ACS mobile app and online program, M&E has decided to discontinue free distribution of the hard copy program book starting in 2016. Those who preregister for the meeting may purchase a copy of the program book for $10 (pick up on site), and copies will be available at the meeting for $20. The PDF version of the national meeting program will be more prominently displayed on the ACS website for those who would like to print portions for themselves.

M&E reported on the attendance as of Tuesday evening, March 24: **13940**.

### Committee on Divisional Activities (DAC)

DAC voted to fund ten Innovative Project Grants (IPG) totaling $54,000. The committee will consider another set of IPG proposals during the Boston National Meeting in August, 2015; the deadline for that round of submissions in July 1, 2015.

National meeting attendees were recently surveyed for their views on the Society's policy governing the use of devices to capture and/or disseminate content delivered at our meetings. While expressing support for the policy, the respondents also expressed interest in amending the current policy to permit presenters – at their discretion – to authorize audience members to capture and disseminate content.

### Committee on Local Section Activities (LSAC)

LSAC awarded 15 Innovative Project Grants for a total of $38,389, and is continuing to offer a mini-grant to Local Sections that attended the 2015 Leadership Institute to partner with neigh-boring sections to host an activity that would bring value to all members in a specific region. The committee is also planning to fund 16 grants totaling $4000 for the Bridging the Gap: Teachers of Chemistry K-12 Nano-Grants. More information about all LSAC grants, and those of other committees, is available at www.acs.org/getinvolved.

### Committee on Economic and Professional Affairs (CEPA)

CEPA reported the 2014 New Graduate Survey Results which show the unemployment rate for new graduate chemists has dropped from 14.9 percent in the 2013 survey to 12.4 percent as of 2014. The drop is principally due to more new bachelor's degree chemists finding employment. ACS members experienced three successive years of lowered unemployment, which could hint at a positive outlook for chemists in coming years. While unemployment is down, salaries have been overall stagnant.

The ACS Career Fair had 715 seekers, 27 employers, 85 positions, and 10 booths. The Virtual Career Fair had 918 seekers, 6 employers, and 38 positions. Additionally, 368 resume reviews, 218 mock interviews, and 23 Career Pathway workshops were conducted during the meeting.

### Women Chemists Committee (WCC)

WCC celebrated ten early-to-mid-career women chemists as recipients of the Fourth Annual WCC Rising Star Awards, and eight WCC/Eli Lilly Travel Grant awardees. WCC is also collaborating with Merck to develop a new Research Award that will fund eight women graduate students to present their research at the fall national meeting in Boston.

Members of WCC have been involved as contributing authors and editors for the second more diverse and inclusive edition of "Mom, the Chemistry Professor" being published by Springer.

### Professional Training (CPT)

At this meeting, CPT reviewed 39 periodic reports from currently approved programs and held conferences with two departments beginning the process of applying for ACS approval. CPT also reviewed four site visit reports and approved three new programs. There are currently 681 colleges and universities offering ACS-approved bachelor's degree programs in chemistry.

The new 2015 ACS Guidelines for Bachelor's Degree Programs were approved at CPT's winter meeting and recently published on the ACS website.

### International Activities (IAC)

At this meeting, the committee received, reviewed, and approved annual reports from ACS International Chemical Sciences Chapters in Hong Kong, Hungary, Malaysia, Romania, Saudi Arabia, and Shanghai. Additionally, the committee reviewed and approved new chapter applications initiated by members in Brazil, Nigeria, Peru, and the United Arab Emirates.

### Environmental Improvement (CEI)

At this meeting CEI awarded Local Section Sustainability Grants to three Local Sections: Cornell, Kalamazoo, and Midland.

The committee has established working relationships with several technical divisions. The committee cosponsored with Division of Chemical Education the symposium featuring the winners of the ACS-CEI Award for Incorporation of Sustainability into Chemical Education. CEI and the Division of Environmental Chemistry have jointly established a project to provide grant support for programming around climate change at regional meetings.

CEI continues to review existing ACS policy statements, and at this meeting approved recommendations to the Board to establish new public policy statements on Hydraulic Fracturing and on Water Treatment and Conservation.

### Chemistry and Public Affairs (CCPA)

The committee highlighted the power of ACS member engagement in government affairs by relating the bipartisan effort, despite partisan roadblocks, to secure a resolution for National Chemistry Week in the United States Senate by Senator Chris Coons, a Democrat from Delaware, and Republican Senator Pat Toomey of Pennsylvania. The extra effort invested by ACS members in Pennsylvania to ensure that the resolution had bipartisan sponsorship helps to underscore that science is an issue where both parties can come together.

## Resolutions

The Council passed two resolutions: in memory of former ACS Secretary Rodney N. Hader and other deceased Councilors, and another in gratitude for the officers and members of the Colorado Local Section, host Section for the 249th National Meeting; the divisional program chairs and symposium organizers; and ACS staff.

## Actions of the Board of Directors

### The Board's Committees

The Board of Directors received and discussed reports from its Committees on Grants and Awards (G&A), Professional and Member Relations (P&MR), Executive Compensation, and Corporation Associates; the Society Committee on Education (SOCED); and the Joint Board-Council Committee on Publications.

- On the recommendation of the Committee on Grants and Awards and of the Committee on Science, the Board voted to approve a Society nominee for the National Medal of Science.
- On the recommendation of the Committee on Professional and Member Relations, the Board voted to provide nominal sponsorship, without financial commitment, for the "Frontiers of Science Research and Education in the Middle East: A Bridge to Peace" (Malta VII) to be held in Rabat, Morocco, November, 2015.
- The Board received an extensive briefing and approved several recommendations from its Committee on Executive Compensation. The compensation of the Society's executive staff receives regular review from the Board.
- On the recommendation of the Society Committee on Education, the Board voted to approve a procedure for the establishment of the inaugural Governing Board for the American Association of Chemistry Teachers (AACT).
- On the recommendation of the Joint Board-Council Committee on Publications, the Board voted to approve the reappointment of an Editor-in-Chief for an ACS journalbudget.

### Activities of HIST Councilors

**Roger Egolf** – continuing as a member of the Divisional Activities Committee (DAC). He co-chairs the new Governance and Reports subcommittee of DAC. He also serves as the liaison from DAC to the Constitution and Bylaws Committee (C&B), to HIST, and to the Computers in Chemistry Division (COMP).
**Mary Virginia Orna** – has been appointed a full Member of the Local Sections Activities Committee (LSAC). She is also a member of the Technology, Tools, and Operations Subcommittee. Following the Denver meeting, she participated in a two-day LSAC Strategic Planning Retreat.
*Mary Virginia Orna, Roger A. Egolf, Councilors*

# News

## Professor Christoph Meinel to Receive 2015 HIST Award

Professor Dr. Christoph Meinel was born on November 28, 1949 in Dresden, Germany. He earned the qualification "Diplom-Chemiker" from the University of Marburg in 1974; all his subsequent historical work reflects his deep knowledge of the underlying chemistry. He continued his education at Marburg in the history of science and graduated in 1977 with a Ph.D. His doctoral dissertation was on the history of chemistry at Marburg, an extensive subject subsequently published as a major monograph.

He continued in the history of chemistry as a postdoctoral fellow with Maurice Crosland at the University of Kent at Canterbury, then returned to the University of Marburg, earning habilitation at the University of Hamburg in 1987. After a year as Fellow at the Berlin Institute for Advanced Study, he was appointed to a full professorship at the University of Regensburg in 1990, where he continued until his retirement in 2015. Christoph spent two periods in the United States, as a visiting professor at Smith College and as a research associate at the Center for the History of

Chemistry (now a division of the Chemical Heritage Foundation) in Philadelphia.

Christoph Meinel is a member of the Deutsche Akademie der Naturforscher Leopoldina and a member of the Académie Internationale d'Histoire des Sciences in Paris. He has served as president of the German Society for the History of Science, and was the founding president of the International Commission on the History of Modern Chemistry. From 1990 through 1997 and again since 2014 he chairs the History Division of the German Chemical Society (GDCh) and is editor of the Division's journal *Mitteilungen*.

