

A LOOK INSIDE THE AIC AWARDS PROGRAM: THE GOLD MEDAL & CHEMICAL PIONEER AWARDS

Sarah Reisert

Chemical Heritage Foundation - 315 Chestnut Street | Philadelphia, PA 19106
(Email: SReisert@Chemheritage.org)

Introduction to the AIC Awards

The author has what could be considered an unusual day job: she manages an awards program. The Chemical Heritage Foundation in Philadelphia, where she works, presents eight to ten awards each year, for subjects ranging from petrochemistry to biotechnology to scientific instrumentation. Another is a public lecture; yet another is for a book. Needless to say, she gets to meet a lot of very interesting people.

Many of the awards are presented jointly with CHF's affiliates. For example, it is her responsibility each year to assist the American Institute of Chemists with their annual presentations of The AIC Gold Medal and The AIC Chemical Pioneer Awards. The awards partnership between The AIC and CHF began in 2003, and cemented our organizations' longstanding friendship through our mutual desire to honor extraordinary scientists.

The process for selecting winners for The AIC Gold Medal and Chemical Pioneer Award is straightforward. In the early fall, the chair of The AIC awards committee sends out a call for nominations. The nominations are sent to her office and consist of a letter of a nomination and two letters of support. Once she collects any and all nominations, she sends them to the chair who distributes them to the awards committee. The committee members reflect upon their choices, and each secretly sends their top three selections to her. When she has tallied them all, she sends the results to the chair and a winner is declared.

She is proud to be a small part of these awards with such long and illustrious histories, which she is pleased to share here with readers of *The Chemist*.

The AIC Gold Medal

The name William Blum might not ring a bell with many people today. Blum was a native of the author's hometown, Philadelphia. In black and white pictures, he has a long, friendly face and eyes framed by wire-rimmed glasses. According to the Electrochemical Society, of which he was president in 1926 and 1927, "His many research accomplishments involved: the atomic weight of cadmium; complex inorganic acids; electrochemistry; electrodeposition; electrotyping; electroplating; and electroforming. Dr. Blum was one of the most highly respected authority's [sic] on electrodeposition in his day."

Abstract

The awards program of the American Institute of Chemists has an illustrious history dating back to 1926. This article details the history of the AIC Gold Medal and AIC Chemical Pioneers in particular, and includes comprehensive lists of winners for both awards up to and including 2015.

Key Words

Gold Medal, Chemical Pioneers, awards.

It was because of this pioneering work in electrochemistry that he was the first recipient of The AIC Gold Medal, the organization's highest award. The medal is presented each year to a person who has stimulated activities of service to the science of chemistry or the profession of chemist or chemical engineer in the United States of America. In 1926 that person was Bill Blum, beginning a tradition of honoring scientific excellence that continues to this day.

The full list of impressive winners can be found in Appendix A and is definitely worth a look. It is a tour through the greatest chemists of the twentieth and twenty-first centuries, and includes a dozen Nobel laureates. To give you a small idea of the caliber of scientist that has won the Gold Medal, here is a standout medalist from each decade:

- **1930:** George Eastman, photography pioneer
- **1949:** Warren K. Lewis, the father of modern chemical engineering
- **1955:** Carl Marvel, one of the world's outstanding organic chemists
- **1969:** Henry B. Hass, discoverer of gas chromatography
- **1973:** Glenn Seaborg, co-discoverer of ten elements
- **1987:** Arnold Beckman, instrumentation pioneer
- **1998:** F. Albert Cotton, arguably the most influential inorganic chemist to ever live
- **2004:** Carl Djerassi, without whom we wouldn't have the birth control pill
- **2012:** Elizabeth Blackburn, co-discoverer of telomerase

It should also be noted that The AIC Gold Medal was the first major chemistry award presented to a woman, Mabel Brady Garvan. Garvan, along with her husband, were recognized in 1929 for their work with the American Chemical Society and the Chemical Foundation. (Further, she and her husband established their own award with John Olin which to this day recognizes the contributions of women scientists.) Two of the last four Gold Medalists have been women as well, showcasing the AIC's commitment to diversity.

Today, The Gold Medal is presented jointly with the Chemical Heritage Foundation at Heritage Day, CHF's annual celebration of the achievements and promise of the sciences and technologies that shape material culture. Hundreds of people attend.

The AIC Chemical Pioneer Award

The Gold Medal is not the only award presented by the American Institute of Chemists, though it is the oldest. Its younger brother, so to speak, is the Chemical Pioneer Award. First given in 1966, the Chemical Pioneer Award recognizes chemists and chemical engineers who have made outstanding contributions advancing the science of chemistry or impacting the chemical industry or the chemical profession. Several illustrious scientists can win the Chemical Pioneer Award in any given year; though most years honor two or three, the most ever given in a single year is seven. That record year was 1966, the first year of the Chemical Pioneer Awards.

