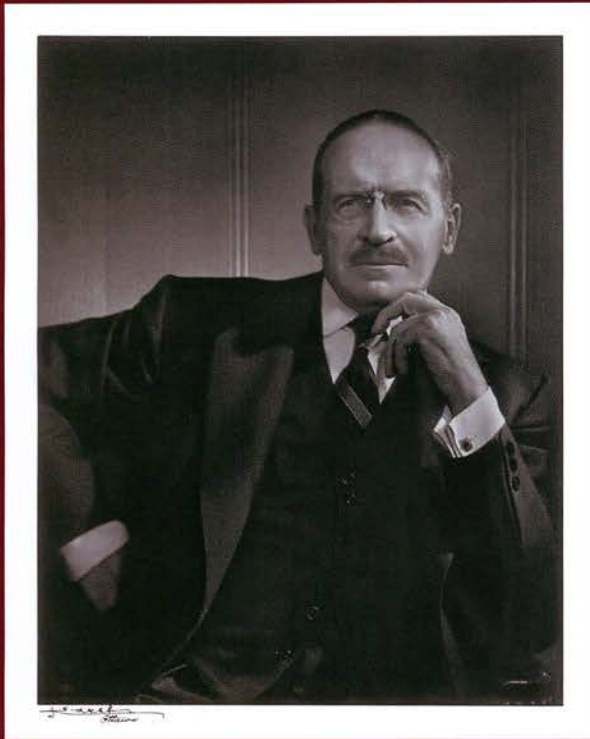




THE CAMILLE & HENRY DREYFUS FOUNDATION



Camille Dreyfus



Henry Dreyfus

2012 in Review

Letter from the President, Henry C. Walter



to Camille and Henry Dreyfus.

Born in Switzerland, the brothers were organic chemists who, after receiving their doctorate degrees from the University of Basel, focused their research on cellulose acetate. At the time this was little more than a laboratory curiosity, but in their view it had great potential.

In 1910, the brothers opened a factory in Basel to manufacture acetate-based film to replace cellulose nitrate, a highly flammable compound then used for motion pictures. Pathé Frères, the pioneering motion picture company, was the first customer for the safer cellulose acetate film. The brothers also supplied cellulose acetate dope to the fledgling aircraft industry to coat the fabric over wings and fuselages, thereby reducing flammability. Camille and Henry envisioned that this new material could be processed and spun into fibers, enabling a much larger market. By 1913, they had worked out a feasible commercial process and had samples of acetate fibers to show potential backers.

Their research was interrupted by the outbreak of World War I in 1914, which greatly increased the demand for cellulose acetate dope for planes. In response to requests and subsidies from both the British and U.S. governments, the brothers built plants in Spondon,

England, and Cumberland, Maryland. When the war ended in 1918, they were left with two plants and no market for the end-product.

The Dreyfus brothers resumed their research with cellulose acetate fibers in a corner of the shuttered Spondon plant. They overcame many significant obstacles, such as methods of both dyeing and weaving this new fiber. Based on their success, they went on to launch a public company in 1920. Eventually the companies they founded, British Celanese and Celanese Corporation of America, became among the largest suppliers of fibers, plastics, and chemicals, with subsidiaries around the world. By 1968, the Celanese Corporation of America had become the 70th largest U.S. corporation, according to Fortune 500. Over the years, the brothers received many accolades and honors for their research and accomplishments.

In reflecting on their history and their persistence in overcoming numerous obstacles and challenges, I think of what Camille Dreyfus said many years later, "The more troubles we had, the more we were successful – because we grew up on troubles and had learned to master them."

The Camille and Henry Dreyfus Foundation honors the memory of the Dreyfus brothers through support of innovative chemists, some of whom are highlighted in this report. We wish you all the best for 2013.