Dr. Meinel's extensive body of historical work has earned him a position at the center of the international community of historians of chemistry. His research interests include the emergence of chemistry as a discipline, its social history, communication, and publication networks. He has also published on various aspects of early modern natural philosophy. In addition to scores of articles in journals such as *Ambix*, *Hyle*, *Isis*, *Angewandte Chemie*, and *Berichte zur Wissenschaftsgeschichte*, Meinel's work has appeared in dozens of multi-author books, both as an author and editor. His monographs include a major series of books on Joachim Jungius (1587-1657).

Such a rich career in the history of chemistry has been recognized by many honors: the Gmelin-Beilstein Memorial Medal of the German Chemical Society, the Alexandre Koyré Medal of the International Academy of the History of Science, and the Liebig-Wöhler Friendship Prize of the Göttingen Museum of Chemistry. The History Division of the American Chemical Society is honored to join the European societies in awarding Professor Meinel the HIST Prize. Now that he is officially retired from his chair, we hope he can spend more time in the United States among new friends as well as old students and colleagues.

## 2014 HIST Outstanding Paper Award

The winner of the Best Paper Award for 2014 is Professor Amy Bix of the History Department at Iowa State University. The paper was "Chemistry of Cooking, Chemistry in War: Women in Nineteenth and Twentieth-Century Land-Grant Science and Engineering" that appeared in Volume 38, No. 2, 132-139 (2013).

Amy Sue Bix obtained her B.S. in Biology from Princeton University with High Honors and an additional concentration in Science and Human Affairs in 1987. She earned the Ph.D. in the History of Science from Johns Hopkins University in 1994 with a thesis entitled: "Inventing Ourselves Out of Jobs?: America's Depression-Era Debate over Technological Unemployment" (Johns Hopkins Press, 2000). She has been at Iowa State since 1993.

Professor Bix has become very well-known for her insightful work into the role of gender in science. Her most recent book is entitled: "Girls coming to Tech!: A History of American Engineering Education for Women" (MIT Press, 2014). She won the Betty Vetter Award for Research sponsored by the Women in Engineering Proactive Network (WEPAN) in 2014 for notable achievement in research related to women in engineering. She served as the Executive Secretary of the Society for the History of Technology from 2004-2008.

## 2015 HIST Award Banquet

As part of its activities at the 250th ACS National Meeting in Boston, the History of Chemistry Division of the American Chemical Society is pleased to host the 2015 HIST Award Banquet. To be honored at the banquet will be Professor Christoph Meinel, winner of its 2015 HIST Award, and Professor Amy Bix, winner of its 2014 Outstanding Paper Award. The Banquet will be held at the Lucia Ristorante & Bar (www.luciaboston.com), located at the heart of Hanover Street in Boston's North End (415 Hanover Street). The Banquet will start at 6:30 PM and will feature a family style menu. **Tickets are $45 and can be purchased from Vera Mainz, HIST Secretary-Treasurer** (Tickets cover the full cost of the meal, with the exception of beverages). You can pay Vera via check or cash (exact amount preferred) at the banquet or when you see her. If you do plan to attend, please RSVP by August 15th via email (mainz@illinois.edu). The Lucia Ristorante & Bar is approximately 1 mile from downtown Boston, where the ACS hotels are located.

## HIST Leading in the Special Celebration of the 100th Birthday of Former ACS President Henry Hill

HIST with the support of ACS President Diane Grob Schmidt has combined with three other divisions to sponsor four symposia and a reception to honor the live and work of Henry A. Hill. Monday morning August 17, the next in the series of Science and Legacy of Past ACS Presidents, "Memories of Henry Hill: His Legacy in Science and in Professional Service," will be presented. Speakers include Hill's Entrepreneurial Colleague Arthur Obermayer; Former ACS Presidents Joe Francisco and Attila Pavlath reflecting on Hill's impact on the ACS Presidency; ACS Board member Dorothy Phillips reflecting on the impact of Hill on the Northeastern Local Section and Joy Titus-Young on Hills impact on Diversity and Inclusion at ACS. These talks will be followed by a sharing of memories by Hill's son, Anthony, and a videotaped presentation by Dr. Adelaide Cromwell, Hill's wife and Anthony's Mother. Time will be available then for comments by others.

Other symposium in the celebration include: Sunday afternoon – PROF's "The Professional Legacy of Henry Hill"; Monday afternoon – SCHB's "The Legacy of Henry Hill: Commercial Enterprises in the Polymer Sector"; and POLY's "Henry A. Hill Centennial Symposium: Innovation in Polymer Science". Concluding the Henry Hill Celebration on Tuesday afternoon will be the Henry A. Hill Award and Reception sponsored by Pres-ident Schmidt. Complete information is available in the meeting program. Also a commemorative book-let will be available covering the entire program. *-Janan Hayes*

## The Posthumous Nobel Prize in Chemistry. Correcting the Oversights and Errors of the Nobel Prize Committee.

The idea of a Posthumous Nobel Prize was brought to the attention of most of us through the unusual play "Oxygen" by Carl Djerassi and Roald Hoffmann. The play's concept was that a committee was going to award a proto-Nobel Prize, and that prize was going to be given for the discovery of oxygen. But who discovered oxygen? Was it Carl Scheele, Joseph Priestley, or Antoine Lavoisier? To learn the authors' answer, you have will have to see or read the play. However, the idea of a Posthumous Nobel Prize makes an interesting symposium theme.

"The Posthumous Nobel Prize in Chemistry. Correcting the Oversights and Errors of the Nobel Prize Committee" is the title of a HIST symposium planned for the Spring, 2016 ACS National Meeting to be held in San Diego, CA, March 13-17. Surely all of us have sometimes been puzzled and annoyed about the Nobel Prizes in Chemistry. How did Chemist A receive a Nobel Prize when Chemist B did not? How is it that Chemists X and Y shared a prize, when Chemist Z, who did equally important work on the same topic, was overlooked? For example, why didn't Raymond Damadian share the Nobel Prize for NMR imaging given to Paul Lauterbur and Peter Mansfield? I'm sure that each of us could cite other questionable omissions. Now you will have an opportunity in a presentation to make the case for some unjustly overlooked chemist.

The word "posthumous" is not intended to be a straightjacket. If that overlooked person is still alive, perhaps making the case for that individual will cause this past wrong to be righted. The presentations clearly have to be about a person who lived past 1901, the year of the first Nobel Prizes. The talks do have to be about chemistry. Leo Tolstoy lived until 1910, and perhaps he should have received the Nobel Prize for Literature; but that case needs to be made in another venue. However, very often the Nobel Prize for Physiology and Medicine involves chemistry as does physics occasionally. Consequently, scientists who have done chemical research that overlaps into physiology, biology, medicine, and physics and have been unjustly overlooked are fair game.

As organizer, I do intend to act as a gate keeper. Otherwise we would have four talks about how G. N. Lewis should have won the Nobel Prize in Chemistry (and I agree that he should have). Therefore, I would like the topic of your proposed talk run by me first, before you submit an abstract. The abstract deadline is Oct. 23. Certain chemists are already taken, so don't submit any of the following names: Wallace Carothers, Herman Mark, Michael J. S. Dewar, Neil Bartlett, G. N. Lewis, E. K. Zavoisky, Howard Simmons, Dmitri Mendeleev, and R. B. Woodward (Yes, I know that Woodward won a Nobel Prize, but perhaps he should have won two). This still leaves lots of scientists available, such as J. Willard Gibbs, Henry Moseley, Rosalind Franklin,

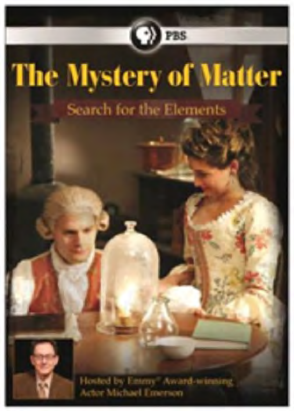
Lise Meitner, and Christopher Ingold, to name just a few. Please send your topic to me, Tom Strom, at (tomstrom@juno.com) between now and October 23; but the earlier the better. I am hoping for a large number of submissions to highlight these past omissions. Remember, not only in wars but in science as well, history is written by the victors. Let's do our best to expand that history. *-E. Thomas (Tom) Strom*

## "Edwin Land and Instant Photography" National Historic Chemical Landmark Designation

Edwin H. Land (1909–1991) established the Land-Wheelwright Laboratories in 1932 (later Polaroid Corporation) to develop polarized sheet technology. In 1947, Land devised the one-step system of photography that would become known simply as Polaroid. The system centered on Land's invention of a novel viscous reagent, sealed within a rupturable pod, which was spread by precision rollers between the exposed negative and positive image-receiving sheet. Visit www.acs.org/landmarks for more information. Thursday, Aug. 13, 3:30–4:30 p.m. (reception will immediately follow), MIT Museum (265 Massachusetts Ave, Cambridge).