The list of past winners of the Chemical Pioneer Award is no less illustrious than that of The AIC Gold Medal. Nine Chemical Pioneers are recipients of the Nobel Prize – six of whom were honored with the Chemical Pioneer Award years or even decades before they went on to win their Nobel Prizes. The full list is available in Appendix B, but here is a standout winner from each decade:

- **1969:** Roy Plunkett, inventor of Teflon
- **1977:** Donald Othmer, founding editor of the landmark *Kirk-Othmer Encyclopedia of Chemical Technology*
- **1980:** Stephanie Kwolek, inventor of Kevlar
- **1992:** Ralph Hirschmann, leader of the team that produced the first organic synthesis of an enzyme
- **2005:** Bassam Shakhshiri, renowned science educator and demonstrator
- **2014:** Robert Langer, the most cited engineer in history

The Chemical Pioneer Awards are presented each year at The AIC Annual Meeting. This generally takes place the day after Heritage Day (at which the Gold Medal is presented), making for quite a celebratory week.

End Note

Except Mabel Brady Garvan in 1929 noted earlier, until recent times all the award recipients have been males. Mindful of this quite unfortunate gender gap left unattended over decades, The AIC Awards Committee under the chairmanship of Dr. David Devraj Kumar has been making every effort to increase the nominations of stellar women in the chemical sciences who have made significant, noteworthy scientific contributions. As a result, the number of women receiving The AIC Gold Medal and The AIC Chemical Pioneer awards has been steadily on the rise.

The year 2016 is both the 90th anniversary of The AIC Gold Medal and the 50th anniversary of The AIC Chemical Pioneer Award. These are landmarks that few awards achieve while still retaining their relevance, so it is a cause for celebration indeed. The author looks forward to working with The AIC during the anniversary year, and indeed every year, as The Institute recognizes those scientists who have changed the world are honored.

Postscript

The author, Sarah Reisert, is the Awards Program Manager at the Chemical Heritage Foundation. The lists of previous The AIC Gold Medal winners (Appendix A) and The AIC Chemical Pioneer Award winners (Appendix B) are compiled from the following published sources. *Previous Gold Medal Award Winners*, American Institute of Chemists, Philadelphia, PA, (http://www.theaic.org/awards_goldmedal.html), and the *Previous Chemical Pioneer Award Winners*, American Institute of Chemists, Philadelphia, PA, (http://www.theaic.org/awards_chem_pioneer.html). It should be noted that some of The AIC award recipients have received the Nobel Prize before or after receiving The AIC awards.

