

# Transmutations

Special Issue Includes 2009–2010 Report to Donors

No. 9 | Winter 2011

**transmutations** \tran(t)s-myû-'tā-shenz  
n. Acts of change or alteration to appearance  
or nature, especially to a higher form.



CHF is seizing the once-in-a-lifetime  
opportunity that is the International Year  
of Chemistry, and you can participate.

CHF



# Transmutations

No. 9 | Winter 2011

**Transmutations** is a newsletter published three times per year for supporters of CHF.

## Comments or questions about this issue?

### Please contact

Margo Bresnen, Editor  
mbresnen@chemheritage.org

## For information on supporting CHF, please contact

Denise Creedon, Vice President,  
Institutional Advancement  
dcreedon@chemheritage.org

## Chemical Heritage Foundation

LIBRARY • MUSEUM • CENTER FOR SCHOLARS

315 Chestnut Street  
Philadelphia, PA 19106-2702  
Phone: 215.925.2222  
Fax: 215.925.1954  
chemheritage.org

## HOURS

### The Museum at CHF

Monday–Friday, 10:00 a.m.–4:00 p.m.  
First Fridays, 10:00 a.m.–8:00 p.m.

### The Donald F. and Mildred Topp Othmer Library of Chemical History

Monday–Friday, 10:00 a.m.–4:00 p.m.  
(by appointment; schedule at  
reference@chemheritage.org)

## Go to chemheritage.org for

- *Chemical Heritage*, CHF's magazine
- *Distillations*, our award-winning podcast
- Periodic Tabloid, the blog of CHF staff and scholars
- Classroom Resources
- Event Registration
- *And much more*

## Also check out CHF on

YouTube, Facebook, Flickr, LinkedIn,  
MySpace, and Twitter

**DESIGN:** Willie•Fetchko Graphic Design

**COVER PHOTO:** Conrad Erb

**[ON THE COVER]** A visitor to the Museum at CHF considers I don't think you understand the way I feel about the stove, one of two works by artist David Clark to be featured in *Elemental Matters: Artists Imagine Chemistry*.



*In this issue* of *Transmutations* you'll find the 2009–2010 Report to Donors. Looking back on how much CHF accomplished in the last fiscal year is quite rewarding for us, and we hope that you, too, view it as a successful and exciting time. Another good year is another great reason to thank you, CHF's donors, who make it all possible.

And we're pleased to report that the momentum has continued into the first half of the current fiscal year. Fundraising efforts on behalf of our collections, a true bedrock of CHF's mission, are especially impressive.

- A \$5 million grant from the Wyncote Foundation has kicked off CHF's latest expansion project: a state-of-the-art archival space in a nearby historic building. Plans are now under way to retrofit the structure with storage and retrieval capacity that will allow CHF to better preserve and encourage access to our extensive archives.
- A National Endowment for the Humanities challenge grant of \$500,000 prompted a remarkable leverage gift from Laurie Landeau, chair of CHF's development committee, whose \$1.2 million pledge will, when paired with the generosity of other donors, establish a \$2 million acquisition and preservation fund.
- We are also closing in on the goal of \$2 million to endow the Arnold Thackray Directorship of the Othmer Library. Thanks to contributions from the Crystal Trust, John C. Haas, and the late Robert L. McNeil, CHF is that much closer to ensuring that our library will always attract the best professionals in the field.

Other recent fundraising successes will help CHF create the collections of tomorrow by fostering the history made today. Warren G. Schlinger has generously committed the \$1 million needed to guarantee that the Warren G. Schlinger Symposium, a staple of CHF's annual Innovation Day, continues in perpetuity. Kathryn C. Hach-Darrow has dedicated \$200,000 over the next two years to exhibits in the Clifford C. Hach Gallery, starting with *Elemental Matters: Artists Imagine Chemistry* (see page 1). And The Dow Chemical Company has bolstered its support of CHF's public engagement with a major pledge of \$1.25 million over five years for programming and outreach activities.

Of course, these accomplishments only make CHF eager to do more. With your help, we will. Throughout this newsletter you'll read about many of CHF's best initiatives. You can become a part of it all by making a contribution today. Thank you.

A handwritten signature in black ink, appearing to read "T. R. Tritton".

Thomas R. Tritton  
President and CEO

A handwritten signature in black ink, appearing to read "Steven Koblik".