## ACS Offers Sneak Peek at New PBS Series that Explores the Discovery of the Elements

Be among the first to preview a new PBS series, "Mystery of Matter: Search for the Elements," 1:30-3:00 p.m. Sunday, Aug. 16, at the Boston Convention & Exhibition Center, room 52AB. This program tells the human story of the periodic table in an engaging way that will appeal to both laymen and scientists. The screening will feature program producer, Steve Lyons, along with several cast members, giving us insights into how it all came together. Snacks will be served. No registration required.




## Wikipedia Edit-a-thon for Notable Chemists and Chemistry

A Wikipedia training and editing session to improve coverage of notable chemists and chemistry topics on Wikipedia will be held Wednesday, Aug.19, 1:30 - 5:30 p.m., Boston Convention & Exhibition Center, Room 102B. As one of the web's most visited reference sites, Wikipedia serves as a starting point for many non-scientists to learn about chemistry topics. During this training, you will learn the basics of how to edit Wikipedia entries and be given time to practice your skills with experienced Wikipedians. All are welcome, newcomer and veteran alike. Attendees may come and go but instructions will be provided during the first hour. Registration required. Contact Keith Lindblom in the ACS Office of Public Affairs at k_lindblom@acs.org or 202-872-6214.

## News from the Chemical Heritage Foundation

The Chemical Heritage Foundation (CHF) fosters an understanding of chemistry's impact on society. An independent nonprofit organization, we strive to inspire a passion for chemistry, highlight chemistry's role in meeting current social challenges, and preserve the story of chemistry across centuries. CHF maintains major collections of instruments, fine art, photographs, papers, and books. We host conferences and lectures, support research, offer fellowships, and produce educational materials. Our museum and public programs explore subjects ranging from alchemy to nanotechnology.

### CHF Digital Curator Receives Award

Michelle DiMeo, curator of digital collections at the Chemical Heritage Foundation, received an award at the annual meeting of the Archivists and Librarians in the History of the Health Sciences (ALHHS), held at Yale University, New Haven, Connecticut, April 29 and 30. DiMeo received the 2015 ALHHS best online resource award for her editorship of a special issue of RBM: A Journal of Rare Books, Manuscripts, and Cultural Heritage (vol.

15, no. 2). Coedited by DiMeo and Jeffrey S. Reznick (Chief of History of Medicine at the US National Library of Medicine), this special issue contains the proceedings of the December 2013 symposium Emerging Roles for Historical Medical Libraries: Value in the Digital Age. The editorial process included negotiating open-access rights with RBM's editor and its publisher, the Association of College and Research Libraries, a division of the American Library Association. The ALHHS recognized DiMeo for her leadership in organizing the associated symposium, which was sponsored in part by a Library Project Award from the National Network of Libraries of Medicine−Middle Atlantic Region.

### Jacqueline Barton to Receive 2015 AIC Gold Medal

The Chemical Heritage Foundation (CHF) and the American Institute of Chemists have named Jacqueline Barton, the Arthur and Marian Hanisch Memorial Professor of Chemistry and chair of the Division of Chemistry and Chemical Engineering at the California Institute of Technology, recipient of the 2015 AIC Gold Medal. The award was presented at CHF on May 14, 2015.

"World-class researcher and inspiring mentor Jackie Barton embodies the qualities the AIC Gold Medal has honored for nearly a century," said Carsten Reinhardt, CHF's president and CEO. "More than 100 postdocs and graduate students go on from CalTech's Barton Group to careers in science across America and around the globe."

Barton earned a PhD at Columbia University, studying under former CHF Board of Directors member Stephen J. Lippard. She presented the 2002 Ullyot Public Affairs Lecture at CHF on her research in charge transport in DNA.

## News from the Society for the History of Alchemy and Chemistry

Founded in 1935, the Society for the History of Alchemy and Chemistry (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 200 with members from 28 countries.

### Situating Chemistry—a Relational Database for the History of Chemistry

The database has been developed for the project Situating Chemistry, 1760-1840, which explores the interactions between the conceptual transformations of chemistry, its institutionalization and the role of chemistry and chemists in innovation in industry and agriculture. The database stores biographical information on chemists and on others who were involved with chemistry as well as data on the sites where chemistry was practiced, the networks of people, materials, processes and substances that circulated around them, chemistry (and other) courses and their audiences, together with events, organizations and associated documents and images. It is searchable and the reports it generates include interactive maps. It can be found at http://situatingchemistry.org. Although developed for chemistry in the period 1760-1840 it has been designed for much wider application. The database is publicly accessible as view-only. If you wish to use it or contribute data you will need to open an account. For further information please contact the designers John Perkins, jperkins@brookes.ac.uk, and John Stewart, johnstewart@ou.edu.

## News from the History of Science Society

The History of Science Society is the world's largest society dedicated to understanding science, technology, medicine, and their interactions with society in historical context. It was founded in 1924 to foster interest in the history of science and its social and cultural relations.

### Three Societies Meeting to Take Place in Canada 22-25 June 2016

Every four years the 3-Societies Meeting brings together three organizations dedicated to the study of the history of science, technology, and medicine: the History of Science Society, the British Society for the History of Science, and the Canadian Society for the History and Philosophy of Science. 2016 will mark the Eighth Joint Meeting of the BSHS, CSHPS, and the HSS, this time in Canada at the University of Alberta in Edmonton, Canada. We are also in conversation with the European History of

Science Society, which might join us in due course. We are very excited to welcome you all to the University of Alberta. Located in Edmonton, the capital of the province of Alberta, the University of Alberta is home to almost 40,000 undergraduate and graduate students. It is one of the top 5 Canadian universities and ranks among the top 100 universities worldwide. Scholars engaged in the study of the history, philosophy, and sociology of science, technology, and medicine are located within the Departments of History and Classics; Philosophy; Sociology; Economics; and in the Science, Technology, and Society Program, and the Faculty of Medicine. The University of Alberta has also been home to one of the nodes of the Situating Science research project funded by a Social Sciences and Humanities Research Council of Canada Strategic Knowledge Cluster grant.

We are putting together a joint program committee of the Three Societies to ensure that we will have a lively and engaging program. Calls for papers will probably go out in early fall. The Three Societies conference is a chance to get together in a more relaxed, campus environment, and I hope you will all consider attending. You will not be disappointed. Contact threesocieties2016@ualberta.ca for more information.

# BULLETIN FOR THE HISTORY OF CHEMISTRY

*A publication of the Division of the History of Chemistry of the American Chemical Society*

Available online: http://www.scs.illinois.edu/~mainzv/HIST/bulletin/index.php

**PAPER SUBMISSIONS:** Articles of 4-20 pages, double-spaced (excluding references) should be submitted electronically by email attachment to the Editor, Carmen Giunta, at giunta@lemoyne.edu. The title of the article should be of reasonable length (up to 15 words); a subtitle may be included if appropriate. Authors should strive to make the title descriptive of the specific scope and content of the paper. Preferred file formats for submissions are .doc, .docx, and .rtf.

Full instructions for authors can be found at http://www.scs.illinois.edu/~mainzv/HIST/info/bull-info.php or in the back cover of all issues of the *Bulletin*.