Appendix A - Winners of The AIC Gold Medal, 1926-2015

2015 Dr. Jacqueline K. Barton	1972 Dr. Harold C. Urey
2014 Dr. Ronald C. D. Breslow	1971 Dr. Emmett B. Carmichael
2013 Dr. John Roberts	1970 Dr. Willard F. Libby (Nobel Prize, 1960 Chemistry)
2012 Dr. Elizabeth Blackburn (Nobel Prize, 2009 Physiology or Medicine)	1969 Dr. Henry B. Hass
2011 Dr. Dudley Herschbach (Nobel Prize, 1986 Chemistry)	1968 Dr. Orville E. May
2010 Dr. Robert Grubbs (Nobel Prize, 2005 Chemistry)	1967 Dr. Wayne E. Kuhn
2009 Dr. Oliver Smithies (Nobel Prize, 2007 Medicine)	1966 Dr. John H. Nair
2008 Dr. Paul Berg (Nobel Prize, 1980 Chemistry)	1965 Brig. Gen Edwin Cox
2008 Dr. Walter Gilbert (Nobel Prize, 1980 Chemistry)	1964 Dr. Roger Adams
2007 Dr. George Whitesides	1963 Dr. Ralph Connor
2006 Dr. Roald Hoffman (Nobel Prize, 1981 Chemistry)	1962 Dr. George W. Parks
2005 Mr. Robert L. McNeil, Jr.	1961 Dr. Alden H. Emery
2004 Dr. Carl Djerassi	1960 Dr. Ernest H. Volwiler
2003 Dr. Ralph Hirschmann	1959 Dr. Crawford H. Greenewalt
2002 Dr. Tobin Marks	1958 Dr. Lawrence Flett
2000 Dr. Yie W. Chien	1957 Dr. Roy Newton
1998 Dr. F. Albert Cotton	1956 Mr. Raymond Stevens
1997 Dr. Alfred Bader	1955 Dr. Carl S. Marvel
1996 Dr. Harry Drickman	1954 Dr. William J. Sparks
1995 Dr. George Parshall	1953 Dr. J. C. Warner
1994 Dr. Arthur Adamson	1952 Dr. Fred J. Emmerich
1993 Dr. Fred Basolo	1951 Dr. Harry N. Holmes
1992 Dr. Roy L. Whistler	1950 Dr. Walter J. Murphy
1991 Dr. Bruce N. Ames	1949 Dr. Warren K. Lewis
1990 Dr. Harry B. Gray	1948 Dr. Charles A. Thomas
1989 Dr. Elias J. Corey (Nobel Prize, 1990 Chemistry)	1947 Dr. Moses Leverock Crossley
1988 Dr. George C. Pimentel	1946 Mr. Robert Price Russell
1987 Dr. Arnold O. Beckman	1945 Dr. John W. Thomas
1986 Dr. N. Bruce Hannay	1944 Dr. Willard H. Dow
1985 Dr. Herbert C. Brown (Nobel Prize, 1979 Chemistry)	1943 Dr. Walter S. Landis
1984 Dr. John H. Sinfelt	1942 Dr. William Lloyd Evans
1983 Dr. Mary L. Good	1941 Dr. Henry G. Knight
1982 Dr. Milton Harris	1940 Dr. Gustav Egloff
1981 Dr. Lewis Sarett	1938 Dr. Frederick G. Cottrell
1980 Dr. Arthur M. Bueche	1937 Dr. James F. Norris
1979 Dr. Melvin Calvin (Nobel Prize, 1961 Chemistry)	1936 Dr. Marston Taylor Bogert
1978 Dr. Norman Hackerman	1934 Dr. James Bryant Conant
1977 Dr. Max Tishler	1933 Dr. Henry C. Sherman
1976 Dr. Kenneth S. Pitzer	1932 Dr. Charles H. Herty
1975 Dr. William O. Baker	1931 Mr. Andrew W. & Mr. Richard B. Mellon
1974 Dr. W. E. "Butch" Hanford	1930 Mr. George Eastman
1973 Dr. Glenn T. Seaborg (Nobel Prize, 1951 Chemistry)	1929 Mr. and Mrs. Francis P. Garvan
	1927 Dr. Lafayette B. Mendel
	1926 Dr. William Blum

Appendix B - Winners of The AIC Chemical Pioneers Award, 1966-2015

2014

Dr. Anthony Cheetham
Dr. Ann M. Valentine
Dr. Robert Langer

2013

Dr. Henry F. Schaefer, III
Dr. Tom Tritton

2012

Dr. Robert Lochhead
Dr. Helen Free

2011

Dr. James Christner

2010

Dr. Sossina M. Haile

2009

Dr. Keith Carron
Dr. Debashsi Mukherjee

2008

Dr. E. Gerald Meyer
Dr. Barnaby Munson

2007

Dr. Magid Abou-Gharbia
Dr. Dennis Y-M Lo
Dr. Alan G. Marshall

2006

Dr. David Devraj Kumar
Dr. Glenn Crosby

2005

Dr. C.N.R. Rao
Dr. Steven L. Suib
Dr. Bassam Shkhashiri

2004

Dr. Keki H. Gharda
Dr. Eric Jacobsen
Dr. Michael Pirrung

2002

Dr. Gérard Jaouen
Dr. Julius Rebek

2000

Dr. Richard A. Adams
Dr. Robert Bergman
Dr. Larry Dahl
Dr. Wilfried Mortier
Dr. Kenner Rice

1998

Dr. John E. Bercaw
Dr. Stephen J. Benkovic
Dr. Albert I. Myers

1997

Dr. Gregory R. Choppin
Dr. Attila E. Pavlath
Dr. Jerrold Meinwald
Dr. Murray Goodman

1996

Dr. William Hettinger, Jr.
Dr. George Keller
Dr. Fred McLafferty
Dr. Kyriacoc Nicolaou

1995

Dr. Ray Baughman
Dr. Ralph Parson
Dr. Gábor Somorjai
Dr. Owen Webster

1994

Dr. Norman L. Allinger
Dr. Frederick Hawthorne
Dr. John D. Roberts
Dr. Alan H. Cowley

1993

Dr. Derek H. R. Barton
Dr. Bruce Merrifield
Dr. George Olah ((Nobel Prize,
1994 Chemistry)
Dr. Jule A. Rabo