Steven Koblik  
Chair, Board of Directors



[CLOCKWISE FROM TOP LEFT] A pair of visitors discuss Rebecca Kamen's *Hydrogen, Helium, Carbon, Nitrogen, Oxygen, Silicon, Phosphorus, Sulfur* during the opening celebration of *Elemental Matters*, CHF's latest exhibit. Guests at CHF's celebration of the U.S. launch of IYC 2011 enjoy a meal prepared by Matt Levin and Monica Glass, two of Philadelphia's premier chefs. Philadelphia Mayor Michael Nutter, who made remarks at the event, shakes hands with Jerome Peribere, executive vice president of The Dow Chemical Company.

# OUR YEAR IS HERE

## INTERNATIONAL YEAR OF CHEMISTRY

The International Year of Chemistry (IYC 2011) is off to an exceptional start. This initiative, designated by the United Nations, is a worldwide celebration of chemistry and its contributions to the well-being of humankind. After the global kickoff took place in Paris in January, the focus shifted to CHF as we hosted the U.S. launch of IYC 2011 in our Philadelphia headquarters.

The main event was Global Challenges/Chemistry Solutions, a panel discussion produced by CHF in collaboration with the American Chemical Society, the American Chemistry Council, the American Institute of Chemical Engineers, and the National Academies. The panel, which featured top names from industry and academia (see page 5), made for a blockbuster event, and you can watch the archived webcast of their discussion about energy, water, food, and human health via a link at [chemheritage.org/IYC2011](http://chemheritage.org/IYC2011).

In conjunction with Global Challenges/Chemistry Solutions CHF hosted a very special evening of science-infused entertainment, chemistry-inspired cocktails, and molecular

gastronomy. Guests were treated to presentations that ranged from historian Lawrence Principe's insights on alchemy to absinthe sampling with *Washington Post* drinks columnist Jason Wilson.

Another IYC 2011 kickoff event, the opening celebration of *Elemental Matters: Artists Imagine Chemistry*, drew a crowd of nearly 250 visitors to CHF's new exhibit. The artists whose work comprises the exhibit were on hand for informal discussions, and *Elemental Matters* has since received critical acclaim. A slide show of the arresting contemporary artworks is also available on CHF's Web site.

For additional information on CHF's events and exhibits, or to learn more about CHF's upcoming IYC 2011 initiatives, visit [chemheritage.org/IYC2011](http://chemheritage.org/IYC2011) often.

You can help us continue to make the most of this once-in-a-lifetime opportunity. To support CHF's IYC 2011 initiatives, please contact Karen Serfass at 215.873.8239 or [kserfass@chemheritage.org](mailto:kserfass@chemheritage.org).

# Alchemy's Forbidden Books



Tayra Lanuza-Navarro.

For 20 years CHF's Othmer Library of Chemical History has attracted scholars from around the world. The library's resources on the subject of alchemy—that precursor of modern chemistry most associated with failed attempts to turn base metals into gold—are especially strong.

Tayra Lanuza-Navarro has come all the way from Spain to take advantage of these resources as a Sidney M. Edelstein Fellow. A postgraduate in the history of science from the University of Valencia, she is at work on a research project titled "Alchemy, Astrology, and Books of Secrets: Ideas and Practices Before the Spanish Inquisition."

During the Spanish Inquisition accused practitioners of alchemy were persecuted, and certain alchemical texts were censured. Lanuza-Navarro is analyzing the contents of these 17th-century texts with a particular focus on *Theatrum Chemicum*, a compilation of alchemical works from 1602. CHF holds a complete copy of *Theatrum Chemicum*, and she is thus able to compare the original work against an expurgated version held by the University of Valencia.

"CHF's collection of early modern alchemical works, as well as other sources with alchemical content, make it the best place to accomplish the objectives of my research project," Lanuza-Navarro explains. "I am really happy to be here, and it is crucial for my work to be a fellow at CHF."

Lanuza-Navarro has previously worked as a researcher in the history of science at the Smithsonian Institution, the Vatican Library, Bath Spa University, and the European University Institute in Florence. CHF's Edelstein Fellowship supports research on topics in the history of chemistry and related sciences, industries, and technologies.