All matters relating to manuscripts, book reviews, and letters should be sent to:

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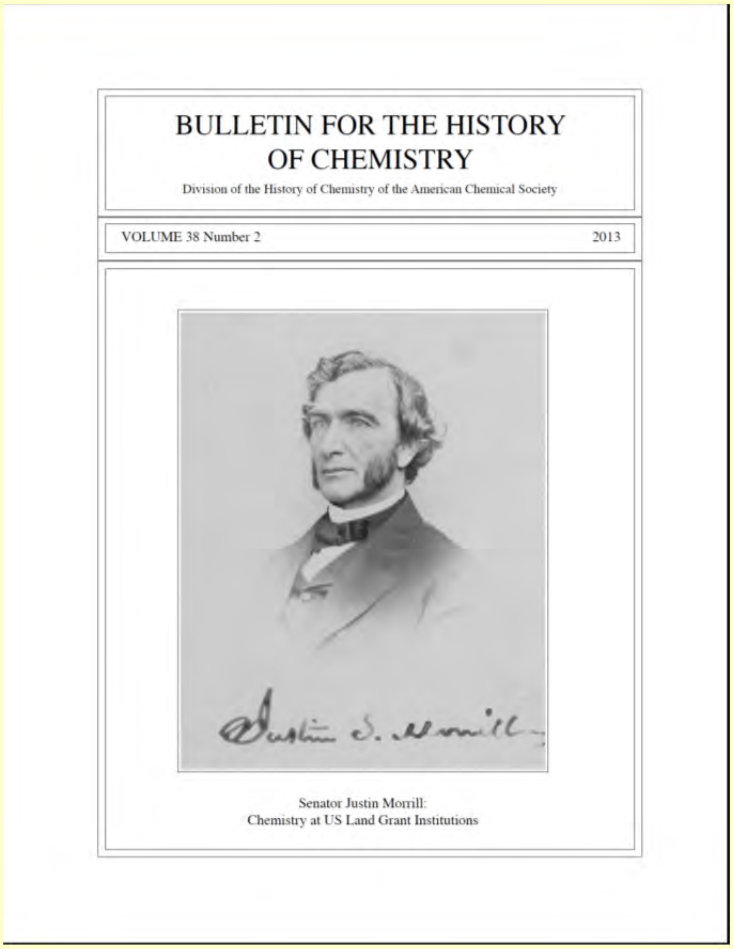

# HIST Programming

## Message from the HIST Program Chair

Welcome back for yet another HIST Newsletter! Our last meeting in Denver was probably one of our best attended with standing room only audiences for two of our highlighted symposia. In addition, two multiple days of outstanding talks, our symposia on chemical warfare also included a showing of chemical art by HIST member David Cordes. One of David's paintings is shown below and all of his work can be viewed at his webpage Welcome to the Chemical Jungle.

While the programming for Boston is somewhat light, the division plans to more than make up for this in San Diego and Philadelphia, both of which look to have very full schedules. Of course, the success of our programming is always dependent on the efforts of our various symposium organizers, so if you have ideas for potential symposia and would like to get more involved in the division, just let me know and I can team you up with more experienced members that can help make your symposium happen.


Lastly, Denver was the first meeting to fully use the new MAPS (Meeting Abstracts Programming System) for abstracts and programming. Hopefully, for those submitting abstracts, you have noticed a more user-friendly interface in comparison to the previous PACS interface. While things still need some polishing on the Program Chair's side of things, ACS and the ACS MAPS Advisory Board (including yours truly) are working hard to improve this process for everyone involved. If you do happen to run into any difficulties, make sure to let me know so that I can pass the information along up the food chain.

As always, if you have programming ideas or would like to provide suggestions or feedback, please don't hesitate to let me know (seth.rasmussen@ndsu.edu).

*Seth C. Rasmussen, HIST Program Chair*

## HIST SYMPOSIA, 250th ACS Meeting in Boston, MA, August 16-20, 2015

*Schedules and abstracts are listed at the end of this Newsletter.*

### Edwin Land and Instant Photography: Massachusetts' First National Historic Chemical Landmark

*Cosponsored by PRES*

This symposium highlights the achievements of Edwin H. Land (1909–1991) who devised the one-step system of photography that would become known simply as Polaroid. The symposium will be held **Sunday afternoon**, August 16, at the Boston Convention & Exhibition Center - Room 50.

*J. L. Maclachlan, M. Filosa, V. Walworth, & J. N. Driscoll, Organizers*

### Memories of Henry Hill: His Legacy in Science and in Professional Service

*Cosponsored by PRES, AGRO, CARB, COLL, ENFL, POLY, PROF, SCHB*

Next in the series of Science and Legacy of Past ACS Presidents, this symposium will include Hill's Entrepreneurial Colleague Arthur Obermayer; Former ACS Presidents Joe Francisco and Attila Pavlath reflecting on Hill's impact on the ACS Presidency; ACS Board member Dorothy Phillips reflecting on the impact of Hill on the Northeastern Local Section and Joy Titus-Young on Hills impact on Diversity and Inclusion at ACS. These talks will be followed by a sharing of Memories by Anthony Hill, Hill's son, and a video-taped presentation by Dr. Adelaide Cromwell, Hill's wife and Anthony's Mother. Time will be available then for comments by others. The symposium will be held **Monday Morning**, August 17, at the Boston Convention & Exhibition Center - Room 50.

*J. Hayes, Organizer*

### Fifty Years of Innovation: The Legacy of the Westheimer Report

*MPPG, Cosponsored by HIST*

Don't miss HIST's contribution to the Thematic Program at Boston, a symposium entitled "Fifty years of Innovation: The Legacy of the Westheimer Report." It will celebrate the 50th anniversary of a ground-breaking report commissioned by National Academy of Sciences and the National Research Council to survey the then current state of the science of chemistry and indicate the most promising opportunities for progress in the field. The report, officially titled "Chemistry: Opportunities and Needs" but much better known as the Westheimer Report after the chair of the committee that created it, Frank Westheimer of Harvard University, was released November 1965. This symposium will consist of an introductory paper about the report and its creators, followed by five papers describing how the various predictions and suggestions of the report have played out over the following half century. The symposium participants include three former ACS presidents and four members of the National Academy of Sciences, two of whom have won the Priestley Medal. The symposium will be held **Tuesday Morning**, August 18, at the Boston Convention & Exhibition Center - Room 205A.

*R. Egolf, Organizer*

### HIST Award Symposium Honoring Christoph Meinel

This symposium honors the recipient of this year's HIST Award for outstanding lifetime achievement in the history of chemistry, Professor Christoph Meinel, who retired this past spring from the University of Regensburg, Germany. Meinel's prolific published research embraces the history of the discipline from the seventeenth to the twentieth century, and his services to the profession have been just as wide-ranging. The symposium will feature talks by Alan Rocke, Jeffrey Johnson, Stephen Weininger, William Brock, Brigitte Van Tiggelen, and Carsten Reinhardt. It will conclude with Professor Meinel's award address: "How Science Historians Helped to Create Chemistry as a Discipline." The symposium will be held **Tuesday Afternoon**, August 18, at the Boston Convention & Exhibition Center - Room 50.

*A. J. Rocke & G. D. Patterson, Organizers*

## UPCOMING MEETINGS AND HIST DEADLINES

Offerings are subject to change. Check the HIST website (http://www.scs.illinois.edu/~mainzv/HIST/) for updates.

## PacifiChem, Honolulu, Hawaii, December 15-20, 2015

The 2015 International Chemical Congress of Pacific Basin Societies is sponsored jointly by the American Chemical Society (ACS), the Canadian Society for Chemistry (CSC), the Chemical Society of Japan (CSJ), the New Zealand Institute of Chemistry (NZIC), the Royal Australian Chemical Institute (RACI), the Korean Chemical Society (KCS), and the Chinese Chemical Society (CCS). The American Chemical Society is the host society for the 2015 Congress.

**Historical Evolution of the Chemical Community in the Countries of the Pacific Rim** (Submission closed). Seth C. Rasmussen, Department of Chemistry and Biochemistry, North Dakota State University, NDSU Dept. 2735, P.O. Box 6050, Fargo, ND 58108-6050, Phone: (701) 231-8747, email: seth.rasmussen@ndsu.edu; Gary D. Patterson, Department of Chemistry, Carnegie Mellon University, 4400 Fifth Avenue, Pittsburgh, PA 15213, Phone: 412-268-3324, Email: gp9a@andrew.cmu.edu; Additional co-organizers: Trevor Levere (Canada), Yasu Furukawa (Japan), and Ian David Rae (Australia).

## 251st ACS Meeting, San Diego, CA, March 13-17, 2016

Submit your abstract via the new online Meeting Abstracts Programming System (MAPS) by **October 23rd, 2015**. If you do not have access to a computer for use in the submission or are having difficulties in submitting your abstract, contact Seth Rasmussen (seth.rasmussen@ndsu.edu). Check the call for papers in ***Chemical and Engineering News*** or ***www.acs.org*** for changes in the abstract deadlines.