1992

Dr. Fred Basolo
Dr. Ralph F. Hirschmann
Dr. George W. Parshall
Dr. Gilbert Stork

1991

Dr. Michel Boudart
Dr. Edith M. Flanigen
Dr. Herbert S. Gutowsky
Dr. Jack Halpern

1990

Dr. Frank A. Cotton
Dr. Michael J. S. Dewar
Dr. James L. Dye
Dr. Paul G. Gassman

1989

Dr. Harry Allcock
Dr. Herman S. Block
Dr. David R. Bryant
Dr. Burton Christenson

1988

Dr. Frederick J. Karol
Dr. George R. Petit
Dr. K. Barry Sharpless
Dr. John H. Sinfelt
Dr. Robert C. West

1987

Dr. Federick E. Bailey
Dr. James Economy
Dr. Herbert S. Eleuterio
Dr. Daniel W. Fox

1986

Dr. Harry W. Cover
Dr. Robert D. Lundberg
Dr. James F. Rooth
Dr. Howard Zimmerman

1985

Mr. William Breneman
Dr. Alan S. Hay
Dr. Raymond Seymour
Dr. Otto Vogl

1984

Dr. Isabella L. Karle
Dr. Robert MacAllister
Dr. Alan G. MacDiarmid (Nobel
Prize, 2000 Chemistry)
Dr. Ira E. Puddington

1983

Dr. Harry G. Drickamer
Dr. William S. Knowles (Nobel Prize, 2001 Chemistry)
Dr. Allen S. Russell
Dr. Barry M. Trost

1982

Dr. Alexander Mills
Dr. Herman Pines
Dr. Roy L. Pruett
Dr. Alfred Saffer

1981

Mr. Robert L. Banks
Dr. Elias James Corey (Nobel Prize, 1990 Chemistry)
Dr. Ralph Landau
Dr. Quentin F. Soper

1980

Dr. Paul H. Emmett
Dr. Denis Forster
Dr. Stephanie Kwolek
Dr. Robert M. Milton

1979

Dr. Karl P. Cohen
Dr. Paul Harteck
Dr. Barnett Rosenberg
Dr. Leo H. Sternbach
Dr. Alejandro Zaffaroni

1978

Dr. George E. F. Brewer
Dr. Karl Klager
Dr. Lewis G. MacDowell
Dr. John Patton

1977

Mr. John Kollar
Mr. Henry McGrath
Dr. Donald F. Othmer

1976

Dr. Rowland C. Hansford
Dr. Edwin T. Mertz
Dr. Wilson C. Reeves
Dr. Jerome S. Spevack

1975

Dr. Herbert C. Brown (Nobel Prize, 1979 Chemistry)
Dr. Rachel Brown
Dr. Elizabeth Hazen
Dr. Linus C. Pauling (Nobel Prize, 1954 Chemistry)
Dr. Christiaan Van Dijk

1974

Dr. Charles C. Hobbs
Dr. Samuel E. Home, Jr.
Dr. Charles J. Plank
Dr. Paul B. Weisz

1973

Dr. Melvin A. Cook
Dr. Carl Djerassi
Dr. Paul J. Flory (Nobel Prize, 1974 Chemistry)
Dr. Percival C. Keith
Dr. Bart Van't Riet

1972

Dr. Paul Hogan
Dr. Herman F. Mark
Dr. Alex G. Obla
Dr. E. Emmett Reid
Dr. Lewis Sarett

1971

Dr. C. Kenneth Banks
Dr. Oliver W. Burke, Jr.
Dr. Sterling Hendricks
Dr. Everett C. Hughes
Dr. Joseph H. Simons

1970

Dr. Gerald J. Cox
Dr. Tracy Hall
Dr. Foster D. Snell
Dr. William J. Sparks

1969

Dr. O.A. Battista
Dr. Irving E. Levine
Dr. Roy J. Plunkett
Dr. William Toland
Dr. Harold C. Urey (Nobel Prize, 1934 Chemistry)
Dr. Hervey H. Voge

1968

Dr. Ralph A. Connor
Dr. James D. Idol, Jr.
Dr. Glenn T. Seaborg (Nobel Prize, 1951 Chemistry)
Dr. Max Tishler

1967

Dr. Vladimir Haensel
Dr. William E. Hanford
Dr. Henry B. Hass
Dr. Carl S. Marvel
Dr. Benjamin Phillips
Dr. David W. Young

1966

Dr. Carl Barnes
Dr. Johan Bjoksten
Dr. Herman A. Bruson
Dr. Charles H. Fisher
Dr. Robert M. Joyce
Dr. Charles C. Price
Dr. Eugene G. Rochow