*If you are interested in supporting CHF's fellows, please contact Richard Ulrych at 215.873.8286 or rulrych@chemheritage.org.*

## Oral History Spotlight

# A Difficult Decision

Kazuo Inamori founded Kyocera Corporation in 1959 and developed it into a diversified global giant. The chemist, innovator, and philanthropist then took the lead in creating KDDI, the second largest telecommunications company in Japan.

Inamori's legacy will be honored with the 2011 Othmer Gold Medal in April. In an oral history interview with CHF president and CEO Tom Tritton, Inamori recounted Kyocera's development of the world's first laptop computer—and the decision to abandon production of that very successful product:

"This is what happened. One time a young engineer sat next to me on a plane. He said, 'Mr. Inamori, I have always wanted to talk with you. That's why I always purchase first-class tickets on U.S.-Japan flights. I thought that someday I would be able to sit next to you. Then, you would be stuck, and I would be able to speak with you for many hours.'

So we started talking, and he shared with me the idea of the laptop computer. Interestingly, at that time I had a

similar idea. So between San Francisco and Tokyo we started drawing a laptop computer. Later he visited me in Kyoto, and we were able to develop, manufacture, and successfully market a laptop computer.

Despite our success I had an indescribable uncertainty about the future of this product, partly because electrical engineering was not one of Kyocera's core strengths. Also, I thought that by staying in the laptop business we were becoming a vendor of finished products. Until then, Kyocera had always been a component supplier. Vaguely, I was feeling that I should not manufacture finished products and make my customers my enemies.

When Kyocera was making packages for semiconductor companies, Robert Noyce, after starting Intel, once asked me, 'Why don't you enter the semiconductor industry? You have the majority of the package market. When we U.S. semiconductor makers gather together, we say how scary it would be if Kyocera started making semiconductors themselves!'



Kazuo Inamori talks to entrepreneurs at a meeting of Seiwajyuku, a study group of business owners devoted to his ideas. Photo courtesy of Kazuo Inamori.

I told him, 'We will never make semiconductors. We will never make our customers our enemies.' As a component supplier, I felt it was not appropriate for us to attack the customers in their territory. I believe that these are the reasons why we abandoned the laptop business. However, looking back now at my decision, I cannot help but think that had we stuck with the laptop business, Kyocera might have become even bigger!"

*To support CHF's oral history program, please contact Denise Creedon at 215.873.8266 or dcreedon@chemheritage.org.*

[CLOCKWISE FROM TOP RIGHT] Herman Mark, a father of polymer science and longtime professor at the Polytechnic Institute of Brooklyn, sits for an oral history in 1986. Linus Pauling, the only person to win two unshared Nobel Prizes in different fields (Chemistry and Peace), is interviewed by Jeff Sturchio in 1987. CHF president and CEO Tom Tritton converses with Joseph M. DeSimone, Chancellor's Eminent Professor of Chemistry at the University of North Carolina at Chapel Hill, during a History Live event in Research Triangle Park last year.



## In Their Own Words: CHF's Oral History Program

CHF's Oral History Program helps ensure that the practice of modern science and the knowledge it generates is preserved not only in journals and textbooks, but also in scientists' own words. Too often the experiences of individual scientists—their beliefs, thoughts, actions, and motivations—are missing from the annals of history, but oral history interviews capture just such detail.

The purpose of CHF's program is to develop and maintain collections of oral history interviews with women and men who have contributed to the advancement of scientific knowledge in the 20th and 21st centuries. From choosing interviewees to creating question lists, and from using recording equipment to processing transcripts, the professionals at CHF facilitate and participate in all facets of conducting oral histories.

Just as scientists rarely work alone, a strong oral history collection contains interviews that “speak” to each other. CHF pursues oral histories with a mind to prosopographic research, or investigations into common characteristics of

historical groups whose individuality can only be understood within the collective identity of the group. Put simply: projects that reveal patterns of relationships and activities teach us more about the scientific process and its products than a single oral history can.

CHF's oral histories are available to anyone interested in learning about the history of science, medicine, and technology from the practitioners in these fields. As an extension of the Oral History Program, CHF launched the History Live series in 2009. History Live events present first-person accounts of legendary careers in the form of informal interviews before live audiences. To search CHF's oral history collections or watch video clips of History Live events, visit [chemheritage.org](http://chemheritage.org).