**HIST Tutorial and General Papers.** (Seeking contributors) Seth C. Rasmussen, Department of Chemistry and Biochemistry, North Dakota State University, NDSU Dept. 2735, P.O. Box 6050, Fargo, ND 58108-6050, Phone: (701) 231-8747, email: seth.rasmussen@ndsu.edu

**The Posthumous Nobel Prize in Chemistry. Correcting the Errors and Oversights of the Nobel Prize Committee.** (Invited and Seeking contributors) E. Thomas Strom, Department of Chemistry and Biochemistry, University of Texas at Arlington, P. O. Box 19065, Arlington, TX 76019-0065, Phone: (817) 272-5441, Email: tomstrom@juno.com

**Preceptors of Chemistry.** (Invited and Seeking contributors) Gary D. Patterson, Department of Chemistry, Carnegie Mellon University, 4400 Fifth Avenue, Pittsburgh, PA 15213, Phone: 412-268-3324, Email: gp9a@andrew.cmu.edu

## 252nd ACS Meeting, Philadelphia, PA, August 21-25, 2016

**HIST Tutorial and General Papers.** (Seeking contributors) Seth C. Rasmussen, Department of Chemistry and Biochemistry, North Dakota State University, NDSU Dept. 2735, P.O. Box 6050, Fargo, ND 58108-6050, Phone: (701) 231-8747, email: seth.rasmussen@ndsu.edu

**Chemistry in America: 1676-1876.** (Invited and Seeking contributors) Gary D. Patterson, Department of Chemistry, Carnegie Mellon University, 4400 Fifth Avenue, Pittsburgh, PA 15213, Phone: 412-268-3324, Email: gp9a@andrew.cmu.edu

**A Salute to Ted Benfey at 90: Science, History, Culture, and a Commitment to Humanism.** (Invited) Jeffrey I. Seeman, Department of Chemistry, University of Richmond, Westhampton Drive, Richmond, VA 23173, Phone: (804) 794-1218, Email: jiseeman@yahoo.com

## 253rd ACS Meeting, San Francisco, CA, April 2-6, 2017

**HIST Tutorial and General Papers.** (Seeking contributors) Seth C. Rasmussen, Department of Chemistry and Biochemistry, North Dakota State University, NDSU Dept. 2735, P.O. Box 6050, Fargo, ND 58108-6050, Phone: (701) 231-8747, email: seth.rasmussen@ndsu.edu

# Final Program
# HIST
## DIVISION OF THE HISTORY OF CHEMISTRY

S. C. Rasmussen, *Program Chair*

## SUNDAY AFTERNOON

Section A

Boston Convention & Exhibition Center - Room 50

**1:30 - 2:00 HIST Business Meeting**

### Edwin Land and Instant Photography: Massachusetts' First National Historic Chemical Landmark

Cosponsored by PRES

J. L. Maclachlan, M. Filosa, V. Walworth, *Organizers*
J. N. Driscoll, *Organizer, Presiding*

**2:00 1.** What does it take to start chemical manufacturing from scratch? **W Hollinsed**

**2:30** Panel Discussion

## SUNDAY EVENING

Boston Convention & Exhibition Center - Room 109B

**5:00 - 8:00 HIST Executive Committee Meeting**

## MONDAY MORNING

Section A

Boston Convention & Exhibition Center - Room 50

### Memories of Henry Hill: His Legacy in Science and in Professional Service

Cosponsored by AGRO, CARB, COLL, ENFL, POLY, PRES, PROF and SCHB

J. Hayes, *Organizer*, *Presiding*

**8:30** Introductory Remarks.

**8:40 2.** Dr. Henry Hill, ACS President 1977: Firsts and leading lights. **Janan Hayes**

**9:05 3.** Henry Hill's entrepreneurial beginnings. **Arthur S. Obermayer**

**9:35 4.** A Shared Responsibility: Diversity and inclusion at ACS. **Joy Titus-Young**

**10:05** Intermission.

**10:25 5.** Henry Hill: My forerunner as ACS President. **Joseph S. Francisco**

**10:45 6.** Henry Hill: An ACS pioneer. **Attila E. Pavlath**

**11:15 7.** The legacy of Henry Hill as viewed by a member of the Northeastern ACS Local Section. **Dorothy J. Phillips**

**11:40** Panel Discussion.

## MONDAY AFTERNOON

Section A

Boston Convention & Exhibition Center - Room 50

### General Papers

S. C. Rasmussen, *Organizer*, *Presiding*

**1:00 8.** Science anniversaries 2015: A philatelic celebration. **Daniel Rabinovich**

**1:30 9.** Learning the principles of organic chemistry in context using the historical development of this science. **Mark M. Green**

**2:00 11.** Autograph books of Tetsuo Nozoe: July 19, 1953 to October 16, 1994. **Jeffrey Seeman**

**2:30** Intermission.

**2:45 12.** From the history of stereochemistry: Louis Pasteur's language for molecular chirality. **Joseph Gal**

**3:15 13.** Legacy of British biochemist Frederick Sanger. **Joe S. Jeffers**

**3:45 14.** Karl Karlovich Klaus (1796-1864): Discoverer of ruthenium. **David E. Lewis**

**4:15 15.** Early history of polyaniline: Discovery and origins. **Seth C. Rasmussen**

## MONDAY EVENING

Section A

Boston Convention & Exhibition Center - Room 50

### Sci-Mix

S. C. Rasmussen, *Organizer*

**8:00 - 10:00**

**9, 13, 14.** See previous listings.

**16.** 100 years of service to chemistry in Virginia. **Ann M. Sullivan**, Kristine S. Smetana, Linette M. Watkins, Janet A. Asper, Joseph M. Crockett

**17.** Aspirin: Incorporating the history of chemistry in the community college classroom. **Gita Perkins**

**18.** Edwin Land and instant photography: An ACS National Historic Chemical Landmark. **Jennifer L. Maclachlan**, John N. Driscoll

## TUESDAY MORNING

Section A

Boston Convention & Exhibition Center - Room 205A

### Fifty Years of Innovation: The Legacy of the Westheimer Report

MPPG, Cosponsored by HIST

R. Egolf, *Organizer*, *Presiding*

**8:35** Introductory Remarks.

**8:45 MPPG 16.** Opportunities and needs: The Westheimer view of chemistry in the 1960's and beyond. **Roger Egolf**

**9:15 MPPG 17.** Innovation in condensed matter chemistry. **Gary Patterson**

**9:45 MPPG 18.** Medicinal chemistry in and after the Westheimer report: Recommendations and ripples. **Ned Heindel and Paul S. Anderson**

**10:15** Intermission.

**10:30 MPPG 19.** Fifty years of computational chemistry. **Kendall Houk**

**11:00 MPPG 20.** Bridging the divide: A tale of the merger of computational chemistry and structural biology in enzyme design. **Stephan Mayo**

**11:30 MPPG 21.** The Breslow-Tirrell Report. **Ronald Breslow**

## TUESDAY AFTERNOON

Section A

Boston Convention & Exhibition Center - Room 50

### HIST Award Symposium Honoring Christoph Meinel

G. D. Patterson, *Organizer*
A. J. Rocke, *Organizer*, *Presiding*

**1:00 19.** Quiet revolution revisited: Theory vs. practice in nineteenth-century German chemistry. **Alan J. Rocke**

**1:30 20.** Tale of three generations: Interactions between historical context and disciplinary development among German chemists, 1871-1945. **Jeffrey A. Johnson**

**2:00 21.** Mixed messages: Divergent motives and frontier science at the Hickrill Chemical Research Laboratory. **Stephen J. Weininger**

**2:30 22.** John Tyndall and chemical physics. **William Brock**

**3:00 Intermission.**

**3:15 23.** History and philosophy as an emergency exit? The case of Maurice Delacre (1862-1938). **Brigitte van Tiggelen**

**3:45 24.** History of recent chemistry: New wine in old flasks?. **Carsten Reinhardt**

**4:15 25.** How science historians helped create chemistry as a discipline. **Christoph Meinel**

## HIST 1 - What does it take to start chemical manufacturing from scratch?

***W Hollinsed*[1]**, *chollinsed@gmail.com, [1]StormRider Technologies, Washington, DC, District of Columbia, United States*

In the BC days (before computers and digital photography), Polaroid Corporation developed a system for single step photography. The entire system was based on new chemistry and coating technologies that had never existed before. Why were new chemicals needed and what were the performance criteria? Why and how did Polaroid get into the chemical manufacturing business and what were the results? What was the impact of Ed Land's culture on this operation? How did the chemical development operation learn to do rapid and high quality scale-up to manufacturing as a core skill? What did we all learn from this and take with us to other places in the industry? A series of illustrative anecdotes will be discussed highlighting the skills developed at Polaroid as well as the limitations resulting from not being a legacy chemical enterprise.