Henry C. Walter

1901
Camille Dreyfus receives Ph.D.
from the University of Basel

1905
Henry Dreyfus receives Ph.D.
from the University of Basel

1910
Dreyfus brothers' factory to
manufacture acetate-based film
opens in Basel

1914
British Cellulose and Chemical
Manufacturing Company
established at request of
British government

1918
American Cellulose and
Chemical Manufacturing
Company established in
New York at request of
U.S. government

1923
British Celanese Ltd.

1927
Celanese Corporation of America

1938
Henry Dreyfus awarded Perkin
Research Medal, highest honor
of the Society of Dyers and
Colourists of Great Britain

1946
Camille Dreyfus establishes
the Foundation, honoring the
memory of his brother Henry

1970
First Teacher-Scholar
awards announced

1996
First Postdoctoral Program
in Environmental Chemistry
awards announced

2009
First Dreyfus Prize awarded

Teacher-Scholars Present Emerging Research



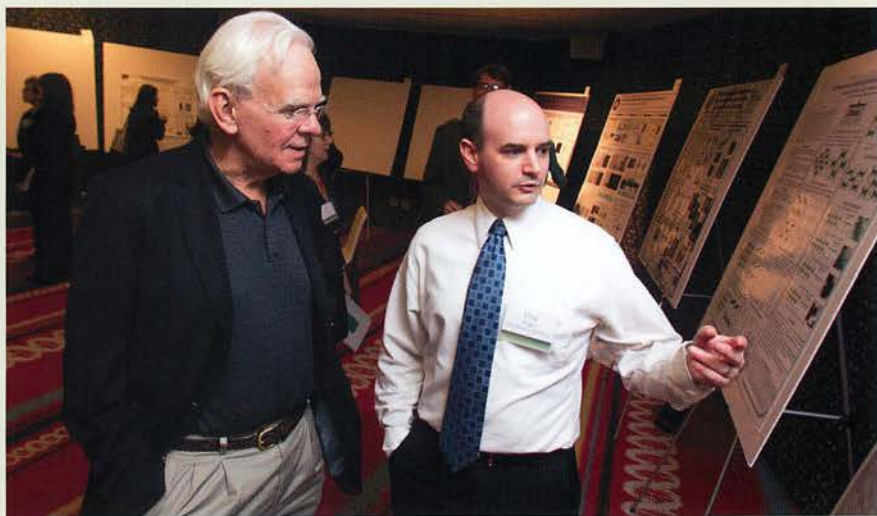
The second biennial Teacher-Scholar symposium, *Research Frontiers in the Chemical Sciences*, was held at the New York Academy of Sciences on October 26, 2012. The symposium highlighted a range of exciting and emerging areas in the chemical sciences, with the most recent Camille and Henry Dreyfus Teacher-Scholars presenting posters of their research, bracketed by talks from five senior Teacher-Scholars.

This year's speakers were, in order of appearance (*left*), Geraldine Richmond, Geoffrey Coates, Julie Millard, Alanna Schepartz, and Arup Chakraborty. A video of their talks is available on the Foundation Web site.

A session on teaching was incorporated into the format this year. The current Teacher-Scholars wrote brief narratives on an interesting aspect of teaching chemistry, which were compiled and distributed at the symposium. Six of these Teacher-Scholars also gave brief oral presentations.



JoAnne Stubbe, Donald Elmore, and Megan Nunez



Jim Anderson and Greg Engel

Lectureship Established at University of Basel



The Camille and Henry Dreyfus Lectureship has been established at the University of Basel in Switzerland, where the Dreyfus brothers both received their Ph.D. degrees. The annual Lectureship will bring a leading chemist from the

United States to the Basel campus to deliver a series of talks and to meet with faculty and students. It is hoped this effort will serve to enhance the relationship of Swiss and U.S. science.

Spotlight on 2012 Special Grant Program

The Special Grant Program provides seed funding for a variety of proposed initiatives that are aligned with the Foundation's mission to advance the chemical sciences. Broadly speaking, these include innovative efforts to enhance the public interest in chemistry, new approaches to chemistry education at all levels, and initiatives to make chemistry careers more attractive. Below is a selection of grants made in 2012 that may be of interest.



The Science Friday Initiative was awarded \$40,000 to produce a series of radio programs and podcasts that highlight contemporary issues, accomplishments, and innovations in chemistry.



The Florida Aquarium received \$39,523 to create "Oceans of Chemistry," an education program for K-12 teachers that explores the chemistry of the oceans, focusing on the Gulf of Mexico.



The American Chemical Society was awarded \$140,000 over three years in support of the ACS Scholars Program, which helps underrepresented students pursue undergraduate college degrees in the chemical sciences.



The **University of Oregon's** "Furlough Friday Science Days" program was awarded \$25,785. Under this initiative, local middle and high school students come to campus to do hands-on chemistry experiments on days when school sessions have been eliminated due to budget cuts.

2013 Dreyfus Prize Topic Announced, Now International

The Camille and Henry Dreyfus Foundation has selected chemical instrumentation as the topic of the 2013 Dreyfus Prize in the Chemical Sciences. This also marks the first year that the prize is open to international nominations.

The Dreyfus Prize, awarded biennially, recognizes an individual for exceptional and original research in a selected area of chemistry that has advanced the field in a major way. The prize

consists of a monetary award of \$250,000, a medal, and a citation. The recipient will be announced in early May 2013.

The inaugural Dreyfus Prize was conferred in materials chemistry and awarded to George Whitesides of Harvard University in 2009. The 2011 Dreyfus Prize was awarded to Tobin Marks of Northwestern University in the field of catalysis.