*You can help CHF capture and preserve the oral memoirs of notable figures in chemistry and related fields. To support the Oral History Program, please contact Denise Creedon at 215.873.8266 or [dcreedon@chemheritage.org](mailto:dcreedon@chemheritage.org).*

# donor profile Ralph Landau

Few individuals have done so much for the chemical enterprise as Ralph Landau. His background was not privileged. Born to poor parents, who separated when he was small, he was just 13 at the time of the Great Crash of 1929.

Landau, however, was someone of undaunted courage. While a 16-year-old student at West Philadelphia High School, he won a coveted Mayor's Scholarship to the University of Pennsylvania. From that Ivy League springboard, Landau dove into graduate school at the Massachusetts Institute of Technology, reveling in its School of Chemical Engineering Practice and earning a Ph.D. in 1941. Soon the Manhattan Project was calling for the talent of this rising young star.

By the end of World War II, Landau was an extraordinarily gifted practical engineer and one deeply knowledgeable in math and chemical theory. In combination with his own formidable determination, these attributes gave Landau the ingredients necessary to bring American scale and scope to the rebuilding of chemical plants—first across Western Europe, and later throughout the world. Scientific Design was the highly appropriate name of his

company, and its distinguishing criterion.

The runaway inflation of the early 1980s took Landau—like most people—by surprise. His response to the new reality was to vault from one major career to another, that of economist and economic historian. From his mid-60s to his mid-80s Landau wrote, oversaw, and stimulated into being more serious, substantive work in the economic history of the chemical sciences than most professors achieve in an academic lifetime.

Such titles as *Chemicals and Long-Term Economic Growth* and *Technology and the Wealth of Nations* testify to this phase of his career—as does the Landau Building at Stanford University. CHF is proud that Landau was awarded both its Petrochemical Heritage Award and its Othmer Gold Medal: he is the only individual to receive both these accolades.

The determined, optimistic spirit that characterized all Landau's work also appears in the career and achievements of his daughter, Laurie Landeau. Landeau maintains the family involvement with CHF, serving as a member of CHF's board of directors and chair of its development committee. Her most

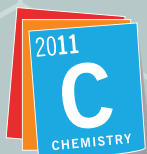


Ralph Landau.

recent efforts help to establish the Ralph Landau and Laurie Landeau Collections Fund, which will enable CHF to continue acquiring, preserving, and making accessible the work of those following in Landau's pioneering footsteps.

*Arnold Thackray, Chancellor*

## INTERNATIONAL YEAR OF CHEMISTRY



### International Year of CHEMISTRY 2011

The International Year of Chemistry (IYC 2011) is a worldwide celebration of chemistry and its contributions to the well-being of humankind. The goals of this global initiative include increasing public appreciation of chemistry in meeting world needs, encouraging interest in chemistry among young people, generating enthusiasm for the creative future of chemistry, and celebrating the role of women in chemistry.

Join the community of individual supporters, corporations, and foundations that have stepped forward to help CHF promote IYC 2011 with a tax-deductible gift! Your donation will support a year's worth of interactive, entertaining, and educational activities. Please use the enclosed envelope, give online at [chemheritage.org](http://chemheritage.org), or contact Karen Serfass at 215.873.8239 or [kserfass@chemheritage.org](mailto:kserfass@chemheritage.org). Thank you.

We respectfully honor the following individuals for their much appreciated involvement with CHF. They are fondly remembered.

JOSEPH G. ACKER	LESLIE S. ETTRE
FRANK BALDINO, JR.	MICHAEL W. HUBER
WILLIAM VON EGGERS DOERING	ROBERT L. MCNEIL
ALLAN R. DRAGONE	

*It's Elemental, CHF's first national video competition, has proven wildly successful.* High-school students from 36 states submitted nearly 700 videos—each inspired by an element—to form an interactive periodic table. All but seven elements are represented, and the most popular, uranium, has 19 entries. Two Grand Prize winners, selected by a distinguished panel of judges, will see their videos screened during CHF's Heritage Day this April. In addition, \$5,000 grants from The Dow Chemical Company will go to the science departments of the top 11 submissions, including a People's Pick winner.



[1]



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[3]

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[6]

## Dynamic Engagement

### recent events

[1] Philippe Walter, second from right, recipient of the first **Franklin-Lavoisier Prize** presented in the United States, enjoyed the festivities at CHF with, from left, Stephen Lippard, a member of CHF's board of directors; Laurie Landeau, chair of CHF's development committee; and Steve Koblik, chair of CHF's board of directors.