## HIST 2 - Dr. Henry Hill, ACS President 1977: Firsts and leading lights

***Janan Hayes*[1]**, *jmhayesacs@gmail.com, [1]Project Inclusion, Sacramento, California, United States*

Dr. Henry Hill was a leader in the ACS and in his professional activities in many ways. As an introduction to this symposium in his honor, this paper will provide an overview to his activities, successes, and honors.

## HIST 3 - Henry Hill's entrepreneurial beginnings

***Arthur Obermayer*[1]**, *obermayer@alum.mit.edu, [1]Moleculon Res Co, West Newton, Massachusetts, United States*

Four months after founding Moleculon, I met Henry Hill at an ACS meeting. He was thinking of starting Riverside Research Laboratory. I invited him to join us since we had a facility and staff that could be shared. The rest is the story of this talk.

## HIST 4 - A Shared Responsibility: Diversity and inclusion at ACS

***Joy Titus-Young*[1],** *j_titus-young@acs.org, [1]American Chemical Society, Washington, District of Columbia, United States*

Joy Titus-Young is the manager of Diversity Programs at the American Chemical Society. In her current capacity, she provides operational leadership to ACS programs, activities, and partnerships related to diversity and inclusion. In addition, she serves as the staff liaison to the Diversity and Inclusion Advisory Board and the Committee on Minority Affairs.

The ACS Department of Diversity Programs' (DDP) mission is to advance diversity and inclusion in the chemical sciences. The department focuses on increasing the representation and inclusion of underrepresented minorities, women, younger chemists, chemists with disabilities, and LGBTQ+ in the chemical sciences. In addition, the department works to increase the diversity of ACS membership, educate members and stakeholders on the value and status of diversity, and recognize and communicate outstanding diversity achievements.

## HIST 5 - Henry Hill: My forerunner as ACS President

***Joseph Francisco*[1]**, *francisc@purdue.edu, [1]Purdue Univ Chem Dept, West Lafayette, Indiana, United States*

As the 2010 ACS President, my presidency was built both on my own interests and experiences and on the history of activities of previous past presidents. Henry Hill represents a significant past president in establishing the framework for my plans and programs.

## HIST 6 - Henry Hill: An ACS pioneer

***Attila Pavlath[1]**, attilapavlath@yahoo.com, [1]WRRC, Albany, California, United States*

For many years the American Chemical Society lived on its past outstanding accomplishments since its foundation in 1876. Even though time has changed, somehow the ACS leadership was reluctant to make changes either because they did not feel that any change was needed or that they were not sure about the road to be taken. The early pioneers who wanted to expand our country to unchartered areas were guided by the Shakespearean principle: 'Our doubts are traitors, and make us lose the good, we oft might win, by fearing to attempt". That was Henry Hill's philosophy both in his private and ACS activities. He was not afraid to speak up. As a Board member and ACS President he was openly promoting the need for changes within the Society. He faced various subtle and open oppositions on his road to bring the Society into the 20th century. However, as a true pioneer he kept going without fear. Unfortunately, his early death did not allow him to see the fruit of his work, but his contributions never will be forgotten.

## HIST 7 - The legacy of Henry Hill as viewed by a member of the Northeastern ACS Local Section

***Dorothy Phillips[1]**, dwphillips@comcast.net, [1]ACS Board of Directors, Natick, Massachusetts, United States*

This paper represents the observations of an active member of the Northeast Local Section, Henry Hill's home section on his impact both on the section and on the individual chemists in this region. In addition the author will share some of her personal responses to the legacy of Dr. Henry Hill.

## HIST 8 - Science anniversaries 2015: A philatelic celebration

***Daniel Rabinovich[1]**, drabinov@uncc.edu, [1]UNC Charlotte Chemistry, Charlotte, North Carolina, United States*


The year 2015 marks several important milestones in the history of science, including the bicentennial of Humphry Davy's development of a miner's safety lamp and the 150th anniversary of August Kekulé's proposal for the hexagonal structure of benzene. Postage stamps, which are often used as a simple yet effective means of communication to inform the general public about a variety of subjects and events, will be used in this presentation to illustrate the history of these discoveries. In a similar vein, postage stamps and other philatelic materials will be shown to commemorate the centennial of the Nobel Prize in Chemistry awarded to Richard Willstätter "for his researches on plant pigments, especially chlorophyll" and the Nobel Prize in Physics awarded jointly to Sir William Henry Bragg and his son William Lawrence Bragg "for their services in the analysis of crystal structure by means of X-rays". The presentation will conclude with an overview of the stamps issued in recent months to celebrate the International Year of Light and Light-based Technologies (IYL 2015), some of which have unexpected connections to chemistry.

## HIST 9 - Learning the principles of organic chemistry in context using the historical development of this science

***Mark Green[1]**, mgreen@nyu.edu, [1]Chemical and Biomolecular Engineering, New York University Polytechnic School of Engineering, New York, New York, United States*

Organic chemistry has a rich history filled with stories and fascinating characters, which have been used in enhancing the teaching of this subject to sophomore undergraduates studying the subject for the first time at the engineering school of New York University. The students in the class vary from chemical engineering to pre-medical students. The course uses a flip teaching approach in which videos covering the entire year's subject matter are on the web (organicchemistryprinciplesincontext.com) presenting only the scientific principles. Class time is also spent only on the scientific principles. The historical material, context and stories are made available to the students in a text: "Organic Chemistry Principles in Context: A Story Telling Historical Approach," ($25 paper and $9.99 Kindle) The principles are presented in context as for a few examples:

carbocations are discovered by the students in the processes by which high octane fuel is produced industrially using the identical principles by which terpenes are made in vivo; organic chemical reactions are discovered in the methods by which Woodward synthesized cholesterol and Corey synthesized prostaglandin; the nature of carbonyl chemistry is discovered by the study of the catabolism of fats and sugars. The students are held responsible only for the principles in the context presented. We are delighted to find the history, context and storytelling attracting them to the subject in a manner not experienced in long years of teaching by this professor.

## HIST 11 - Autograph books of Tetsuo Nozoe: July 19, 1953 to October 16, 1994

***Jeffrey Seeman*[1]*, jiseeman@yahoo.com, [1]University of Richmond, Richmond, Virginia, United States***

For over 40 years and in 1179 pages, hundreds and hundreds of chemists, their families and friends entered their autographs, well wishes, poems, puzzles and chemical pictography into the autograph books of eminent chemist Tetsuo Nozoe (1902 - 1906). These 1179 pages along with specially commissioned essays and perspectives have now been published in 15 consecutive issues of The Chemical Record, a journal of the Chemical Society of Japan, and are free-access for at least three more years. In addion, a specially constructed website, also free-access for three more years, provides the entire project in a very user-friendly fashion which includes two indices (names and places of those signing the books). The editor of the project will discuss the life of Professor Nozoe and present his favorite inscriptions from the Nozoe Autograph Books.