Dreyfus-Sponsored ACS Awards Encourage Diversity

In 2012, the Foundation presented Yves Chabal, University of Texas at Dallas, with the American Chemical Society's Award for Encouraging Women into Careers in the Chemical Sciences. Todd Pagano, Rochester Institute of Technology/National Technical Institute for the Deaf (NTID), was the recipient of the ACS Award for Encouraging Disadvantaged Students into Careers in the Chemical Sciences.

Sponsored by the Foundation and administered by the ACS, the awards consist of \$5,000 to the awardee and a grant of \$10,000 to an eligible non-profit institution, designated by the recipient, to strengthen its activities in meeting the objectives of the award. Chabal directed his grant to the Office of Diversity and Community Engagement at UT Dallas, to support programs that enhance

participation of women in STEM fields. Pagano's grant will help to establish the Laboratory Sciences Endowed Student Support Fund at NTID. The Dreyfus Foundation has sponsored these annual awards since 1998.



Yves Chabal with John Brauman and Todd Pagano with Richard Zare

Symposium on Catalysis at the ACS Meeting

The Dreyfus Foundation sponsored a Presidential Symposium on catalysis at the national meeting of the American Chemical Society in San Diego on March 27, 2012. The talks covered various areas of catalysis, including enzymes, organic synthesis, energy, heterogeneous, theory, and materials. The speakers were Stephen Buchwald,

Eric Jacobsen, Stephen Benkovic, Judith Klinman, Daniel Nocera, Gabor Somorjai, Jens Norskov, and Tobin Marks. Charles Campbell gave tribute to D. Wayne Goodman, a scheduled speaker who passed away on February 27. The session chairs were John Brauman, JoAnne Stubbe, Richard Zare, and Matthew Tirrell.



From left: Stephen Benkovic, Judith Klinman, Richard Zare, Stephen Buchwald, Bassam Shkhashiri, John Brauman, Gabor Somorjai, Tobin Marks, Jens Norskov

Jean Dreyfus Boissevain Lectureships

The Jean Dreyfus Boissevain Lectureship Program brings leading researchers to primarily undergraduate institutions to give both popular and technical lectures in the chemical sciences, and to meet with faculty and students. The award also supports the summer research of two undergraduate students. The following Lectureships were held in 2012:

- Bucknell University – Richard Zare, Stanford University: “Desorption Electrospray Ionization Mass Spectrometry” and “How to Be Successful”
- Claremont McKenna, Pitzer, and Scripps Colleges – Uma Chowdhry, Chief Science & Technology Officer Emeritus, DuPont: “Transforming an American Industry” and “Innovations Fueling a New Era of Sustainability”
- University of Massachusetts Dartmouth – Daniel Nocera, Massachusetts Institute of Technology: “The Global Energy Challenge,” “The Chemistry of Solar Fuels,” and “The Artificial Leaf”
- University of San Diego – Colin Nuckolls, Columbia University: “Building Materials from Molecules” and “Joining Reaction Chemistry with Electronics”
- Wellesley College – Laura Kiessling, University of Wisconsin-Madison: “Chemistry for Human Embryonic Stem Cells”



Uma Chowdhry

News of the Board of Directors



H. Scott Walter was elected Treasurer at the Board's annual meeting in April. John R. H. Blum had previously served as Treasurer since 2009.

Marye Anne Fox (left) was awarded the Othmer Gold Medal from the Chemical Heritage Foundation.

The medal honors individuals who have made multifaceted contributions to chemical and scientific heritage through outstanding activity in areas such as innovation, entrepreneurship,

research, education, public understanding, legislation, or philanthropy.

Matthew Tirrell received the Polymer Physics Prize of the American Physical Society in recognition of “his pioneering achievements in the area of polymer dynamics, polymers at surfaces and interfaces, and polymers in confined geometries.”

Richard Zare received the Torbern Bergman Medal from the Analytical Division of the Swedish Chemical Society, as well as the World Academy of Sciences Lecture Medal.

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Vice President and Secretary

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*Treasurer and Chair, Finance
and Audit Committee*

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Scientific Affairs Committee*

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The mission of the Camille and Henry Dreyfus Foundation is *to advance the science of chemistry, chemical engineering, and related sciences as a means of improving human relations and circumstances.* Established in 1946 by chemist, inventor, and businessman Camille Dreyfus as a memorial to his brother Henry, the Foundation became a memorial to both men when Camille Dreyfus died in 1956. Throughout its history the Foundation has sought to take the lead in identifying and addressing needs and opportunities in the chemical sciences.