[2] **Global Challenges/Chemistry Solutions**, the U.S. launch of IYC 2011, featured a panel discussion between, clockwise from top left, Andrew Liveris, The Dow Chemical Company; Tom Tritton, CHF; Janet Hering, Swiss Federal Institute of Aquatic Science and Technology; Daniel Nocera, Massachusetts Institute of Technology; Ellen Kullman, DuPont; Rita Colwell, Canon U.S. Life Sciences; and Joshua Boger, Vertex Pharmaceuticals.

[3] **Masao Horiba**, at left, founder and supreme counsel of HORIBA, Ltd., was presented with a Philadelphia Bowl during his first visit to CHF since establishing the Masao Horiba Exhibit Hall in the Museum at CHF.

[4] Horiba, second from left, examined highlights from CHF's rare book collection along with, from left, his grandson, Dan Horiba; his wife, Mikiko; and his granddaughter-in-law, Aya Horiba.

[5] **Innovation Day** brought together, from left, Sunil Kumar, International Specialty Products; Christopher Killian, Eastman Chemical Company; Emmett Crawford, Eastman Chemical Company; Ronald C. D. Breslow, Columbia University; Stephanie Burns, Dow Corning Corporation; and Tritton. Crawford was awarded the SCI Gordon E. Moore Medal, while Breslow received the SCI Perkin Medal.

[6] Susan Solomon, at left, research scientist at the National Oceanic and Atmospheric Administration, delivered the **Ullyot Public Affairs Lecture** after remarks by Marsha Lester and Gary Molander, both of the University of Pennsylvania.

The Franklin-Lavoisier Prize Ceremony was generously supported in kind by Greg Moore of Moore Brothers Wine Company.

Global Challenges/Chemistry Solutions was produced by CHF in collaboration with the American Chemical Society, the American Chemistry Council, the American Institute of Chemical Engineers, and the National Academies. CHF gratefully acknowledges The Dow Chemical Company for providing webcast services.

Innovation Day was sponsored by The Warren and Katharine Schlinger Foundation, The Dow Chemical Company, DuPont, Eastman Chemical Company, ExxonMobil Chemical, Honeywell International, Air Liquide USA, Air Products and Chemicals, Arkema, Bayer Materials Science, Chemtura Corporation, Dow Corning Corporation, Hexion Specialty Chemicals, and W. R. Grace and Company.

The Ullyot Public Affairs Lecture was presented by CHF, the Philadelphia and Delaware Sections of the American Chemical Society, the Department of Chemistry of the University of Pennsylvania, and the Department of Chemistry and Biochemistry at the University of the Sciences in Philadelphia.



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*We tell the story of chemistry.*



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 and its technologies and industries 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.

Visitors to the Museum at CHF observe—and listen to—artist Kevin H. Jones's *Broadcasting to Unknown Points*, a multimedia artwork in *Elemental Matters: Artists Imagine Chemistry*.

## Events

**Joseph Priestley Society Luncheon**  
*Speaker: Jerome Peribere, The Dow Chemical Company*  
March **10**

**Gordon Cain Conference 2011**  
"Chemical Weather and Chemical Climate: Body, Place, Planet in Historical Perspective"  
March **31**–April **2**

**First Friday at CHF**  
April **1**

**Heritage Day 2010**  
**Student-Laureate Forum**  
**Spring Governance Meetings**  
April **6–8**

**Women in Chemistry 2011**  
"Celebrating the Past, Creating the Future"  
April **26–27**

**Meeting of the Consortium for Community-Based Science**  
"The Marcellus Shale"  
April **27**

**First Friday at CHF**  
May **6**

**Joseph Priestley Society Luncheon**  
*Speaker: Paul Bowen, The Coca-Cola Company*  
May **12**

**Meeting of the Consortium for Community-Based Science**  
"Environmental Health"  
May **25**

## Exhibits

**Elemental Matters: Artists Imagine Chemistry**  
Through December **16**

**Making Modernity**  
Ongoing

**Transmutations: Alchemy in Art**  
Ongoing

**The Whole of Nature and the Mirror of Art: Images of Alchemy**  
Ongoing

Visit [chemheritage.org](http://chemheritage.org) for further information and registration details.

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