## HIST 12 - From the history of stereochemistry: Louis Pasteur's language for molecular chirality

***Joseph Gal*[1]*, joe.gal@ucdenver.edu, [1]UCH Clinical Laboratories, University of Colorado School of Medicine, Aurora, Colorado, United States***

The discovery of molecular chirality via the resolution of (±)-tartaric acid [(±)-TA] by Pasteur (1822-1895) in 1848 is widely known. However, his contributions to the language of stereochemistry are less-well appreciated. He expressed concern about the lack of suitable language for his new science of chiral crystals and molecules and invented terminology and nomenclature for it, in French. He adapted *dissymétrie* (dissymmetry) for what we call 'chirality' today. In 1830 Swedish chemist Jöns Jacob Berzelius (1779-1848) coined *isomers* for different substances with the same elemental composition, and Pasteur applied 'isomers' to his mirror-image chiral molecules and other isomeric forms. In 1856 *enantiomorph* was introduced for chiral crystals by German mineralogist Carl Friedrich Naumann (1797-1873), but Pasteur, who knew Naumann personally, did not adopt 'enantio' terminology. *Acide racémique* (racemic acid) was the French name for (±)-TA coined by Louis Joseph Gay-Lussac (1778-1850), and Pasteur adapted *racémique* as an adjective for the equimolar combination of two enantiomers, thereby launching today's 'racemic' terminology. *Paratartaric acid*, introduced by Berzelius, was another name for (±)-TA, and Pasteur tried *paratartaric* in the connotation of racemic, but (thankfully) 'racemic' prevailed. He used 'right tartaric acid' and *acide tartrique ordinaire* (ordinary tartaric acid) for (+)-TA and 'left tartaric acid' for (-)-TA, but also tried, and eventually abandoned, *acide dextroracémique* (dextroracemic acid) and *acide lévoracémique* (levoracemic acid) for the TA enantiomers. The latter names, while appearing incongruous today, were logical then, and inspired today's dextro/levo nomenclature, e.g., *dextro*-tartaric acid. Pasteur did not, however, include dextro/levo in the names of other chiral substances. He called achiral TA 'inactive tartaric acid', but indicated that French chemist Victor Dessaignes (1800-1885) named it 'mesotartaric acid', which gave rise to today's *meso* prefix in stereochemistry (e.g., *meso*-TA, *meso*-2,3-butanediol). Some of Pasteur's chirality-related vocabulary is essential stereochemical lexis today in English, French, and other languages.

## HIST 13 - Legacy of British biochemist Frederick Sanger

***Joe Jeffers*[1]*,** jeffers@obu.edu,[1]Ouachita Baptist Univ, Arkadelphia, Arkansas, United States*

Fred Sanger was awarded two Nobel prizes, one for sequencing a protein, the other for nucleic acid sequencing methods. Work for the first established the idea of a genetic code; work for the second established the DNA sequencing method that was used for the human genome project. In between, his RNA sequencing work verified the code and revealed some variations to the code. Three of his former graduate students and one former post-doctoral student won Nobel prizes of their own. This talk will outline these events.

## HIST 14 - Karl Karlovich Klaus (1796-1864): Discoverer of ruthenium

***David Lewis*[1]**, *lewisd@uwec.edu, [1]Chemistry Department, UW-Eau Claire, Eau Claire, Wisconsin, United States*

The year 2014 was the 150th anniversary of the death of Russian chemist, Karl Karlovich Klaus (Carl Ernst Klaus, Клаус Карл Карлович, 1796-1864), Professor of Chemistry at Kazan University, and discoverer of the element ruthenium. Klaus is an interesting study: from a neglected childhood, he educated himself well enough to qualify as a pharmacist in St. Petersburg and Dorpat. Following his graduation from Dorpat, he became a highly respected pharmacist in Kazan. A gifted artist, he was chosen to accompany scientific expeditions in the Volga-Ural region of Russia; this awoke his interest in chemistry. He sold his pharmacy, and obtained graduate credentials in Dorpat that allowed him to take the Chair of Chemistry at Kazan. Here he first isolated ruthenium as the pure metallic element, but it took several years of correspondence with his former mentor, Osann, for him to be accorded his place as the sole discoverer of the metal. At the pinnacle of his scientific career, family concerns led to him lraving his professorship at Kazan, and returning to Dorpat. Klaus' life and career will be discussed.

## HIST 15 - Early history of polyaniline: Discovery and origins

***Seth Rasmussen*[1]**, *seth.rasmussen@ndsu.edu, [1]Department of Chemistry and Biochemistry, North Dakota State University, Fargo, North Dakota, United States*

The discovery that the conductivity of conjugated organic polymers can be controlled via redox processes has led to materials that combine the electronic properties of inorganic semiconductors with the weight and density of plastics. The oldest known example of these materials is polyaniline, although its conductive nature was not recognized until the 1960s. The discovery and origin of this polymeric material, however, is a matter of some debate, with little agreement as to when this occurred or who deserves credit for its discovery. Over the years, the discovery of polyaniline has been attributed to Friedlieb F. Runge, Carl Julius Fritzsche, John Lightfoot, and Henry Letheby. In order to bring some clarity to the early history of this material, the reports of aniline and its products by these various researchers during the 1800s will be presented. These results will then be evaluated in light of our current knowledge of polyaniline in order to determine if it is possible to attribute priority for the discovery of polyaniline.

## HIST 16 - 100 years of service to chemistry in Virginia

***Ann Sullivan*[5]**, *asullivan@reynolds.edu, Kristine Smetana[3], Linette Watkins[2], Janet Asper[4], Joseph Crockett[1]*

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The Virginia section was began as a chemistry club in 1907. After determining the desire to have a more comprehensive interaction with fellow chemists in Virginia, the chemistry club began the process of becoming a local section of the American Chemical Society. The Virginia section was formed in 1915. We are celebrating our 100th anniversary this year.

## HIST 17 - Aspirin: Incorporating the history of chemistry in the community college classroom

***Gita Perkins*[1,2]**, *gitaperkins@gmail.com, [1]Science/Chemical Education, Arizona State University, Tempe, Arizona, United States; [2]Chemistry, Maricopa Community College, Phoenix, Arizona, United States*

Chemistry is a human enterprise (Rasmussen, 2007), and there seems to be only a passing interest in the history of chemistry, although the Center for the History of Chemistry at the University of Pennsylvania predicted that there will be a shift (Kauffman, 1987). According to Rasmussen, 2007, 2008, the last several decades have seen this shift due to the value History of Science adds to a curriculum. Among the reasons documented by Rasmussen, 2007 for the incorporation of the History of Science into graduate and undergraduate courses include a better comprehension of scientific concepts and methods, intrinsic worth, the

portrayal of science as a human enterprise, and making the abstract more concrete and engaging for students. In addition, studies have shown that the use of the history of chemistry approach develops positive attitudes toward the study of chemistry (Abell & Lederman, 2008). This submission is an effort to integrate the history of chemistry perspective on Aspirin into the curriculum, prior to teaching theoretical yield and limiting reactant in the formation of aspirin. Chronologically, community college students will be taken back to the times 400 BC when Hippocrates recommended chewing on the bark of a willow tree. 18th century brings in the existence of an astringent substance found by Stone (Hademenos, G., 2005). An attempt will be made to enhance visual learning by the addition of images such as of salicin, the natural substance responsible for the pain relief effects of the willow tree. The year 1860s will reveal Hermann Kolbe achieving a laboratory synthesis of salicylic acid and its sodium salt from phenol, carbon dioxide and sodium. Kolbe's student then establishes the first factory for the large-scale production of synthetic salicylates. The event that follows is Hoffmann's synthesis of a more palatable acetyl derivative. Students finally complete an assessment on the major historical events involved in the discovery of Aspirin.

## HIST 18 - Edwin Land and instant photography: An ACS National Historic Chemical Landmark

***Jennifer Maclachlan*[3,1]*, pidgirl@gmail.com, John Driscoll*[2,1]*, [1]PID Analyzers, LLC, Centerville, Massachusetts, United States; [2]NHCL Committee Chair & NESACS Public Relations, Northeastern Section of the American Chemical Society, Sandwich, Massachusetts, United States; [3]Public Relations, Northeastern Section of the American Chemical Society, Sandwich, Massachusetts, United States***

ACS grants Landmark status to seminal achievements in the history of the chemical sciences and provides a record of their contributions to chemistry and society in the U.S. The Northeastern Section of the American Chemical Society (NESACS) applied for National Historic Chemical Landmark (NHCL) status for Edwin Land's Research Lab at 700 Massachusetts Ave. which is at the corner of MA Ave, and Osborne Street. This is the first NHCL in Massachusetts which is quite surprising with all the technology in this area. The process to designate this National Historic Chemical Landmark will be described including the various commemorations of this important event from the dedication at the site of the plaque on Thursday August 13, 2015 followed by a reception at the MIT Museum for ACS members and Polaroid Retirees to the special symposium on Friday August 14, 2015 by Edwin Land's former employees at the MIT Museum for MIT personnel, Polaroid Retirees and Cambridge residents (the public is also invited).