THE CAMILLE
& HENRY DREYFUS
FOUNDATION

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2012 Awards

Camille Dreyfus Teacher-Scholar Awards Program

Adam Cohen, Harvard University
Greg Engel, The University of Chicago
Joshua Figueroa, University of California, San Diego
Seth Herzon, Yale University
Christopher Jaroniec, The Ohio State University
Steven Little, University of Pittsburgh
Shih-Yuan Liu, University of Oregon
Christopher Love, Massachusetts Institute of Technology
Dustin Maly, University of Washington
Anne McNeil, University of Michigan
Valeria Molinero, University of Utah
Celeste Nelson, Princeton University
William Noid, Pennsylvania State University
Sarah Reisman, California Institute of Technology

Henry Dreyfus Teacher-Scholar Awards Program

James Ferri, Lafayette College
Brian Goess, Furman University
Tim Hubin, Southwestern Oklahoma State University
Peter Iovine, University of San Diego
Alexandra Stenson, University of South Alabama
Kurt Wiegel, University of Wisconsin-Eau Claire
Hua Zhao, Savannah State University

Postdoctoral Program in Environmental Chemistry

Theodor Agapie, California Institute of Technology
Rose Cory, University of North Carolina at Chapel Hill
John Eiler, California Institute of Technology
Robert Field, Massachusetts Institute of Technology
Allen Goldstein, University of California, Berkeley
Matthew Kanan, Stanford University
Marsha Lester, University of Pennsylvania
Tobin Marks, Northwestern University
Christine Thomas, Brandeis University

Special Grant Program in the Chemical Sciences

American Chemical Society
Chemical Heritage Foundation
Drexel University
The Florida Aquarium
Indiana University
Mercer University
New York Hall of Science
Rochester Institute of Technology
Science Friday Initiative
University of Connecticut
University of Michigan
University of Oregon
University of Rhode Island
University of Washington
University of Wisconsin-Madison
Virginia Commonwealth University

Senior Scientist Mentor Program

Ronald Doll, Drew University
James Dye, Michigan State University
David Hackleman, Oregon State University
Henry Hall, University of Arizona
Harold Hastings, Hofstra University
Gary Maciel, Colorado State University
Joseph Nibler, Oregon State University
John Roberts, California Institute of Technology
Joseph Sherma, Lafayette College
Anne Skinner, Williams College

Jean Dreyfus Boissevain Lectureship for Undergraduate Institutions

Bard College
Colgate University
Eastern Michigan University
Villanova University
Willamette University

Award Programs and 2013 Deadlines

The Dreyfus Prize in the Chemical Sciences, awarded biennially, consists of a monetary award of \$250,000, a medal, and a citation. The prize, which is open to international nominations, is awarded to an individual in a selected area of chemistry to recognize exceptional and original research that has advanced the field in a major way. The 2013 Prize will be awarded in chemical instrumentation.

Deadline: March 1, 2013

The Camille Dreyfus Teacher-Scholar Awards Program supports the research and teaching careers of talented young faculty in the chemical sciences at Ph.D.-granting institutions. Based on institutional nominations, the program provides discretionary funding to faculty prior to their sixth year of appointment. Criteria for selection include an independent body of scholarship attained as independent researchers, and a demonstrated commitment to education. The award provides an unrestricted research grant of \$75,000.

Deadline: February 11, 2013

The Henry Dreyfus Teacher-Scholar Awards Program supports the research and teaching careers of talented young faculty in the chemical sciences at primarily undergraduate institutions. Based on institutional nominations, the program provides discretionary funding to faculty who are within the fourth and twelfth years of their independent academic careers. The award is based on accomplishment in scholarly research with undergraduates, as well as a compelling commitment to teaching. The award provides an unrestricted research grant of \$60,000.

Deadline: May 20, 2013

The Postdoctoral Program in Environmental Chemistry is intended to further the development of scientific leadership in the field of environmental chemistry. The award provides a principal investigator with \$120,000 over two years to appoint a postdoctoral fellow in environmental chemistry.

Deadline: August 14, 2013

The Special Grant Program in the Chemical Sciences provides funding for innovative projects in any area consistent with the Foundation's broad objective to advance the chemical sciences. Examples of areas of interest include (but are not limited to): methods of increasing public awareness, understanding, and appreciation of the chemical sciences; innovative approaches to chemistry education at all levels (K-12, undergraduate, and graduate); and efforts to make chemistry careers more attractive.

Research proposals are not customarily considered.

Initial inquiry deadline: June 5, 2013

The Senior Scientist Mentor Program supports emeritus faculty who maintain active research programs with undergraduates in the chemical sciences. The award provides \$20,000 over two years for undergraduate stipends and modest research support.

Deadline: September 11, 2013

The Jean Dreyfus Boissevain Lectureship for Undergraduate Institutions provides an \$18,500 grant to bring a leading researcher to a primarily undergraduate institution to give a series of lectures in the chemical sciences. The lecturer is expected to substantially interact with undergraduate students and faculty over the period of the visit. The program provides funds to host the speaker and support summer research opportunities for two undergraduate students.

Deadline: May 20, 2013