## HIST 19 - Quiet revolution revisited: Theory vs. practice in nineteenth-century German chemistry

***Alan Rocke*[1]*, ajr@case.edu, [1]History, Case Western Reserve University, Cleveland, Ohio, United States***

The phrase 'quiet revolution' has been applied to a set of roughly simultaneous events in European chemistry, including the decline of electrochemical dualism, the rise of type theories based on substitution, and a reform of atomic weights, culminating in the rise of the theory of chemical structure and the periodic table of the elements. What has been less noticed is a transformation, among members of the chemical community, of the very character of what went by the name 'theory.' The speaker will argue that this transformation was associated with a significant shift in the relevance of basic chemical research to the rising chemical industry, particularly in the German-speaking countries.

## HIST 20 - Tale of three generations: Interactions between historical context and disciplinary development among German chemists, 1871-1945

***Jeffrey Johnson*[1]*, jeffrey.johnson@villanova.edu, [1]History, Villanova University, Villanova, Pennsylvania, United States***

This paper will examine some of the aspects of the social and institutional context of modern Germany (from the 1860s to the 1940s) that particularly favored certain styles and disciplinary directions in chemistry, especially synthetic organic chemistry during the late nineteenth century, which in turn had a reciprocal impact on German industry, and through it on politics and war in the twentieth century. The paper will approach this broad problem by focusing on three generations of German chemists: the "founders," who were positioned to lead the discipline as the process of German national unification reached its culmination in 1871; the

"reformers," who entered the discipline between the 1870s and the First World War and became the successors of the founding generation; and the "crisis generation," whose careers began in the troubled years after 1914 and who had to work in contexts marked by extremes of war and politics far different from the experiences of their predecessors. By comparing and contrasting the generations, their disciplinary directions, and the broader implications thereof in changing historical contexts, the paper will bring out some of the most significant ways in which the discipline of chemistry has shaped and been shaped by modern history.

## HIST 21 - Mixed messages: Divergent motives and frontier science at the Hickrill Chemical Research Laboratory

***Stephen Weininger*[1]***, stevejw@wpi.edu, [1]Chemistry, Worcester Polytechnic Institute, Worcester, Massachusetts, United States*

A short article in the 5 December 1948 New York Times announced the opening of the Hickrill Chemical Research Laboratory on the estate of its sponsors, Sylvan and Ruth Alice Weil, 45 miles north of New York City. Hickrill's Director of Research, William von Eggers Doering, was an assistant professor of organic chemistry at Columbia University, and Mrs. Weil, an undergraduate theater and poetry major, had enrolled in Columbia as an adult and earned a PhD under Doering's supervision in 1946. The Laboratory's stated mission was to "concentrate[…] on the synthesizing of new substances for medical advancement." In fact, the research papers that emerged from Hickrill made no mention of medical testing or applications. They did, however, make important contributions to theoretical organic chemistry. Based on published material and interviews with Hickrill personnel, this talk documents a frequent historical problem: decoding the major figures' statements and motives in the launching of new scientific endeavors. It will also offer some reflections on the promises and perils of private research funding.

## HIST 22 - John Tyndall and chemical physics

***William Brock*[1]***, william.brock@btinternet.com, [1]Chemistry, University of Leicester, Eastbourne, United Kingdom*

The Irish scientist John Tyndall (1820-93) is usually identified as a physicist and Faraday's successor at the Royal Institution in London. However, active at a time when the disciplinary boundaries of inorganic, organic and physical chemistry were being consolidated, Tyndall (who learned chemistry from Frankland and Bunsen: PhD at Marburg 1850) dissolved such boundaries in his experimental work on diamagnetism, heat, light, sound and electricity. These experimental fields came to define 19th- and early-20th century British experimental physics, and its teaching in British schools and universities until the 1950s. Tyndall's commitment to particulate, molecular explanations of physical phenomena owed much to his chemical training. In the 20th century his experimental work transferred back into chemistry as chemists developed physical methods for determining composition and mechanisms. The international project to edit Tyndall's journals and correspondence helps shed light on his role as a chemical physicist.

## HIST 23 - History and philosophy as an emergency exit? The case of Maurice Delacre (1862-1938)

***Brigitte van Tiggelen*[1]***, vantiggelen@memosciences.be, [1]Memosciences, Leuven, Belgium*

Educated as an organic chemist in what he calls the theories of Wurtz, the Ghent professor Maurice Delacre leaves the field in total disbelief fifty years later. Indeed, he comes to the conclusion that not only atomism, valence, and the periodic table are mere hypotheses, but also rejects structural and even linear formulae. These convictions grew out of his laboratory bench work, focusing on the gradual synthesis of the benzene chain, along which he stumbles on compounds like pinacols, whose chemical behavior escape the frame of the organic chemical concepts of his time. Facing the fact, and letting go of the theory, Maurice Delacre turns to history and philosophy to make sense of what he perceived as an impasse in his field. He published his *Histoire de la chimie*[1] in 1920, later quoted by Helene Metzger as the perfect counter-example to her own approach to the history of chemistry. And three years later, his *Essai de philosophie chimique*[2] formalizes the teachings of his experimental work and criticizes the way theories of chemistry are introduced as the foundation of chemical education.

[1] M. Delacre, Histoire de la chimie, (Paris :Gauthier-Villars, 1920).
[2] M. Delacre, Essai de philosophie chimique, (Paris : Payot, 1923).

## HIST 24 - History of recent chemistry: New wine in old flasks?

***Carsten Reinhardt*[1]*, creinhardt@chemheritage.org, [1]Office of the President, Chemical Heritage Foundation, Philadelphia, Pennsylvania, United States***

Arguably, history of chemistry, as its 'siblings' history of physics and history of biology, covers the history of a discipline and of a profession. The history of the history of chemistry is even wedded to the emergence of chemistry as a discipline, as Christoph Meinel argues in his talk. However, in the last 30 to 40 years, a secular transformation occurred that potentially affects the meaning of chemistry at various levels. The power of the concept of discipline has weakened considerably, in both the analytical and practical domains. Sociologists and historians of science alike point to new modes of the production of knowledge. Practitioners of chemistry increasingly use labels such as life or nano to fit in, and they do so very successfully. The chemical industry has given up most of its basic research endeavors, still going strong in the 1970s, and perhaps as a consequence has lost much of its former hi-tech appeal. Increasingly, though chemical companies of course still do exist, the industry moves into the areas of materials and biotech, using them to define their brand. In so doing, so the argument, they follow science. The concept of a knowledge society, now again at the analytical level, even proclaims the permeation of society by scientific knowledge. In my talk I will ask what we, as historians of chemistry, can do to tackle some of these challenges, which in my view present more opportunities than threats.

## HIST 25 - How science historians helped create chemistry as a discipline

***Christoph Meinel*[1]*, christoph.meinel@uni-regensburg.de, [1]History of Science, University of Regensburg, Regensburg, Germany***

The paper will argue that in the past, historical narratives played a crucial, yet often overlooked, part in creating the chemical community and in defining the territory of the discipline. Towards the end of the eighteenth century, the evolution of the modern system of scientific disciplines gave birth to a new kind of disciplinary historiography. The newly emerging sciences often relied upon historical arguments in order to demonstrate their legitimacy, utility and dignity. Addressing the learned community and influential elites alike, this kind of literature, including the new genre of scientific biography, became increasingly popular – and in chemistry even more so than in most other natural sciences. As a regular element in academic curricula, courses in the history of chemistry provided the pedagogical tools to socialize young students into the chemical community. In doing so, the nineeenth century favoured national and theory-oriented approaches. The great popularity of this sort of historiography, written by chemists for fellow chemists, sharply declined after the turn of the century. By then, the scientific disciplines were so well established and so firmly institutionalized that they were no longer needed to acquire legitimacy or status from history. Furthermore, a growing alienation between the 'two cultures' weakened this kind of argument. It was therefore not until the 1990s that a new historiography of chemistry began to emerge. The paper will close by asking whether this recent upsurge was triggered by the circumstance that the classical disciplines are beginning to disintegrate or to merge into new hybrid fields, and what these trends could mean for an adequate historical treatment of chemistry.